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## **Overview**

- Kromek is a radiation detection technology company operating globally in three substantial markets
  - Medical Imaging, Nuclear Detection, Security Screening
- Record H1 revenue driven by execution on previously-signed agreements and commencing delivery on high-value, multi-year contracts won in recent years
- Fundraise in Jan 2019 of £20m being deployed to significantly expand CZT manufacturing capacity in UK and US, as well as significant expansion of sales and marketing team and channel development activity
- Increasing commercial momentum with contracts worth c. £100m signed in last three fiscal years
- On track to achieve to achieve significant revenue growth and EBITDA profit for FY 2019/20 in line with market expectations – visibility of 90% of revenue











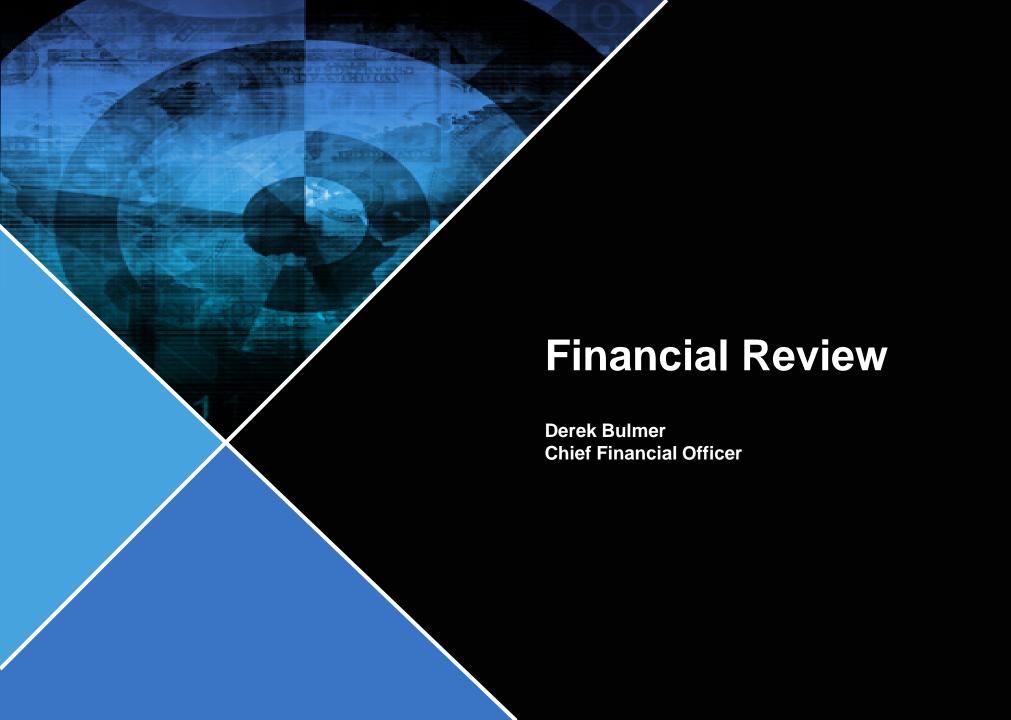










