



DeLaRue

SAFEGUARD® POLYMER

FROM CONCEPT TO CUSTOMER

Agenda

9.00am	Welcome remarks	Martin Sutherland	Chief Executive Officer
9.10am	Polymer: from concept to customer		
	Polymer market	Richard Hird	Chief Commercial Officer
	Development and innovation	Dr. Selva Selvaratnam	Chief Technology Officer
	Manufacturing and delivery	Rupert Middleton	Chief Operating Officer
	Q&A		
10.30am	Coffee & tea break		
10.45am	Welcome to Debden	Steve Craig	Head of Operations, Debden
10.50am	Production tour	Steve Craig	Head of Operations, Debden
1.00pm	Buffet lunch		

Polymer: next generation substrate

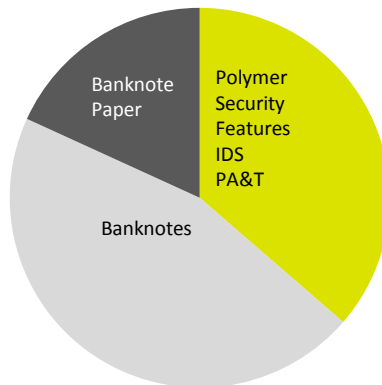
A clear strategy for growth

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



FY2015/16 Revenue

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

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

Location	Current	Future
Gateshead, UK	2 lines	2 line
Kenya	1 line	1 line
Sri Lanka	1 line	1 line
Malta	3 lines	0 line
Debden, UK	2 lines	Outsourcing only
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

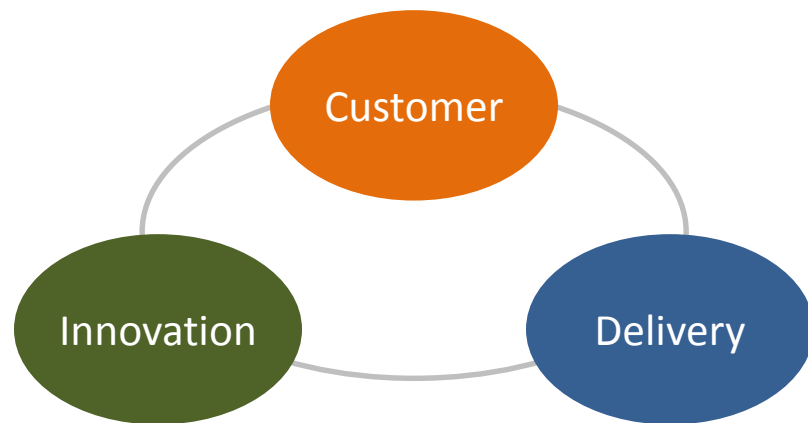


Polymer: next generation substrate

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



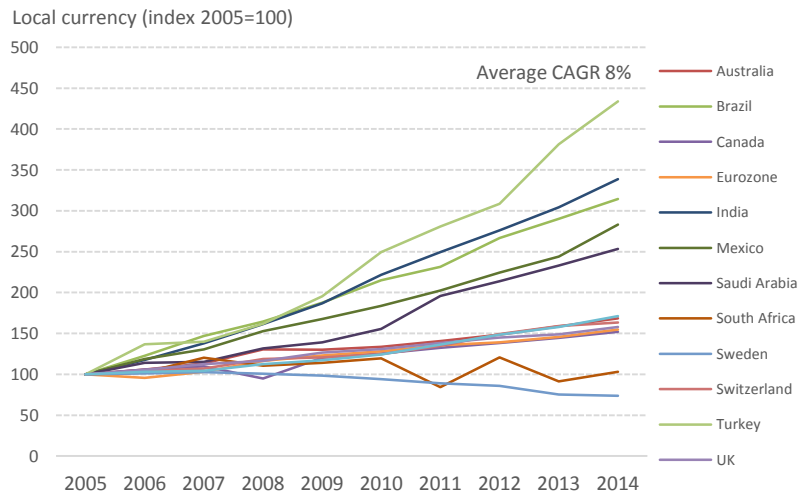
Integration provides the customer with unique value

