SAFEGUARD® POLYMER
FROM CONCEPT TO CUSTOMER
## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter</th>
<th>Title</th>
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<tbody>
<tr>
<td>9.00am</td>
<td>Welcome remarks</td>
<td>Martin Sutherland</td>
<td>Chief Executive Officer</td>
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<tr>
<td>9.10am</td>
<td>Polymer: from concept to customer</td>
<td>Richard Hird</td>
<td>Chief Commercial Officer</td>
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<td></td>
<td>Development and innovation</td>
<td>Dr. Selva Selvaratnam</td>
<td>Chief Technology Officer</td>
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<td></td>
<td>Manufacturing and delivery</td>
<td>Rupert Middleton</td>
<td>Chief Operating Officer</td>
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<td></td>
<td>Q&amp;A</td>
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<td>10.30am</td>
<td>Coffee &amp; tea break</td>
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<td>10.45am</td>
<td>Welcome to Debden</td>
<td>Steve Craig</td>
<td>Head of Operations, Debden</td>
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<td>10.50am</td>
<td>Production tour</td>
<td>Steve Craig</td>
<td>Head of Operations, Debden</td>
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<td>1.00pm</td>
<td>Buffet lunch</td>
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A clear strategy for growth

Transforming De La Rue into an asset-light, IP- and technology-led solution provider

**Optimise & Flex**

**Banknotes, Banknotes Paper**
- Drive efficiency
  - Optimise footprint
  - Operational Excellence
- Optimise use of assets
  - Establish partnerships
  - Maximise internal synergies

**Invest & Build**

**Polymer, Security Features, IDS, PA&T**
- Diversify our revenue
  - Expand into new markets
  - Grow digital and service revenue
- Increase differentiation
  - Enhance innovation
  - Strengthen design capability

**FY2015/16 Revenue**

Polymer: next generation substrate
A clear strategy – Banknotes

**Strategic priorities**
- Optimise footprint
- Operational Excellence

**Footprint restructuring**
- Reduce capacity by 25%
- Increase productivity by 50%
- Costs and benefits
  - £15m incremental capex and £8m restructuring costs over two years
  - >£13m savings p.a. from 2018/19
- Progress to date
  - New staff agreements
  - Malta -1 line, upgraded intaglio press in Gateshead
  - Site planning and prep work in progress in Kenya & Sri Lanka

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<th>Location</th>
<th>Current</th>
<th>Future</th>
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<td>Debden, UK</td>
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<td>Outsourcing only</td>
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| Total capacity | 8bn notes | 6bn notes |
| Printing presses |          |
| average age     | 25 years  | 12.5 years |
A clear strategy - Polymer

Strategic priorities
• Grow market share
• Product development and innovation

Progress to date
• 15 issuing authorities; 30 denoms
• Significant three year contract with a SPW
• 1st volume contract with a commercial printer

Polymer: next generation substrate
The integrated approach

De La Rue is the only vertically integrated polymer provider

- Design-led customer engagement
- R&D-inspired product development
- World-class manufacturing

Integration provides the customer with unique value
The CUSTOMER
Demand for banknotes continues to grow

**Cash in circulation in selected countries by value**

Local currency (index 2005=100)

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Source: the Bank for International Settlements

**Total number of banknotes in circulation - UK**

Average CAGR 8%

Source: Bank of England
Why polymer?

Global substrate market c162k tonnes

- 41% Commercial paper market
- 3% Polymer
- ~1-5% Overspill from SPMs
- 51% State paper mills (SPM)

Expected to double by 2021

Benefits of polymer banknotes

- Durability increasing life span of banknote circulation
- Security enhancements by layering features
- Environmental benefits
- Design innovation
- Reduced “cost of cash”
Sales strategy

De La Rue is gaining share in a growing market

Issuing authorities with circulating denominations

Our sales approach

- Established a dedicated sales team
- Win reference clients
- Win volume clients
  - Target non DLR paper customers
  - Convert coin denominations at coin/note boundary
  - Target existing polymer customers
  - Convert low value high volume paper customers
- Target commercial and state printers
## Polymer adopting countries