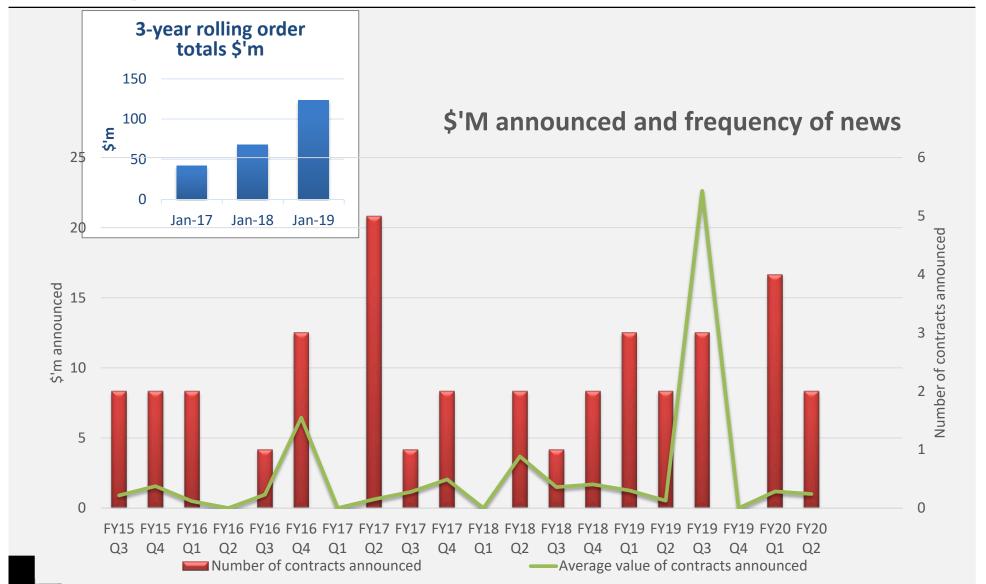


# **Profit and loss**

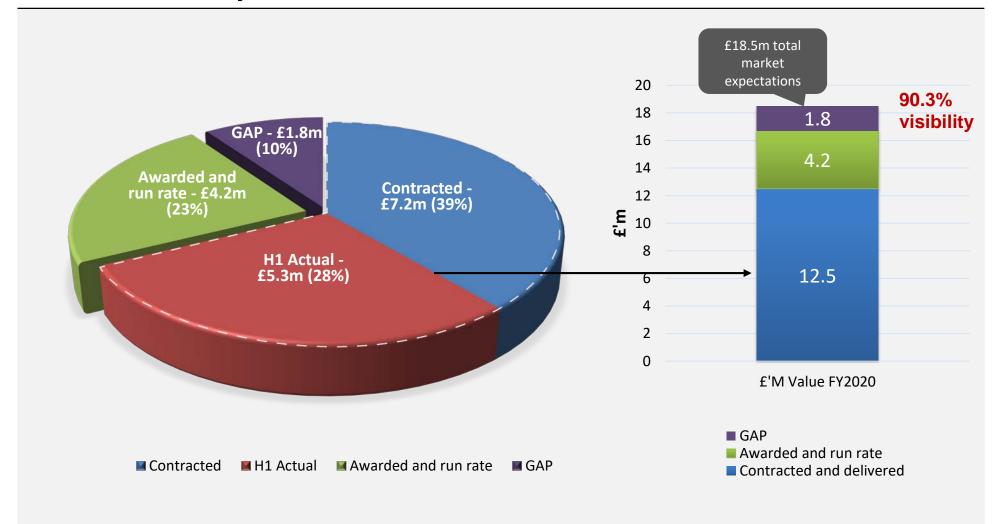
	6 months ended 31 October 2019 £'000 (Unaudited)	6 months ended 31 October 2018 £'000 (Unaudited)	Year ended 30 April 2019 £'000 (Audited)
Continuing operations:			
Revenue	5,333	3,685	14,517
Gross profit	3,093	2,480	8,309
Result before tax	(2,653)	(2,133)	(1,270)
Tax credit	389	480	987
Result from continuing operations	(2,264)	(1,653)	(283)
EBITDA	(611)	(553)	1,974

- Revenue increased by 43% to £5.3m (H1 2018/19: £3.7m)
- Product sales amounted to 82% (H1 2018/19: 78%) 53% increase in value to £4.4m (H1 2018/19: £2.9m)
- Gross margin was 58% (H1 2018/19: 67%; FY 2018/19: 57%)
- Operating costs at £5.4m (H1 2018/19 £4.6m) reflect the recruitment of new staff and marketing costs to drive the growth of the D3S platform
- EBITDA was £0.6m loss, in line with H1 2018/19 (£0.6m loss)

