

Exchange

THE GLOBAL MAGAZINE OF DE LA RUE



DeLaRue

Reasons to celebrate

AUTUMN 2012:

CASH CYCLES THAT WORK FOR EVERYONE

ENTREPRENEURS ON THE NEW FRONTIER

ENFORCING THE LAW ON A GLOBAL SCALE

300 YEARS OF PAPERMAKING

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**COUNTING EVERYONE MEANS
EVERYONE COUNTS**
HOW BIRTH REGISTRATION UNDERPINS
MODERN LIFE



CLEAR FUTURE FOR BANKNOTES
PROVIDING BANKS WITH NEW LEVELS
OF ANTI-COUNTERFEITING



LET'S CELEBRATE - BUT NO HICCUPS
COMMEMORATIVE CURRENCY AND STAMPS
ARE USED THROUGHOUT THE WORLD



QUALITY BANKNOTES
A PARTNERSHIP APPROACH



**CASH CYCLES THAT WORK
FOR EVERYONE**
ALL OVER THE WORLD CASH CYCLES
ARE EVOLVING



ENTREPRENEURS ON THE NEW FRONTIER
HELPING TO FOSTER YOUNG BUSINESSES



ENFORCING THE LAW ON A GLOBAL SCALE
KEEPING ONE STEP AHEAD OF COUNTERFEITERS
AND ILLICIT GOODS CRIMINALS



WORLD VIEW
300 YEARS OF PAPERMAKING



WORLD VIEW
NEWS AND EVENTS AROUND THE GLOBE

Counting everyone means everyone counts

Do you know who you are?
That's not a philosophical question.
It's a question of evidence.

In the developed world we take many things for granted. For example, that when you are born, your birth is registered. Registration might seem a trivial event – even an inconvenience for a new parent with other things to do. But, according to Nobel Peace Prize winner Archbishop Desmond Tutu, a birth certificate is “a small paper that actually establishes who you are and gives access to the rights and the privileges, and the obligations, of citizenship.”

Birth registration enables you to prove your age and nationality. This in turn can give you access to education and healthcare. It means you can open a bank account, obtain a passport or driving licence, inherit money or property and vote.

It – quietly – underpins not only your life but also the social structure of which you are a part. Because governments, too, need systems for registering births – and deaths. Without knowing how many people you are responsible for, developing long-term policies for health and education, employment, housing and infrastructure becomes little more than guesswork. Furthermore, governments seeking aid from the international community are often required to provide statistical evidence of need.

According to the United Nations Convention on the Rights of the Child, every child has the right to a name and nationality, and it is the responsibility of national governments to enable this.

But many can't – and don't.

Quite apart from factors such as conflict, cultural attitudes and remoteness, registering so-called Vital Events – births and deaths, marriages and divorces – requires administrative systems that are beyond many countries.

Despite the fact that 191 nations have ratified the UN Convention, the births of millions of children worldwide go unregistered. Figures are – by their nature – approximate. But UNICEF estimates that around 50m births a year are not registered. This represents around 40% of all births worldwide and includes around 70% of children born in sub-Saharan Africa.

Not that this is only an African problem: gaps in coverage occur on all continents. According to the UN only 60% of countries register at least 90% of births. And the picture for the registration of deaths is considerably worse with only 47% of countries having more than 90% coverage.

In fact in some countries, the registration of deaths is virtually non-existent. Yet inheritance rights are dependent on records of death; and 'cause of death' statistics can be of huge importance not only in the development of social policies for national governments, but also for health responses from international agencies.

Births and deaths have been recorded in one form or another throughout human history, though the UK was the first country to make their registration compulsory. That was in 1874 – at a time when Britain already had an established bureaucracy capable of administering a global empire.

Many countries still don't have that organisational capability, and even in the UK, linkages between one part of the 'identity system' and another are still incomplete.

This is a difficult issue and the UN, which in September 2012 sponsored a conference in Durban for African ministers responsible for Civil Registration and Vital Statistics (CRVS),

has identified more than 100 problems facing countries wishing to set up effective CRVS systems. It has broken these down into three categories: the relatively intractable; the solvable with additional funds; and the immediately solvable.

Intractable problems include profound communication difficulties in countries with largely rural, illiterate and sometimes nomadic populations.

Immediately solvable problems would see governments introducing adequate legislation, co-ordination between government departments and sufficient prioritisation of the issue. This would be inexpensive – though not necessarily straightforward.

Some problems, however, could be solved with money and external help. This would often involve training of local people and the availability of reproduction and data processing equipment.

Major IT companies have looked at this 'market' with approaches that offer large-scale integrated systems. But, says Sophie Taylor, a business development manager at De La Rue, that isn't the approach that De La Rue is taking. “We have considerable experience of identity management, and are offering a framework and methodology that governments can then run themselves.

“Instead of going for global systems integration, we are looking to start small and keep it simple. Our approach is a database management system that is scaleable and sustainable – something that can be managed locally using local resources.”

While collecting statistics alone will not solve the problems of the developing world, failure to collect them can certainly make solutions harder to achieve.

...a birth certificate is “a small paper that actually establishes who you are and gives access to the rights and the privileges, and the obligations, of citizenship.”

ARCHBISHOP DESMOND TUTU



“INSTEAD OF GOING FOR GLOBAL SYSTEMS INTEGRATION, WE ARE LOOKING TO START SMALL AND KEEP IT SIMPLE. OUR APPROACH IS A DATABASE MANAGEMENT SYSTEM THAT IS SCALEABLE AND SUSTAINABLE – SOMETHING THAT CAN BE MANAGED LOCALLY USING LOCAL RESOURCES.”
SOPHIE TAYLOR, DE LA RUE

DATA CAPTURE → TOKEN ISSUANCE → DATABASE MANAGEMENT → REPORTING →

Clear future for banknotes

Windows in banknotes have been around a while but the increasing range of options for central banks and the launch of the Bank of Canada's new range of polymer notes mean that windows in banknotes may be coming of age.



Having banknotes that are durable, hard to counterfeit and containing security features that are immediately recognisable to the public remains the holy grail for central banks across the world. The increasing range of windows in banknotes for both paper banknotes and polymer is providing banks with new levels of anti-counterfeiting complexity.