The CUSTOMER



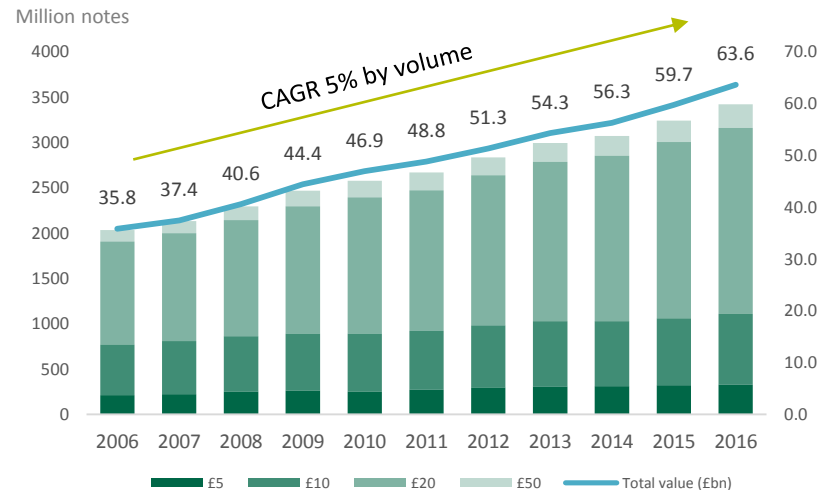
Demand for banknotes continues to grow

Cash in circulation in selected countries by value



Source: the Bank for International Settlements

Total number of banknotes in circulation - UK

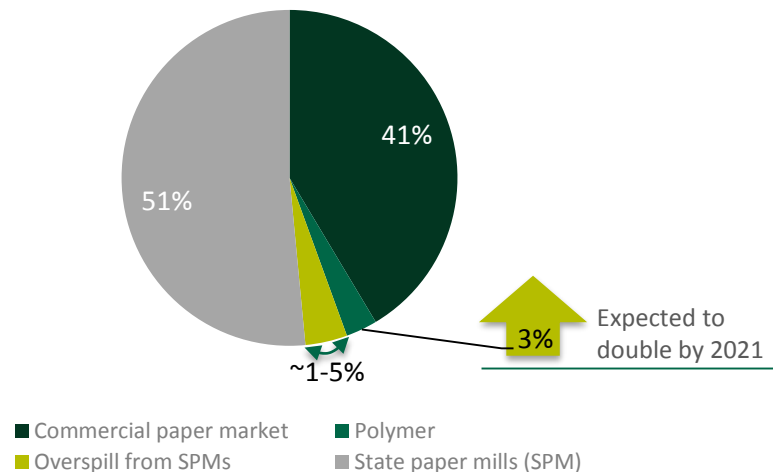


Source: Bank of England

The Customer

Why polymer?