# **Increasing commercial traction**



# **Revenue visibility –** FY 2019/20



## **Cash flow**

	6 months ended 31 October 2019 £'000 (Unaudited)	6 months ended 31 October 2018 £'000 (Unaudited)	Year ended 30 April 2019 £'000 (Audited)
Net cash from operating activities	(876)	(1,940)	(4,777)
Investing activities:			
Investment in long term cash deposits	1,250	-	-
Interest received	45	129	155
Purchases of property, plant and equipment	(5,459)	(2,957)	(3,644)
Purchases of patents and trademarks	(111)	(104)	(210)
Capitalisation of research and development costs	(1,738)	(1,503)	(2,731)
Net cash used in investing activities	(6,013)	(4,435)	(6,430)
Net cash from (used in) financing activities	(179)	2,263	21,484
Net (decrease)/increase in cash and cash equivalents	(7,068)	(4,112)	10,277
Cash and cash equivalents at beginning of period	20,616	9,488	9,488
Effect of foreign exchange rate changes	(111)	964	851
Cash and cash equivalents at end of period	13,437	6,340	20,616

- Outflow from operating activities comprises EBITDA loss of £0.6m plus £0.2m of working capital movement and receipt of R&D tax credit
- Net cash used in investing activities primarily comprises £5.5m in planned capital expenditure, of which £4.8m relates to the investment in the expansion of the UK manufacturing facility
- Continued investment in product offering of £1.7m to increase opportunity in SPECT, BMD and D3S

# **Balance sheet**

	6 months ended 31 October 2019 £'000	6 months ended 31 October 2018 £'000	Year ended 30 April 2019 £'000
Non-current assets:			
Goodwill	1,275	1,275	1,275
Investments in long term cash deposits	-	1,250	1,250
Other intangible assets	18,986	17,760	18,165
Property, plant and equipment	11,365	5,864	6,252
Right-of-use asset	3,809	4,488	3,975
Total Non-current assets	35,435	30,637	30,917
Current Assets	38,789	23,276	44,827
Total assets	74,224	53,913	75,744
Current liabilities	(9,246)	(6,893)	(8,290)
Net current assets	29,543	16,383	36,537
Non-current liabilities:			
Finance lease liabilities (IFRS 16)	(3,815)	(4,289)	(3,938)
Loans	(2,156)	(2,389)	(2,313)
Total liabilities	(15,217)	(13,571)	(14,541)
Net assets	59,007	40,342	61,203

- Increase in intangibles due to continued investment in product development
- Increase in property, plant and equipment reflects the capital expenditure programme as planned