The Reserve Bank of Australia led the way with the launch of a clear window on a commemorative \$10 polymer note back in 1988. As well as being an attractive design element that was incorporated into the banknote design, it has also proved to be an effective security device. The clear window was subsequently used throughout the denominational range on Australia's circulating notes and today Australia has one of the world's lowest rates of counterfeit note.

Australia's success prompted De La Rue to introduce a revolutionary new product called Optiks™ in 2005, the first window product for paper banknotes. Optiks™ is an 18mm-wide security thread inserted into the paper and the window is created as part of the papermaking process. To reinforce just how secure these notes are, an independent counterfeit assessment for Optiks™ showed that it would take a counterfeiter nine different steps to create an effective imitation.

Following De La Rue's innovation, a number of other paper manufacturers have developed similar products – Louisenthal introduced varifeye® (a hole formed during papermaking which then has a foil applied onto it) and a version called TWIN where the hole is laser cut. KBA has developed a feature called Optiwindow which is produced in a similar way to TWIN although manufactured in the print works. Other companies have also developed similar products although none has been successfully sold to date.

Optiks™ is the most successful of the paper-based windows with currently more than 200 million notes in circulation in nine countries.

The launch of the Bank of Canada's new family of polymer notes in 2012 represents a big leap forward for the windows in banknotes. The notes feature a dramatic two-sided hologram in a large window, while a smaller frosted maple leaf window contains a diffractive element that can be viewed with a light source. In addition this is the first time that a clear window spans very nearly the entire height of the note. The Bank of Canada can be justifiably proud of the new family of notes which are visually strong and combine the strengths of durability and security that polymer is known for. With an increasing range of window options available for both paper and polymer banknotes, it seems that Central Banks will be spoilt for choice when designing and printing their future currency.



TO REINFORCE JUST HOW SECURE THESE NOTES ARE, AN INDEPENDENT COUNTERFEIT ASSESSMENT FOR OPTIKS™ SHOWED THAT IT WOULD TAKE A COUNTERFEITER NINE DIFFERENT STEPS TO CREATE AN EFFECTIVE IMITATION.



IMAGE USED WITH PERMISSION FROM THE BANK OF CANADA

Everyone likes a reason to celebrate. While some of us will use any excuse, others such as central banks have to be a little more circumspect. Nonetheless, special events are commemorated throughout the world in banknotes, coins and stamps.

Let's
celebrate —
but no
hiccups

A QUEEN'S DIAMOND JUBILEE

This year the Royal Bank of Scotland has issued a £10 commemorative note in an edition of 2 million to celebrate the Queen's Diamond Jubilee. The note is dated 6 February – the anniversary date of her accession to the throne in 1952.

Jersey has also issued a Jubilee note – a truly spectacular £100 banknote – which is the first time that a note of this value has been issued by the island's government.

De La Rue designers have incorporated a 3-D hologram portrait of the Queen, that the States of Jersey commissioned in 2004 to commemorate the 800th anniversary of the island's independence.

Senior designer, Mike Wheeler, who led the De La Rue team on the project, says that “right from the start, it was clear that the States of Jersey knew what values it wanted the notes to convey, namely the international standing of the island, its financial strength, commercial integrity and loyalty to the Crown.”



The UK in 2012 has had a bumper year of reasons to be cheerful – not least the Queen's Diamond Jubilee and the Olympic Games. But 50 years of independence is just as important for Trinidad & Tobago, and at the end of last year Bhutan had its own Royal Wedding to celebrate.

Exchange asked Phajo Dorjee, Director of the Currency Management Department at the Royal Monetary Authority of Bhutan (RMAB), why the bank had decided to celebrate the wedding with a new 100 ngultrum note. "This was a 'once in a generation' event, so we did it as a tribute to our King. Although we have issued lots of commemorative coins in the past, we had relatively little experience of producing commemorative notes, and were interested to learn.

"And one of the things we did learn was that next time we will give ourselves more time!"

The wedding note was produced – start to finish – in little more than 3.5 months. This is an exceptionally tight timetable. A more usual schedule would run from 12 to 18 months.

Such lengthy timescales are required for reasons beyond issues of design and production. For example, it is often necessary to get Cabinet approval to produce a commemorative, and in some countries a change in the law is required.

But why do countries issue commemoratives, and what do they hope to achieve with them?

It is often a matter of national pride – a reflection of the achievement and history of the country and a demonstration of the stage of development that it has reached.

There is, for example, a current spate of celebrations in the Caribbean, as a number of countries that were once British colonies celebrate 50 years of independence. In June, Trinidad & Tobago issued a \$50 commemorative note and a new \$50 circulation note to celebrate its 50th anniversary.

In July, Jamaica launched a full set of notes to celebrate its 50th anniversary of independence. Four years ago, the country recognised Usain Bolt's three gold medals at the Beijing Olympics – which made him

the most famous Jamaican since Bob Marley – with a limited edition J\$250 gold coin. This is available to collectors from the Bank of Jamaica for US\$900.

A central bank is almost a necessary precursor of independence. Countries such as Belize and Barbados have also recently celebrated the anniversary of the establishment of their central banks by issuing commemorative notes.

The generation of revenue is another important factor in the production of commemoratives.

Banknotes are part of a global collectors' market, with so-called numismatists prepared to pay considerably more than the face value of a note. Last year's Bhutan Royal Wedding 100 ngultrum note, for example, has a face value of around £1.10p. But, because it is a limited edition, it is being sold by dealers for £25. The States of Jersey £100 note, issued to celebrate the Queen's Diamond Jubilee (see above), is also available to collectors – at £165.



De La Rue was the only supplier that could meet the timescales for the delivery of Bhutan's Royal Wedding note.

THINK BACK TO THE YEAR 2000

Because of where the sun rises – and the International Date Line – Fiji was one of the first places on earth to see in the new millennium.

And to celebrate the fact, the country produced 2000 notes with a face value of \$2,000, and a sunrise design on the reverse.