Global substrate market c162k tonnes



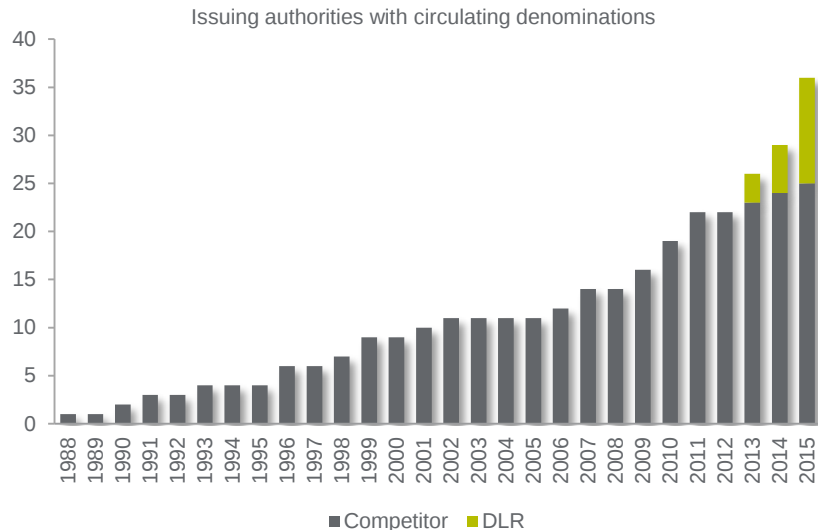
Benefits of polymer banknotes

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

The Customer

Sales strategy

De La Rue is gaining share in a growing market



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

The Customer

Polymer adopting countries

Issuing Authority	Polymer Notes
Australia	Family
Brunei	Family
Bank of Scotland (2016)	£5 - due to launch Q4 2016
Bank of England	£5
Canada	Family
Cape Verde	\$200
Chile	\$1000; \$2000; \$5000
Costa Rica	1000 Colon
Clydesdale Bank (2016)	Commemorative £5
Fiji	\$5
Gambia	Commemorative 20 GMD
Gibraltar (2016)	£100 Commemorative
Honduras	L20
Hong Kong	\$10
Lebanon	Three commemorative designs issued 50,000 LBP
Malaysia (2016)	RM1; RM5
Mauritius	Rs25; Rs50; Rs500

Issuing Authority	Polymer Notes
Maldives	Family Commemorative 5000 Rufiyaa
Mauritania	UM1000
Mexico	\$20; \$50
Mozambique	20MT; 50MT; 100MT
New Zealand	Family
Nicaragua	C\$10; C\$20; C\$50; C\$100; C\$200
Nigeria	₦5; ₦10; ₦20; ₦50
Papua New Guinea	Family
Paraguay	G2000; G5000
Poland	20 zł Commemorative
Romania	Family
Royal Bank of Scotland (2016)	£5 - due to launch Q4 2016
Singapore	S\$2; S\$5; S\$10 Commemorative S\$10 & S\$50
Trinidad & Tobago	Commemorative and \$50
Vanuatu	VT200; VT1000; VT2000; VT10,000
Vietnam	10,000 VND; 20,000 VND; 50,000 VND; 100,000 VND; 200,000 VND; 500,000 VND

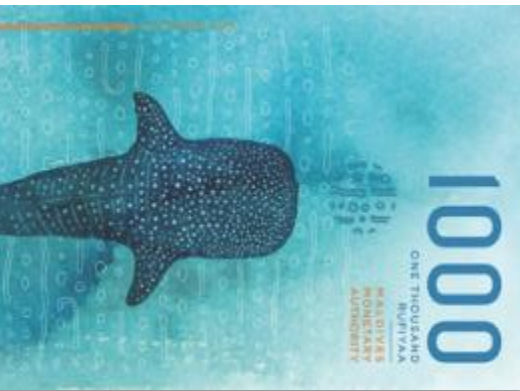
* Highlighted are DLR customers

The Customer



DeLaRue

Initial wins



Maldives Monetary
Authority



Royal Bank of Scotland



HM Government
of Gibraltar

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



DeLaRue

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 Customer

The TECHNOLOGY



Polymer development

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



The Technology

Unique attributes

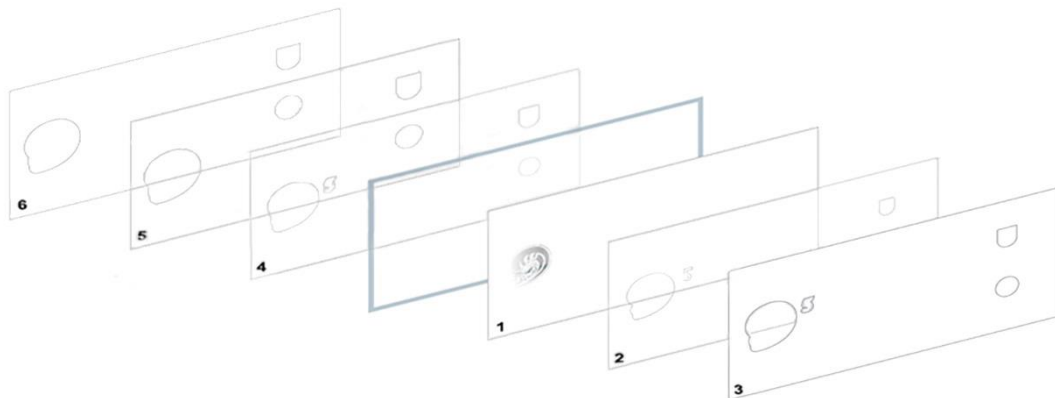
- Vibrant white substrate
- Lifespan extension
- Diverse security features
- Extensive print palette