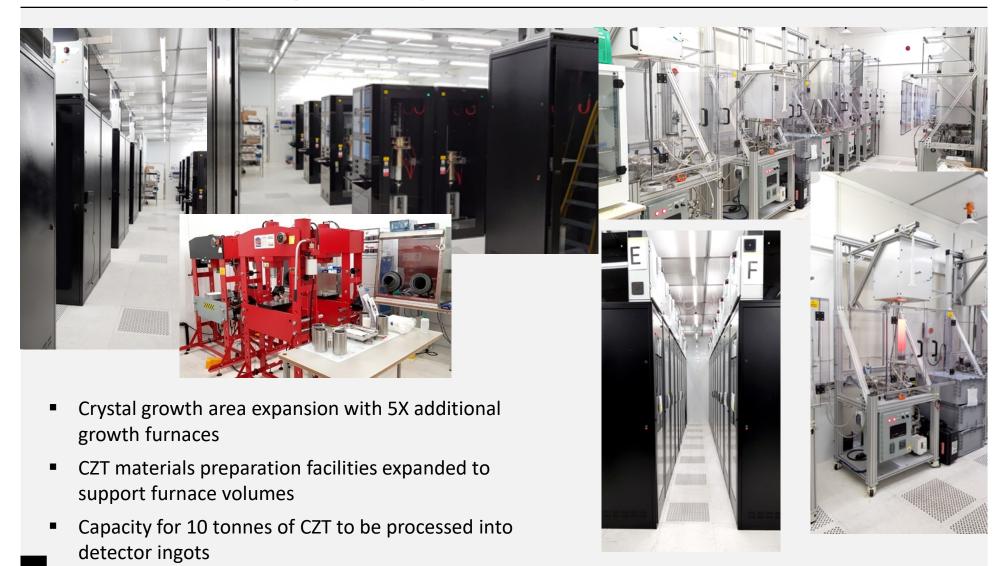


# Kromek USA – detector module production line expansion

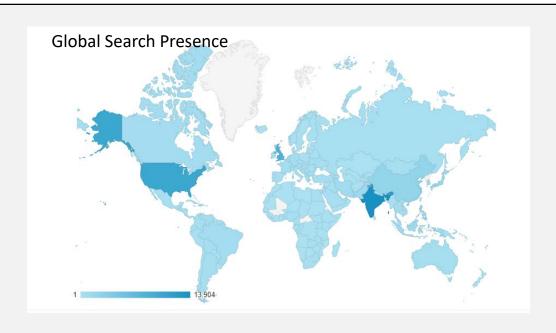


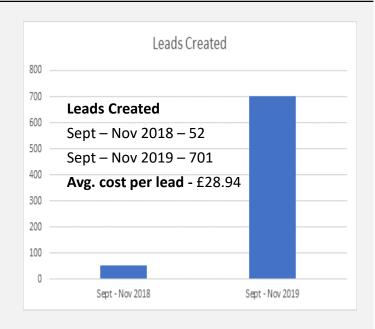
- 5X scale up of ingot slicing and dicing operations
- Full automation of detector module assembly process
- 5X increase in overall detector production line capacity

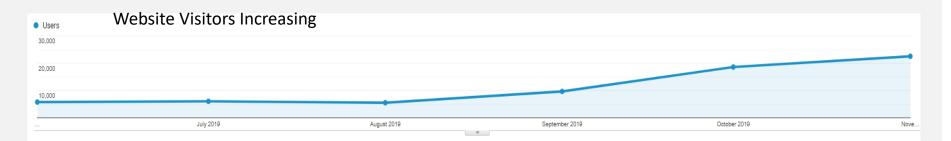
# **Kromek UK** – crystal growth expansion