Though they were legal tender, they were aimed at collectors and sold at a premium. Fiji's standard range of denominations is from \$2 to \$100, and at face value a \$2,000 note is worth around £700.

The country also issued a commemorative \$2 note featuring a Y2K design on the front.



BANKNOTE OF THE YEAR AWARD

Winner of the International Bank Note Society's Banknote of the Year is the commemorative 10,000 Tenge note issued in July 2011 to celebrate 20 years of independence for the Republic of Kazakhstan.

The note was designed by the National Bank working in close collaboration with De La Rue's world-class design team.

The front of the banknote, which is in a vertical format, depicts the Kazakh Eli monument, the national emblem and the national flag, along with images of doves flying. The reverse, which features the Residence of the President, is in a horizontal format.

This is not the first time that the distinctive banknote designs of the Kazakh National Bank have received international recognition, and its Chief Designer, Mendybai Alin, is known worldwide for his individual design style.

Steve Pond, the De La Rue designer who collaborated with Mr Alin, said: "Working with a national designer gave me a much greater insight into the culture and essence of the country than I could have achieved working alone. I am sure the closeness of our collaboration was an important factor in enabling us to win this award."

This is the ninth design award that De La Rue has won in the past five years, a record of which the company is justifiably proud.



PLANNING A COMMEMORATION

Whether it's issuing a commemorative banknote or launching a brand new currency, success depends on comprehensive planning and meticulous attention to detail.

Whatever the project, timing is crucial. It can take several years to launch a new currency: but issuing a commemorative note still requires a lead time of up to 18 months. The initial planning stage, for instance, will involve consideration of whether parliamentary or legal authority is required and who will have the final approval.

Designing any new banknote includes two distinct phases: concept design and design realisation. The concept stage is where all the ideas of what the note should look like – themes, imagery, colour, security and machine-readable features – are brought together.

Once the concept has been approved by the central bank, the project moves on to the design realisation process. Now the initial design ideas are transformed into an attractive, secure and manufacturable banknote. It is by far the longer part of the process – taking around 3,500 man hours, compared to 500 hours for concept design.

Design realisation covers paper specification, watermark, security thread, hologram and a range of specialist printing processes, all of which contribute to the banknote's security and durability. Once all these elements have been finalised, a proof of the note is created for the customer to approve and the factory specifications for printing are drawn up. Quality control checks are carried out regularly throughout the whole process from concept to production.

Finally, in preparation for the launch, the public must be kept informed about the new issue and everyone involved in handling the note – including bank cash handlers, retailers, customs, trading partners, police and currency exchanges – adequately briefed.

To add to the attraction of the commemoratives and make them suitable for gifts, they are often available in specialist packaging, thereby further enhancing their value.

Islands such as Bermuda and the Cayman Islands are popular destinations for cruise ships, and they sell sets of currency to tourists at a premium.

Collectors collect for any number of reasons, but one is that banknotes are seen as a sound investment. According to one dealer, if you had invested \$1,000 in US and world collectible currency notes in January 2002 when the euro was introduced, six years later your collection would have increased in value by 50-70%.

That is a good return – though not as good as that achieved by the owner of one of the only two surviving 'Grand Watermelon' banknotes – a US\$1000 note from 1890 – which was sold at auction in 2006 for \$2.25 million.

Commemoratives are a business opportunity, and "creating a profit" is one reason why Royal Mail in the UK has been

issuing special stamps since 1965, according to Head of Production Martyn Fry. "We are part of the world-wide philatelic industry.

"Of course there are other drivers.

Promoting the UK is one: the subject matter of our stamps must clearly reflect Britain, British society, and the British way of life. And we also want to make a wider audience aware of the subject matter."

Not that this year's Diamond Jubilee would have gone un-noticed. But it was also an event that could be planned for well in advance. "The funnel of subjects we celebrate is started up to two years before stamps are issued," Martyn says. "However we also produce fast track issues – such as England winning The Ashes series against Australia in 2011 – when it was just a matter of weeks between deciding to issue stamps and them going on sale.

"The 2012 Olympics illustrates both aspects of our approach. There has been a series of issues in the build-up to the Games – and stamps celebrating British gold medal wins were in post offices the day after the win."

Having a supplier who can deliver to such deadlines is clearly a factor for many issuing authorities, and Phajo Dorjee says that "De La Rue was the only supplier that could meet the timescales" for the delivery of Bhutan's Royal Wedding note.

Defining what success looks like for a commemorative issue "is a difficult one", Phajo says. "Success will depend on your strategy. We will carry on selling the notes over a long period of time, which will provide a long-term income flow."

For Martyn Fry at Royal Mail, success is based on "Public reaction, the diversity of subjects and the business outcome."

And Matt West, who as a regional manager for De La Rue looks at this from a customer service point of view, says: "When a commemorative banknote is issued, the customer wants the public to like it. But they also want the launch to run smoothly – with no hiccups."

Quality banknotes: a partnership approach

Physical inspection is only one aspect of producing a banknote of quality. The key to success is effective collaboration between all those involved.

If we ask a central banker to define the quality of the banknote he wants, how does he answer? How does the supplier translate that answer into action during production?

The starting point is, without doubt, a shared understanding of the product's requirements and of how it is made.

A banknote is a highly complex document, bringing together different production processes and materials in many layers of complexity. To illustrate this consider that when banknote paper is delivered to the print works, in addition to watermarks and security threads created in the paper, the paper often already incorporates silk screen-printed security features, gravure coatings, applied foil and a wide range of security features used by machines that handle banknotes from vending machines through to large sorting equipment. At the print works it can go through a further six different printing and application processes before it is cut. Bearing in mind that banknotes are manufactured by the million and when in circulation inspected by machines and handled by the whole of society, how is the necessary quality achieved?

The answer lies in a coalition of many willing partners who control the many complex steps involved: customers, designers, production staff, suppliers (of machines, paper, ink and other components) on the one hand, and technology, processes, machines and quality assurance on the other. When these elements are out of kilter, inefficiencies, delayed deliveries, higher cost, and even faulty banknotes delivered to the customer, may be the result.