The Technology

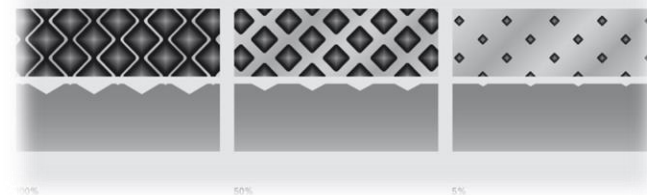


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Polymer substrate structure

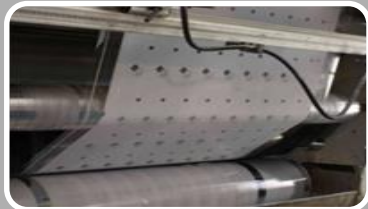


- Bi-axially Oriented Polypropylene (BOPP) material
- Design
- Gravure Cylinder
- White opacity ink
- Antistatic ink
- Knowhow and IP on structure and manufacturing



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

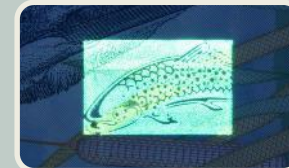
The Technology



Public recognition



Teller assist



Machine Readable



De La Rue

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



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The DELIVERY



Building a new substrate capability

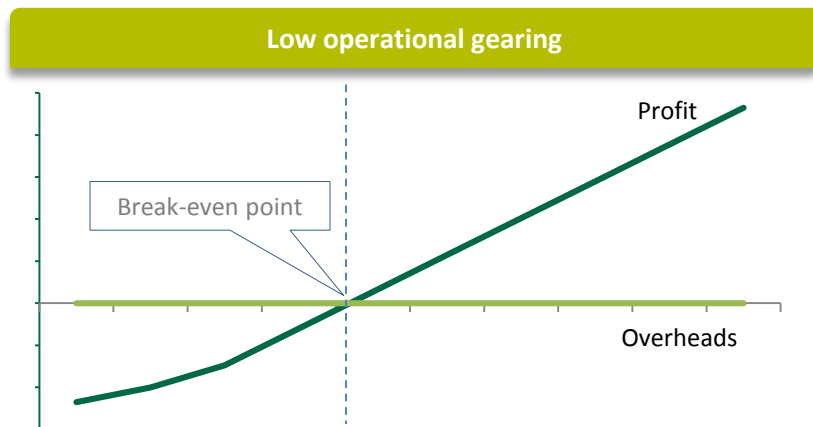
- >£10m invested in product development and equipment
- Established supply chain (ink, polymer film etc.)
- Developed skills to manufacture and print polymer
- Created a technical support team to fully integrate with customers



The Delivery

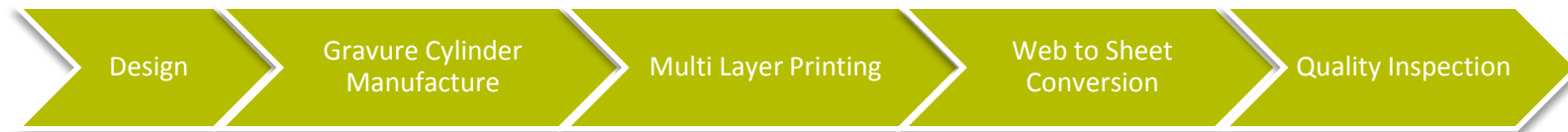
Building a new substrate capability

- Substrate production max capacity
- 2,700 tonnes (2.7bn notes)
- Low operational gearing maximises profit