# **Expansion of sales and marketing activities**





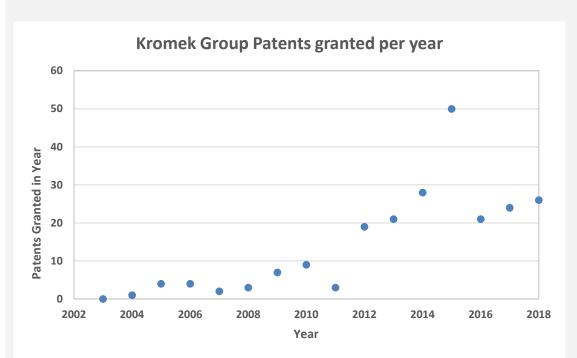


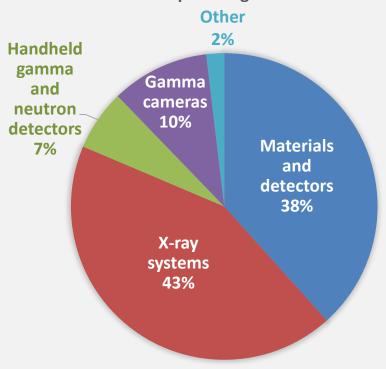


# Intellectual Property

# **Strong IP portfolio**

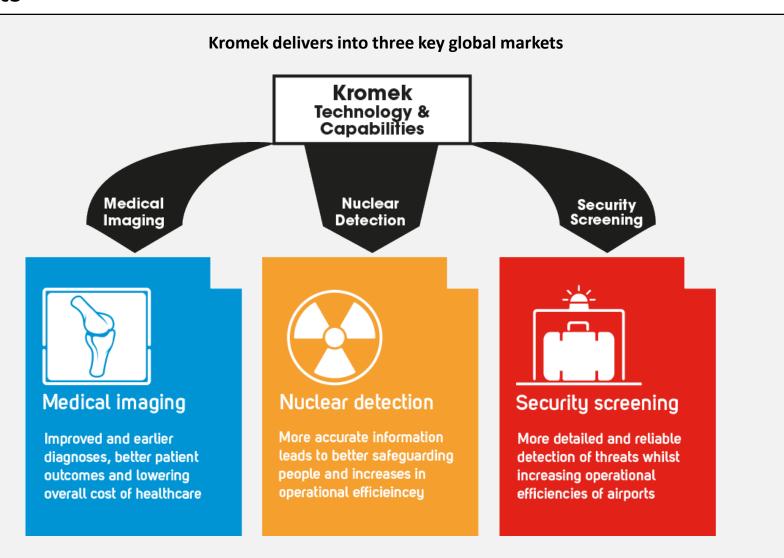
Kromek actively looks to protect the IP created by its R&D spend, to give the company assets which can protect its products from competition, ensure it has freedom to operate and give it leverage in a market





Breakdown of patents granted and filed

## **Markets**

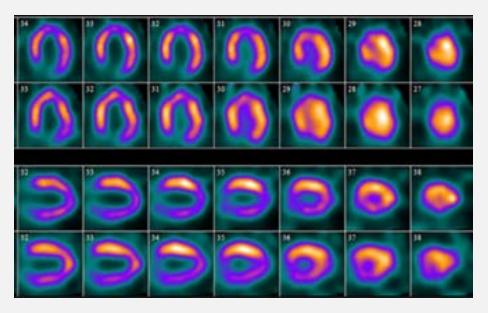




**Medical Imaging** 

## Medical Imaging – H1 2019/20 summary

- Awarded a significant contract in H2 2018/19, worth a minimum of \$58.1m over a seven-year period, by an existing OEM customer to provide CZT detectors and associated advanced electronics to be used in state-of-the-art medical imaging systems
- Successful commencement of product shipment during the period
- Continuous ongoing shipments as per plan
- Executing on all active contracts in the BMD and Gamma probe segment



**Dynamic cardiac study using CZT SPECT** 



**Customer module** 



# Tackling breast cancer detection through early detection



#### Newcastle-upon-Tyne Hospitals NHS Foundation Trust Project

#### Challenge

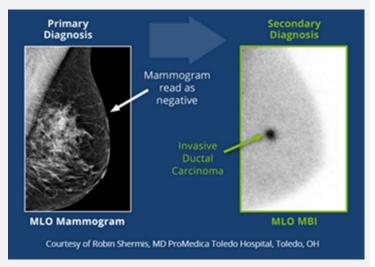
- 1 in 8 women will be diagnosed with breast cancer
- Mammography limited by breast tissue density. c. 45% women show dense breast tissue on mammogram
- Third of cancers overlooked by mammography resulting in loss of life

#### **Project summary**

- Develop novel CZT molecular breast imaging (MBI) camera to reduce patient dose and test time comparable to mammography
- MBI uses radioactive tracer to "light up" areas of cancer inside breast
- Commenced mid-2018

#### **Expected outcome**

- By 2021, transform current diagnostic tool to a world-class cancer screening solution
- Deliver a low dose molecular breast imaging camera for commercial deployment worldwide





Awarded first place in Early Diagnosis and Precision Medicine Award at Bright Ideas in Health Awards 2019