Know what is being made

It may sound obvious but the importance of a clear specification, with the parameters clearly understood by all parties, cannot be underestimated. Suppliers vary considerably in their equipment, materials and knowledge levels, so they need to understand the specification to be sure that they can produce it.

It is unlikely that all elements of a banknote design will be of equal importance. If the customer can be clear on which criteria are critical to them, it will help the designer to focus principally on those areas. This can make a real difference not only to what is delivered but to its cost. Success requires a level of trust and understanding between supplier and customer if real clarity is to be achieved.

Design and risk

Good design can go a long way to reducing cost without compromising banknote quality. For example, the normal cutting tolerance of an automatic full sheet finishing machine is $\pm 1.5\text{mm}$ (if reduced to only $\pm 1\text{mm}$, the absolute minimum, waste will increase significantly). If you design the banknote with a white border around the outside, the design will 'float', with the white border increasing or decreasing by 1.5mm . Will this be acceptable to the customer? A good supplier will always determine what his equipment can produce and write this into his design rules and ensure the customer understands what is possible.

Today best practice for the manufacturer is to carry out a 'risk analysis' on the design before getting customer approval. The supplier should also explain to the customer any aspect of the design or proof approval process that could have implications for production. This is particularly important as, to save time and expense, the proof is not normally produced on full-size production machines.



The importance of preparation

Before production starts the factories need clear guidance on every part of the job. If the same banknote has been made before, what lessons have been learnt? Are the requirements of the design and specification clear? As part of the preparation the quality and manufacturing team will undertake a processes risk analysis using FMEA (Failure Mode Effects Analysis) in order to anticipate and seek to mitigate any areas of difficulty.

In a sense, today's printer is an 'integrator' of technology. He combines paper, inks, applied features and printing processes to create the whole. To do this he depends on external suppliers to deliver these elements, so how they are managed is key to success. Suppliers must prove they can deliver consistently and to a high quality. A quality control plan will also ensure materials qualify against certain parameters and that checks are carried out on incoming items (such as paper, ink, foil, plates, dies and numbering boxes) based on perceived risk at the planning stage.



BANKNOTE APPROVED



BANKNOTE REJECTED DUE TO THE LINE BREAKS IN THE ORBITAL RINGS

Production and quality assurance

There are three key elements to getting production right.

Processes that make sure that what is made matches the customer specification, including for security. International standards such as ISO9001 explain how to build processes into the way the factory operates.

People who are trained, experienced, properly equipped and supervised using clearly defined standard operating procedures.

Compliance, so that the standards and values of the organisation can be rigorously audited. Leadership and great front-line supervision are key to this.

The quality department draws up a quality control plan with the operational staff, using the customer's specification and the results of any risk analysis. This ensures consistent quality throughout production and can stipulate some or all of the following:

- full sheet inspection systems fitted to the printing presses that compare the banknotes to a standard and then reject sheets with errors as part of the printing processes
- automatic machine-based full sheet inspection of finished banknotes after printing but before numbering
- manual inspection after different stages of production
- random sampling of finished banknotes from each batch based on ISO2859, checked both visually and using test equipment. ISO2859 is an international standard for sampling inspection by attributes
- depending on customer requirements, a Single Note Inspection Machine (SNIM) may also be used for 100% inspection of finished banknotes.

Partnership is key

But all the inspection in the world is unlikely to be enough unless everyone who plays a part in producing a banknote works together to focus on quality. That means right from the start, when the customer and supplier agree what is required. The design must work within the capabilities of the manufacturing equipment and process. There must be great preparation at the factory. Quality assurance of both incoming materials and the production processes in the factory must be robust, systematic and well organised – for which the manufacturer has a wide range of tools and options from which to select. Even when all this is in place, true quality will still only be achieved with great partnerships.



All over the world cash cycles are evolving. *Exchange* looks at the nature of, and reasons behind, the shift. What do central banks need to consider to make sure the changes work to their advantage? And what about the needs of the other stakeholders in the cash cycle – commercial banks, cash-in-transit companies, retailers etc?

Cash cycles that work for everyone

Despite the popularity of online and other alternative methods of payment, cash in circulation is still on the increase. As a result of this and other pressures, such as the need to supervise financial markets, some central banks are re-examining their role in the cash cycle and transferring some of their activities to the commercial sector.

Legal, historical, operational and economic factors all influence how a country's cash cycle develops. An effective cycle from the central banks' point of view is one in which there is an efficient flow of cash between all stakeholders, where the notes and coins are deemed fit for practical use and, above all, where there is inherent trust in the currency.

In most countries central banks are the sole issuers of new currency. Their other core functions can include the destruction of unfit currency, and responsibility for the security and availability of cash. Traditionally, they have also taken on the processing of cash to determine its fitness, and the custody of surplus cash from financial institutions.

The need for change

But the pressures on central banks are ever greater. The banking sector is complex, and the sheer volume of cash and its increasingly complex circulation patterns can generate considerable inefficiencies in the cash cycle which the central bank alone is responsible for sorting.

For these reasons many central banks are taking the view that some of their activities, such as the sorting and storing of currency, can more sensibly be delegated to some of the commercial sector players in the cash cycle. These typically include wholesale cash handlers such as commercial banks and cash-in-transit companies (CITs), who in turn interface with ATM service companies and retailers who provide customer-facing services (bank branches, shops, transport, and vending).

What is absolutely non-negotiable is that central banks retain control and visibility of currency as without this they cannot fulfil their primary duty as guardians of its quality and integrity. However, increased non-central bank involvement in the cash cycle can make achieving this control more complex. There is no single correct way of achieving the balance between efficiency and control, and four generic cash cycle models are evolving that differ in their approach to cash distribution, processing and re-circulation. Whilst ultimately driven by central bank policy, and with the paramount goal of maintaining the integrity of the currency, each model has a different approach to improving efficiency and will depend on factors such as the commercial environment and logistics.

Continued on page 14

Cash cycle



...worldwide, the installation of recycling ATMs is expected to grow by 26% over the next eight years.