The Delivery

Substrate manufacturing process

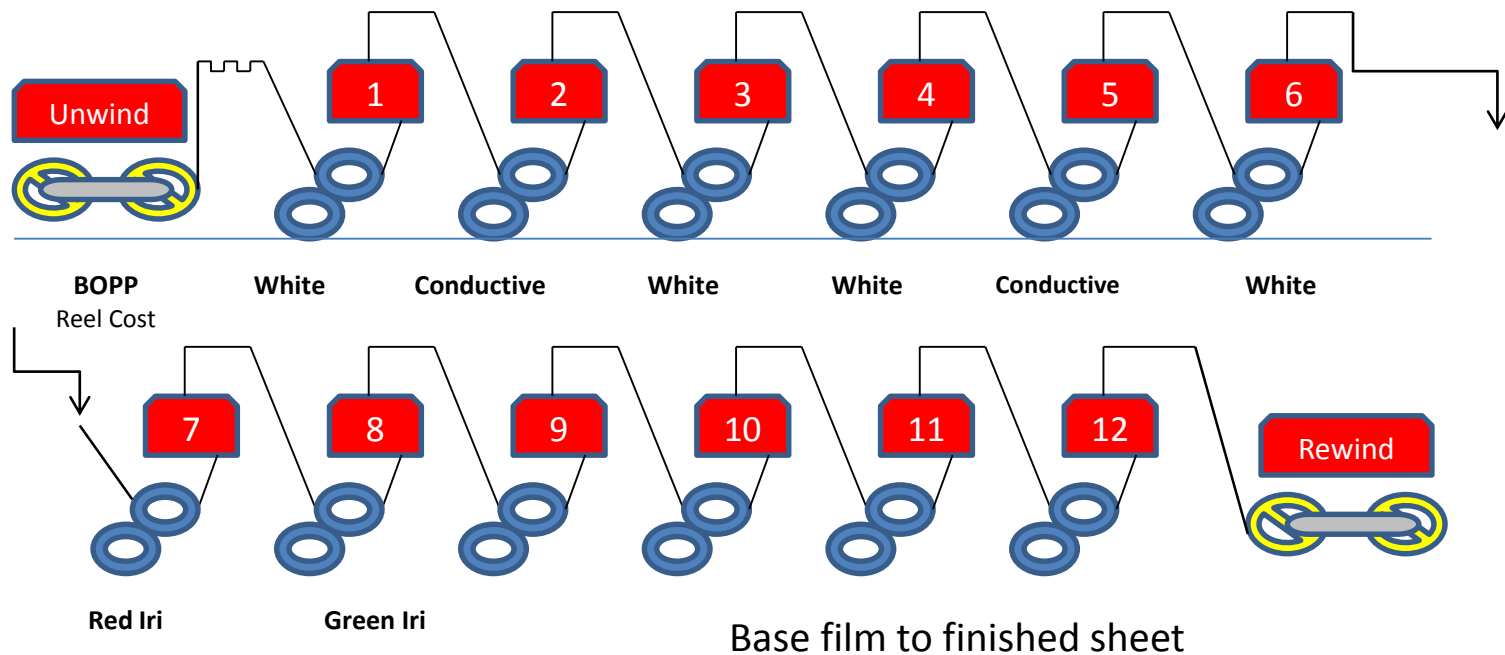


- Start with reels of plain banknote weight BOPP
- Engrave cylinders
- Ink
- Print- laying multiple layers of ink on both sides of reel
- Sheeting
- Quality control- Quad Tech