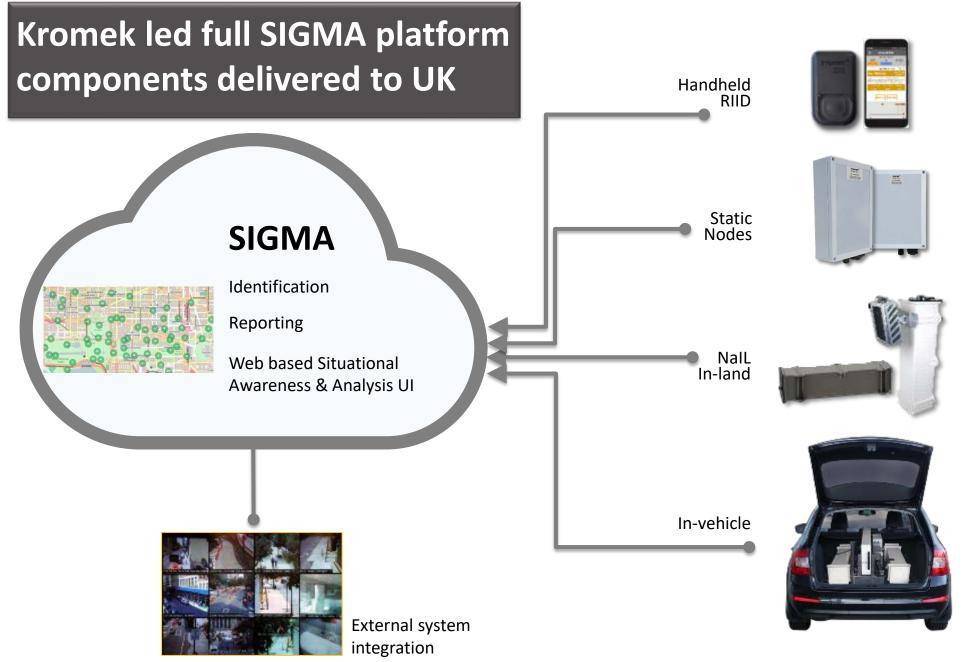
Nuclear Detection Market



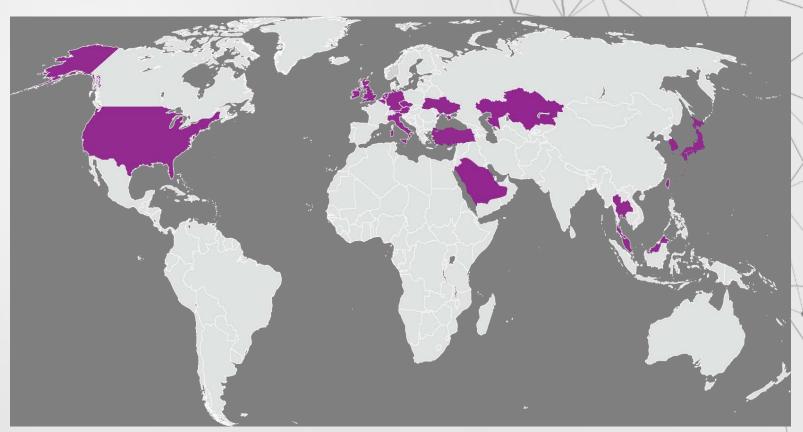
# **D3S deployments**

- Solution sold into 22 countries (18 countries as of 27 June 2019), including UK,
   France and Germany
- Successful delivery of full SIGMA system into UK, totalling £2.1m
- Largest deployment to date is in New Jersey, US where multi-thousand detector system fully deployed
- Multi-country European Commission deployment rolled out at key airports
- Post period, European national civil defence contract awarded





# D3S global reach



- Austria
- Belgium
- Curacao
- Czech Republic
- France
- Germany
- Hong Kong
- Hungary
- Italy
- Ireland
- Japan
- Kazakhstan
- Korea (S)
- Malaysia
- Netherlands
- Saudi Arabia
- Singapore
- Taiwan
- Thailand
- Turkey
- UK
- USA