Cash cycle models

In the 'controlled' model, as the name suggests, the central bank still controls and monitors the cash in circulation by carrying out most of the processing itself. Essentially it is status quo. The commercial banks transfer excess cash daily so that the central bank can sort, withdraw and destroy unfit and counterfeit notes before re-distributing newly packaged bundles to the commercial banks.

In the 'involved' model, the commercial sector can re-issue cash without it being authenticated or fitness sorted by the central bank. This applies in some eurozone countries, for example, where wholesale cash handlers must process notes to strict criteria from the European Central Bank and the individual country's central bank.

In the 'delegated' model more responsibility still is transferred to the private sector. Here, as well as processing cash, some commercial banks may deposit excess amounts in their own vaults as central bank cash. This system is known as Notes Held To Order (NHTO). But this cash must be processed for authentication and fitness to an approved level before being stored. Crucially, to keep close track of its liquidity, the central bank is advised daily of the value deposited at each location.

The UK and Australia have adopted the delegated model. Neither the Bank of England nor the Reserve Bank of Australia carries out any general fitness sorting and both accept only 'unfit' deposits. De Nederlandsche Bank (the Dutch National Bank) and the US Federal Reserve, however, insist that a proportion of all notes be returned for processing to monitor fitness of each denomination and to keep abreast of counterfeits.

There is an extension of the 'delegated' model which is the 'privatised' model. As yet there are only a tiny number of banks that have adopted this fully privatised option and it will be interesting to see if it becomes more widely adopted in the future.

Commercial sector challenges

The private sector comes with a different perspective, needing to stay competitive in a growing market that is seizing the opportunities that the new cash cycles are presenting.

Dieter Halfar is a Principal at business transformation consultancy Elix-IRR. He previously worked for Absa Bank, a South African subsidiary of Barclays, where he designed an internationally recognised cash management improvement programme.

Dieter told *Exchange* that the South African Reserve Bank's recent move towards a more delegated cash cycle is providing a challenge for the commercial sector in a country with its own particular set of difficulties.

"Crime is an issue, unemployment too, all adding to the risk of processing cash in South

Africa. We also have geographical challenges. It's a large country so movement of cash is expensive. The cost of transporting by road keeps rising with fuel prices. Our rail network is not effective enough for the transportation of general goods and services, with the result being a massive increase in road usage, driving up the cost of maintenance, the need for expansion, tolls and levies. 70% of the cost of ATM replenishment is down to CITs and the cost of transportation."

"In the operating area of a bank, it is not uncommon to see 25% of staff employed in cash," says Dieter Halfar. "It's very labour intensive. I would say that, apart from IT, cash is the most costly operation because of transport, regulation and labour. Due to the rising cost pressures in the cash industry, banks have had to look at changing their operating models. For example, why do banks insist on replenishing ATMs themselves? Consolidating and outsourcing ATM services to CIT should be evaluated."

These are some of the drivers forcing the industry to focus on efficiencies and using management information to drive process and continuous improvement.

Making cash more efficient

Cash processing usually involves some degree of automation. This helps to keep labour costs down and minimise 'shrinkage': misappropriation of cash by processing staff. But wholesale cash handlers will also be considering how to achieve the fastest payback in a crowded market.

So how can cash be made more competitive? Dieter Halfar shares his views on the South African example. "In my opinion the only way in South Africa is to maximise the commercial cash and recycle it back into your ATM network, and also create chargeable valued-added services. For example providing other services such as management information and the ability to track and trace, to communicate with the bank seamlessly without having to pick up a phone. These are all services which historically wouldn't have existed but are now essential to compete."

Another stakeholder in the cash cycle interested in minimising cost and providing the best customer service to the public is the retailer. To reduce the volume of cash held, with its associated insurance costs, retailers are increasingly opting for local recycling of daily cash takings. One way of doing this is to offer cashback to customers. Clearly retailers are one of the major stakeholders in the cash cycle and central banks are increasingly engaging with them to find solutions that work for all parties. In some cases – for example the Bank of England – legislation is being considered to validate some of the processes used by retailers, as always with the goal of ensuring the integrity of the currency.

New developments

In the eurozone, the Banknote Recycling Framework (BRF) provides criteria for cash handling, processing and dispensing equipment that are also being adopted as standard by some central banks elsewhere. It is hoped this will contribute to a widespread 'clean note policy' that addresses the condition of cash in circulation. Meanwhile financial institutions and other cash handlers in the UK have exceeded a Bank of England target to increase the availability of good quality £5 notes at ATMs over the last two years.

Local recycling is another development which aims to improve operational efficiency, particularly in competitive markets like the UK. It is a growing trend – worldwide, the installation of recycling ATMs is expected to grow by 26% over the next eight years.

The role of technology

There's no doubt that technology is playing a crucial role. By way of an example, the Eastern Caribbean Central Bank (ECCB) has currency operations across eight islands and was challenged to improve the efficiency and timeliness with respect to the issue and redemption of banknotes. But recent investment in an extension of their vault management solution (ECM™ from De La Rue) combined with banknote life cycle tracking has improved visibility and real-time management of its currency. The solution uses banknote serial numbers, from issue to destruction, to track and monitor the usage and movement of notes, providing information about where and what supplies are required across the eight islands.

In summary

Increasing demands on the cash cycle have encouraged the development of various models to try and manage it efficiently and effectively and to balance the potentially conflicting demands of control by the central bank with managing the overall cost to society of providing cash. The different models require different policy innovations to achieve this balance, but modern cash handling technology and associated software solutions can provide exciting new tools to increase efficiency whilst maintaining control.

Entrepreneurs on the new frontier

An innovative programme is helping Rwandan entrepreneurs to get their ideas off the ground.

It is often difficult for people in the West to appreciate the scale of the problems experienced by the developing world.

Rwanda's GDP in 2011 was \$6.8 billion. Compare that with Apple's sales in the same year of \$108 billion.

Among the least educated sections of the Rwandan workforce, unemployment is running at more than 60%. With two-thirds of the population aged under 25, Rwanda needed to generate 500,000 additional jobs for young people between 2007 and 2012. For the 5,000 students that graduate annually from the country's universities, the job market is particularly tough with a narrow private sector unable to absorb the volume of young Rwandan talent.