The Delivery

Material cost of manufacturing



The Delivery

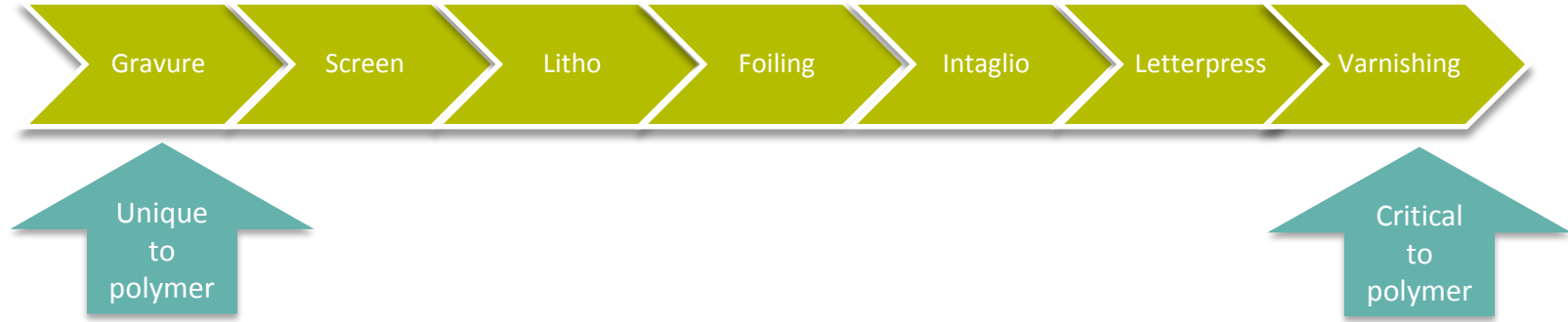
The art of manufacture

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



The Delivery

Adapting print process



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



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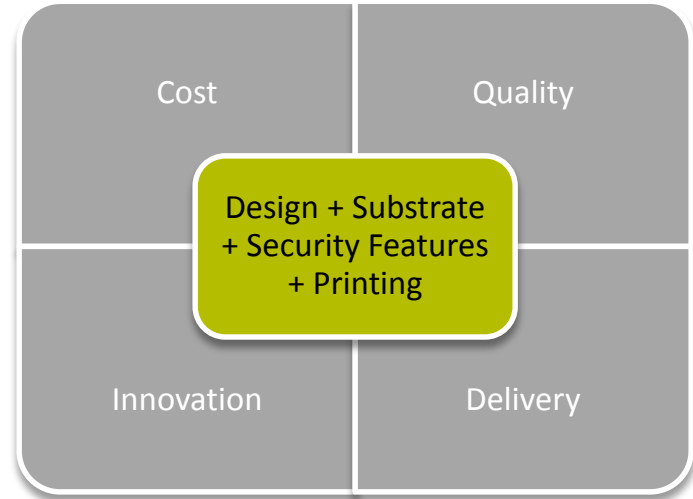
Operational excellence in integrated operations

Operational Excellence

- Strategic intent
- Continuous improvement
- Standardisation
- Built in Quality

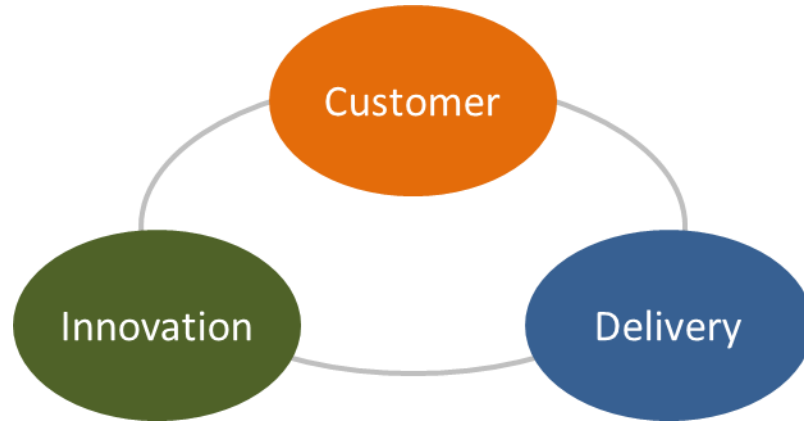
Benefits

- 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



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THANK YOU

Banknote printing process