<table>
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<tr>
<th>Issuing Authority</th>
<th>Polymer Notes</th>
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<td>Australia</td>
<td>Family</td>
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<td>Brunei</td>
<td>Family</td>
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<td>Bank of Scotland (2016)</td>
<td>£5 - due to launch Q4 2016</td>
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<tr>
<td>Bank of England</td>
<td>£5</td>
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<tr>
<td>Canada</td>
<td>Family</td>
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<tr>
<td>Cape Verde</td>
<td>$200</td>
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<td>Chile</td>
<td>$1000; $2000; $5000</td>
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<td>Costa Rica</td>
<td>1000 Colon</td>
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<td>Clydesdale Bank (2016)</td>
<td>Commemorative E5</td>
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<td>Fiji</td>
<td>$5</td>
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<td>Gambia</td>
<td>Commemorative 20 GMD</td>
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<td>Gibraltar (2016)</td>
<td>£100 Commemorative</td>
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<td>Honduras</td>
<td>L20</td>
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<td>Hong Kong</td>
<td>$10</td>
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<tr>
<td>Lebanon</td>
<td>Three commemorative designs Issued 50,000 LBP</td>
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<tr>
<td>Malaysia (2016)</td>
<td>RM1; RM5</td>
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<tr>
<td>Mauritius</td>
<td>Rs25; Rs50; Rs500</td>
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<tr>
<th>Issuing Authority</th>
<th>Polymer Notes</th>
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<td>Mauritania</td>
<td>UM1000</td>
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<td>Mexico</td>
<td>$20; $50</td>
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<td>Mozambique</td>
<td>20MT; 50MT; 100MT</td>
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<td>New Zealand</td>
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<td>Nicaragua</td>
<td>C$10; C$20; C$50; C$100; C$200</td>
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<td>Nigeria</td>
<td>N5; N10; N20; N50</td>
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<tr>
<td>Papua New Guinea</td>
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<td>Paraguay</td>
<td>G2000; G5000</td>
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<td>Poland</td>
<td>20 zł Commemorative</td>
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<td>Romania</td>
<td>Family</td>
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<td>Royal Bank of Scotland (2016)</td>
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<td>Singapore</td>
<td>$S2; $S5; $S10 Commemorative $S10 &amp; $S50</td>
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<td>Trinidad &amp; Tobago</td>
<td>Commemorative and $50</td>
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<td>Vanuatu</td>
<td>VT200; VT1000; VT2000; VT10,000</td>
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<td>Vietnam</td>
<td>10,000 VND; 20,000 VND; 50,000 VND; 100,000 VND; 200,000 VND; 500,000 VND</td>
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* Highlighted are DLR customers

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The Customer

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Since launch SafeGuard® has been adopted by 15 issuing authorities across 30 denominations

Maldives Monetary Authority
Royal Bank of Scotland
HM Government of Gibraltar
Why De La Rue?

- We are the only integrated polymer provider
- We are substrate agnostic
- We have world class design capabilities
- We can leverage our technical expertise to benefit the commercial and state print sectors
The TECHNOLOGY
Polymer development

- Unique attributes
- Next generation substrate
- Next generation security features
Unique attributes

- Vibrant white substrate
- Lifespan extension
- Diverse security features
- Extensive print palette
Polymer substrate structure

- Bi-axially Oriented Polypropylene (BOPP) material
- Design
- Gravure Cylinder
- White opacity ink
- Antistatic ink
- Knowhow and IP on structure and manufacturing

The Technology
Layered security features

**Substrate Features**
- Window
- Embossed windows
- Window vignettes
- MASK™
- Colour Effects
- Safeguard® Magnetics
- Printmark
- Holographic foil

**Litho & Screen**
- Gemini™
- Spectrum™
- Micro-text
- Fluorescent print
- See Through
- Pyramid
- SPARK® Orbital™

**Intaglio**
- Intaglio print
- Infra-red inks – non/readable
- ESP
- SICPATALK®
- NEOMAG®
- Blind Emboss
- MELT

**Letterpress**
- Blink
- Magnetic numbers
- Tactile Emboss

The Technology

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Design as differentiation

- World class design
- Fully integrated supply chain
- Print differentiation

De La Rue elevates banknote design on polymer

Award winning $50 Trinidad & Tobago commemorative note

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What’s next?

- Securing polymer substrate
  - Print differentiation
  - Holographic features

- Customisation

Types of Features

- 3D features
- Movement & colour change
- Photo-realism
- Exploiting the unique features of polymer

The Technology
The DELIVERY
Building a new substrate capability

- £10m invested in product development and equipment
- Established supply chain (ink, polymer film etc.)
- Developed skills to manufacture and print polymer
- Created a technical support team to fully integrate with customers
Building a new substrate capability

- Substrate production max capacity - 2,700 tonnes (2.7bn notes)
- Low operational gearing maximises profit
The delivery manufacturing process:

- Start with reels of plain banknote weight BOPP
- Engrave cylinders
- Ink
- Print - laying multiple layers of ink on both sides of reel
- Sheeting
- Quality control - Quad Tech
Material cost of manufacturing
The art of manufacture

- Multiple thick layers of ink
- Lots of heat-interaction with polypropylene
- Fine balance on security features
- High cost of waste
Adapting print process

Gravure  Screen  Litho  Foiling  Intaglio  Letterpress  Varnishing

Unique to polymer

Gravure  Screen  Litho  Foiling  Intaglio  Letterpress  Varnishing

Critical to polymer

The Challenges
• Handling and feeding polymer
• Temperature control
• Ink drying

The Risks
• Slower throughput
• Process waste

The Opportunities
• Greater contrast
• Sharper line definition
• Tighter registration

The Delivery
Operational excellence in integrated operations

Operational Excellence
• Strategic intent
• Continuous improvement
• Standardisation
• Built in Quality

Benefits
• Common process (Advanced Product Quality Planning and Failure Mode Effect Analysis)
• Common understanding of capability
• Faster up learning curve
• Collaboration on innovation
• Off plan- trust and shared data

The Delivery
The value of integration

Integration provides De La Rue with unique market positioning
THANK YOU
Banknote printing process