Although new business creation is actively encouraged by government and could be a fertile avenue for new jobs, resource limitations restrict the level of entrepreneurship training within university curricula and exposure to opportunities in business – this is an issue that the UK-based charity AIP (African Innovation Prize) is trying to address.

AIP was set up by a group of Cambridge University students with business and development backgrounds, in response to a public policy lecture delivered by Rwanda's President Paul Kagame at Cambridge in 2008. De La Rue is one of AIP's lead sponsors.

Alex Handy, one of the co-founders of AIP, says: "We wanted to use our own experiences as students, to help address the gap between education and employment that exists for young people in many African countries, by providing them with the skills and start-up capital they need.

"FedEx, Facebook, Google and Microsoft are all multi-billion dollar businesses that were conceived and launched by students while they were still at university, and successfully managed university-based

entrepreneurship can act as a powerful driver to greater prosperity."

In countries like Rwanda, he says, "graduates must endeavour to become job creators as well as job seekers.

"Africa is the next frontier market," says Alex, and despite the handicaps it faces "Rwanda is really fertile ground for developing entrepreneurs. It is one of the least corrupt and most business-friendly countries in Africa. Entrepreneurs have the support of government policy, there is minimal red tape, decent internet penetration and a good university infrastructure with students who are really geared into helping to rebuild their nation. Over the past three years, I've been fortunate to meet lots of highly ambitious and intelligent young Rwandans."

AIP runs what it describes as an "integrated 3 pillar programme to stimulate a culture of university entrepreneurship in African universities." A university business plan competition that inspires and funds new business ideas and business plans is complemented by entrepreneurship training and mentoring from local business people.

One of the 2012 winners was Jessie Gakwandi who has a degree in computer engineering from the Kigali Institute of Science and Technology.

Her idea – to provide a printing service for university staff and students – was born of her own frustration "at having to take a bus to the print shop". Turning a problem into an opportunity, she is creating a concierge service to handle printing requirements, and developing the software for a money transfer system which enables users to pay for the service by mobile phone.

She had previously attended AIP entrepreneurship training courses, which opened her eyes to entrepreneurship work, and led her to identify herself as

an entrepreneur. She is planning to develop her current business idea further, and has other ideas with potential application both within Rwanda and beyond.

Jessie is one of the new generation of women that will take the country forward. Rwanda is planning to raise its per capita income from US\$220 in 2000 to US\$1,240 by 2020. To achieve this, the country will need to liberate its women "from the rural grind" as President Kagame describes it. Women currently produce up to 80% of the country's food and provide 90% of water and fuel wood, he says.

AIP, meanwhile, is expanding its programme into the West African state of Sierra Leone, and hopes to be working in 10 universities across three countries by 2015, reaching 50,000 high-potential entrepreneurs.

MAKING A CONTRIBUTION

The African Innovation Prize (AIP) is one of three African charities that De La Rue is currently supporting through its Advanced Partner Programme.

In addition to this corporate sponsorship, De La Rue has worked with the organisation Rwanda Aid to build a school for around 900 pupils, and earlier this year announced it's involvement in a new project with the charity Street Child of Sierra Leone.

Street Child does what it says on the tin – working to get children off the streets and into full-time education. The De La Rue Advanced Partner Programme is now helping to rebuild a school in the remote northern part of the country.

The AIP involvement in Sierra Leone is also benefitting from De La Rue support.

"RWANDA IS REALLY FERTILE GROUND FOR DEVELOPING ENTREPRENEURS. IT IS ONE OF THE LEAST CORRUPT AND MOST BUSINESS-FRIENDLY COUNTRIES IN AFRICA. ENTREPRENEURS HAVE THE SUPPORT OF GOVERNMENT POLICY, THERE IS MINIMAL RED TAPE, DECENT INTERNET PENETRATION AND A GOOD UNIVERSITY INFRASTRUCTURE WITH STUDENTS WHO ARE REALLY GEARED INTO HELPING TO REBUILD THEIR NATION. OVER THE PAST THREE YEARS, I'VE BEEN FORTUNATE TO MEET LOTS OF HIGHLY AMBITIOUS AND INTELLIGENT YOUNG RWANDANS."
ALEX HANDY, CO-FOUNDER OF AIP

ENTREPRENEURIAL RWANDAN STUDENTS LEARN KEY START-UP SKILLS IN AFRICAN INNOVATION PRIZE TRAINING SESSIONS.



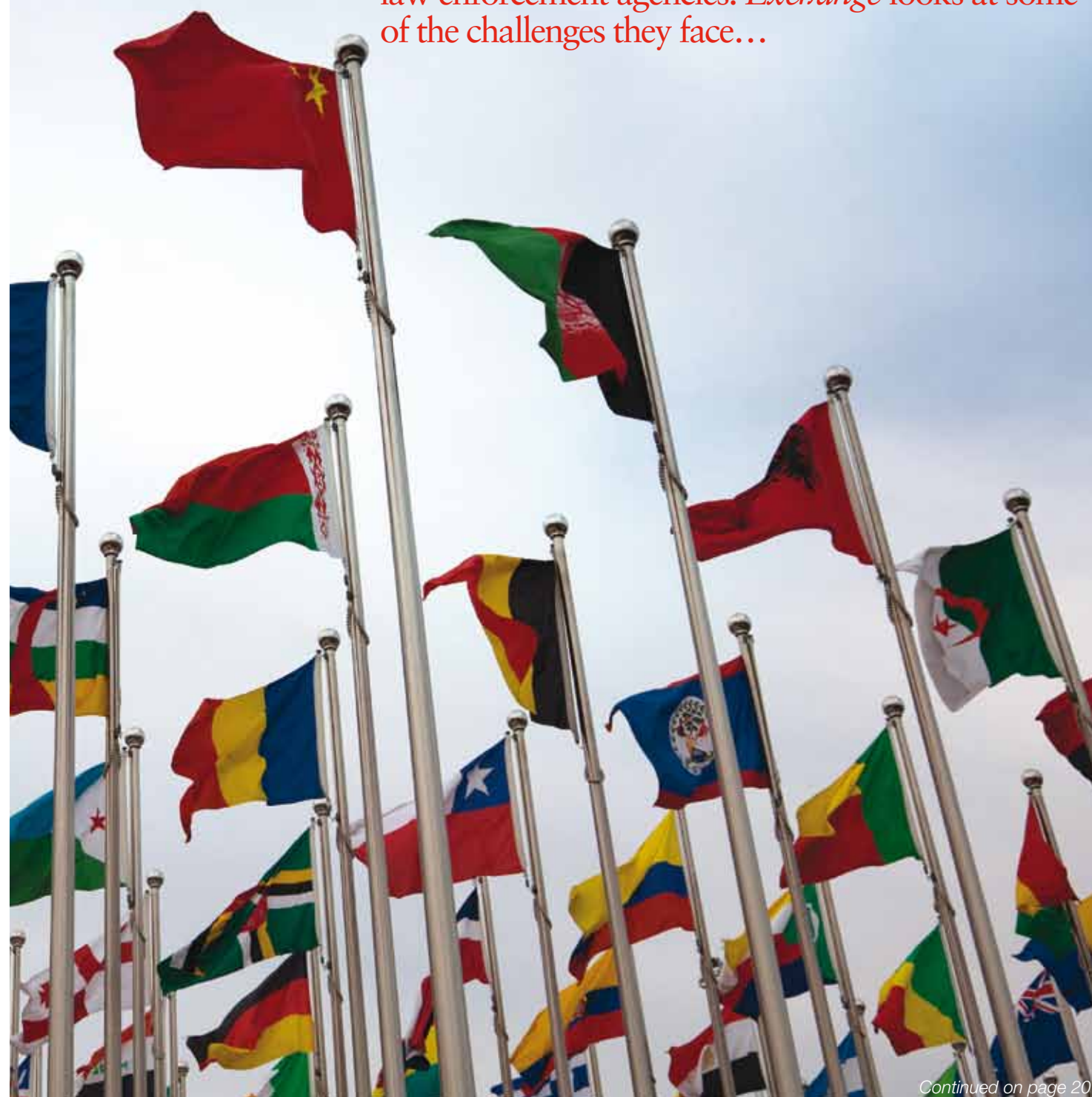
JESSIE GAKWANDI – THE AFRICAN INNOVATION PRIZE PHASE II WINNER AT THE KIGALI INSTITUTE OF SCIENCE AND TECHNOLOGY



Enforcing the law on a global scale



No one really knows the true scale of counterfeit currency in circulation across the world but it's safe to assume it remains a perennially attractive proposition for criminals. The global counterfeit goods industry as a whole is estimated to cost \$600 billion a year. And identity fraud is becoming a significant security concern for governments across the world. Stemming the tide of illicit goods and currency circulating within countries, as well as across borders, and preventing people travelling on false passports are an almost impossible task for law enforcement agencies. *Exchange* looks at some of the challenges they face...



The counterfeiting of money is one of the oldest crimes in history. Governments and central banks have always taken very seriously their role in maintaining the confidence and integrity of their currency.

The globalisation of world trade and growth of the internet mean that we can buy products from all over the world, anytime, anywhere. But this incredible movement of goods and services across the world's borders has come at a cost. Criminal gangs, often with links to organised crime, are running highly sophisticated operations that can manufacture and transport anything and everything from fake banknotes, passports and luxury goods to cigarettes, alcohol and drugs – as well as trafficking people.

The counterfeiting of money is one of the oldest crimes in history. Governments and central banks have always taken very seriously their role in maintaining the confidence and integrity of their currency. So much so that at times copying and printing fake currency has been a treasonous act punishable by death.

The United States Secret Service was set up in 1865 specifically to prevent counterfeiting. Over the years its role has expanded massively, of course, but one of its primary functions remains the prevention of the production and circulation of counterfeit dollars.

It's generally recognised that the US Secret Service has been very successful in this area. The US Government estimates that only 0.01% of the US currency in circulation is counterfeit. But if you consider that there is an estimated \$1.09 trillion in circulation (and only a third of it within the US), that's still an awful lot of fake greenbacks, as they are known. A raid in July 2012 on a mass-production, hi-tech counterfeiting operation in South America, which is fast becoming the centre of a number of significant counterfeiting operations, captured \$2 million and €1.5 million, showing that this problem is not going to go away.

In the UK, there is a long and ignoble history of forging banknotes. As in the US, the number of counterfeit notes in circulation is relatively low (according to the Bank of England it's a fraction of 1%). The drive for the UK's National Central Office for the Suppression of Counterfeit Currency (NCO) is to get every fake banknote out of circulation first and then work to shut down the criminal gangs. The NCO, part of the Serious Organised Crime Agency, analyses thousands of reports from police forces and the Bank of England to identify current trends and future threats.

Banknotes are just one of the myriad illicit goods being transported across the world's borders. Customs officials clearly have their hands full. The World Customs Organization (WCO) is leading the fight against these multiple challenges through a co-ordinated strategy based on consistently high standards of border management, a knowledge-based approach and shared intelligence. Effective border management enables governments to monitor the flow of goods in and out of their countries and boost government revenues through the collection of tax duty on cigarettes and alcohol. One recent example was Operation Meerkat, a joint operation between the WCO and Interpol in Africa, which saw 40 raids carried out at ports, border points, shops and markets in seven different countries in East and Southern Africa. The Operation's office in Nairobi managed the exchange of information between border officials in the different countries and co-ordinated the raids. More than 32 million cigarettes and 3,000 litres of alcohol were seized and criminal proceedings into tax evasion and other criminal offences are under way.

The movement of illicit goods is a constant challenge but, from a national security perspective, identity fraud is a greater concern. Put simply, a genuine passport obtained through identity fraud allows a terrorist to travel round the world undetected. Criminals always focus on the weakest link for travel documents, whether that be document security, issuing procedures or false identities. This threat to travel documents varies between countries and regions.

A range of global organisations, including the International Civil Aviation Organization (ICAO), the Organization for Security and Co-Operation in Europe and the International Organization for Migration, are moving towards better practices in national identity and issuing guidelines for passport authorities and national identity management.

One example is a current three-year ICAO project in the Americas, run in conjunction with the Organization of American States, which assesses countries' current processes for ID documents and passport management and border control procedures at airports. The project team issues detailed reports on the countries they visit, which have recently included Mexico, Panama, El Salvador, Guatemala and the Dominican Republic, as well as making any recommendations that would bring their national processes into line with best international practice. This process of improving identity management and border control requires sustained commitment and co-operation from governments across the world and it isn't going to happen overnight.

In the meantime, global law enforcement agencies face some challenging times in trying to keep one step ahead of the counterfeiters and illicit goods criminals.



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DE LA RUE AND GLOBAL LAW ENFORCEMENT

The very essence of De La Rue's products – banknotes, identity systems and security products – puts it in the front line of protecting the customers' products and integrity. The company works closely with global law enforcement agencies to assist in the battle against counterfeiters.

In one CIS country De La Rue's position as a trusted partner and long-time supplier of the country's banknotes and tax stamp scheme led it to become involved in examining fake tax stamps on a huge cache of vodka. In the US, the company hosts visits to its Virginia facility to all new starters in the Secret Service Forensics Division so they can understand more about security printing technology. In the UK De La Rue is frequently asked to examine suspect banknotes from the UK and around the world. Its currency expertise also means that it is asked to run banknote verification courses for bank officials, police and border guards from around the globe.

De La Rue worked closely with the National Document Fraud Unit (NDFU) on the design of the new UK passport and has subsequently run courses for them on papers, inks and passport production. The company is a member of the World Customs Organization's Private Sector Consultative Group, which advises the WCO on key issues relating to the private sector. Membership also gives De La Rue a valuable insight into the development of global customs policy and strategies.

This continuous two-way exchange of information with global law enforcement agencies helps agents and officers do their jobs better in the field and enables De La Rue to keep up to date with the latest counterfeiting trends, to be able to recommend relevant cutting-edge security solutions to customers and to develop innovative and appropriate new products.

World view



COMMEMORATIVE WATERMARK
SHOWING BERE MILL, LAVERSTOKE MILL
AND OVERTON MILL.



300 YEARS OF PAPERMAKING

A 300th anniversary is a remarkable achievement for any organisation. No wonder that this year, the 300th anniversary of banknote papermaking in the county of Hampshire, England, De La Rue has been celebrating this special milestone by undertaking a wide range of activities for customers, employees and the local community.

Henri Portal began making paper in 1712 at Bere Mill in the village of Whitchurch, Hampshire, on the River Test and began supplying the Bank of England with banknote paper in 1724. The company moved to a neighbouring village, Laverstoke, in 1716, before moving to its current location in Overton in the 1920s. The Portals company was acquired by De La Rue in 1995.

Throughout its 300-year history, the company has been famous for the quality of its watermarks. It has also been at the forefront of major innovations such as incorporating security threads into banknote paper, producing windowed threads and launching the first durable paper banknote product. This distinguished tradition of innovation has been recognised in the UK by a number of Queen's Awards for Enterprise, most recently The Queen's Award for Innovation in 2006 for StarChrome® colour shifting thread.

A commemorative logo was produced which depicts both the hand making of watermarks and the large banknote papermaking machines in use today. In addition, a commemorative watermark was designed showing the three mills where papermaking has taken place over the years.

In autumn 2012 De La Rue ran a customer seminar covering a wide range of banknote-related topics such as design, counterfeiting and innovation. Delegates were also given a tour of the Overton Mill.



BERE MILL TODAY

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DESIGN BY KATIE WILLIAMS

A tercentenary garden has been planted at the Overton Mill site and a range of historical pictures of papermaking displayed. De La Rue employees have raised funds for a local children's hospice and enjoyed a family day out at the Overton Mini Olympics event.

For the local community, the company continued to support the local village "Sheep Fair" both financially and with a stand where members of the public were invited to test their skills at making handmade watermarks.

The company also ran a "design a banknote" competition for local schools in the area. The children could choose to design their banknote around any topic significant to the year 2012 – such as the Olympic Games and Diamond Jubilee – as well as the anniversary of the 300 years of papermaking in Hampshire. The competition attracted a large number of entries and the three winners were given a tour of De La Rue's design department, as well as a professionally produced version of their banknotes to keep.

And to follow 300 years of papermaking this year, next year marks 200 years since Thomas de la Rue from Guernsey founded his printing company. More reasons for De La Rue to celebrate in 2013.



DESIGN BY KATIE ASH

GIBRALTAR
The Government of Gibraltar, in partnership with De La Rue, introduced a modern and colourful new family of banknotes during 2010 and 2011. The banknotes were designed to reflect Gibraltar's rich history and culture dating from the Moorish era right up to the present day. In addition to the existing £5, £10, £20 and £50 banknotes of the previous series, a £100 denomination was issued for the first time. The entire series shares a common portrait of Her Majesty Queen Elizabeth II on the front whilst the reverse of each banknote carries a vignette depicting an aspect of Gibraltarian history. The vignettes are complemented by pattern work representing Gibraltar's strategic location between the Mediterranean Sea and the Atlantic Ocean. The notes carry tactile features for the blind and visually impaired, security features that become visible in the light and reinforced corners for enhanced durability.



UN LAISSEZ-PASSER
Production of the new United Nations electronic Laissez-Passer (e-UNLP) has recently gone live. The document, which is fully ICAO 9303 compliant, includes a contactless microprocessor chip and facial recognition biometrics and features a combination of overt and covert layered security features. One of the objectives of the e-UNLP is to allow UN representatives to travel to member states without the need for a national passport. There are four versions of the book, with either a red or a blue cover according to the position held within the UN, and identifies the officials serving either under the Convention on the Privileges and Immunities of the United Nations or the Convention on Privileges and Immunities of the Specialized Agencies. De La Rue, which has a long standing relationship with the United Nations and has been supplying the organisation with Laissez-Passer books since 1996, will be supplying approximately 20,000 booklets per year, to be issued to officials of the UN and its Specialised Agencies.

Exchange

THE GLOBAL MAGAZINE OF DE LA RUE

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