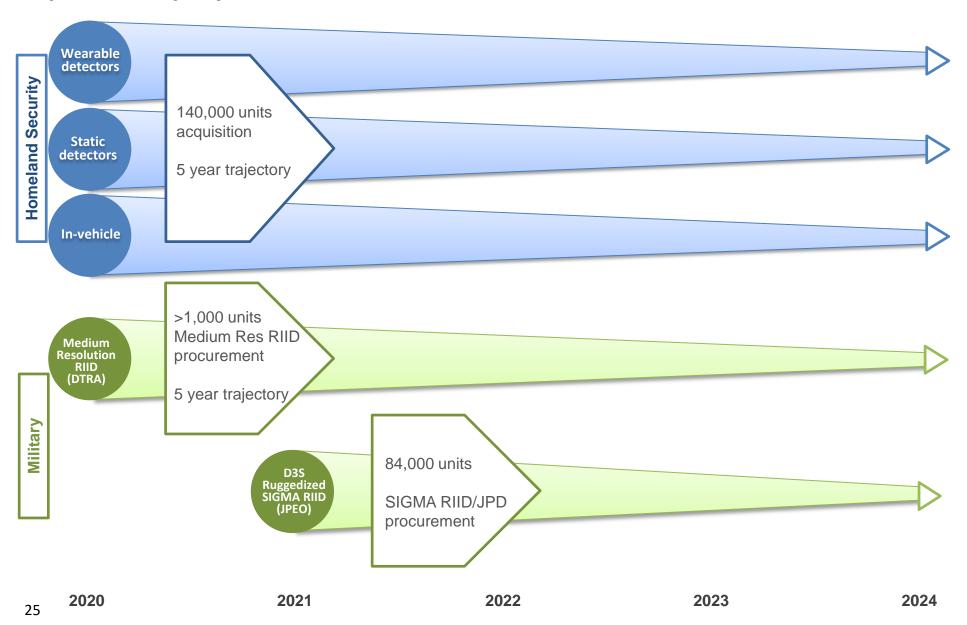


# **Military**

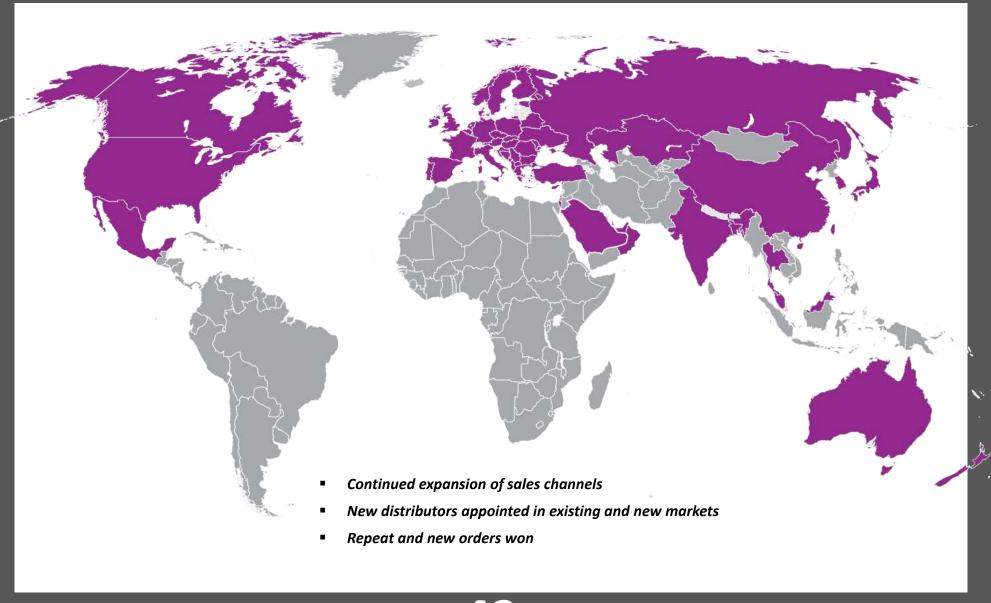
- Maturing market application with highgrowth potential
- 1,000 D3S based detector systems successfully delivered to US Army
- Funded DTRA Program for RIID development given exemplary status feedback
- US Army procurement for new RIIDs now active and being responded to in line with DTRA development



# Pipeline of projects in US alone



# **Civil nuclear markets**



# **Security Screening**

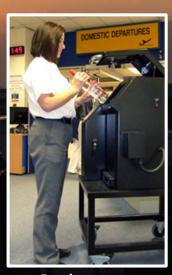
- Active deployment of Bottle Scanner in Asian market
- Ongoing service contract revenue from current installed base
- Working with four OEM customers
- Two OEMs successfully integrating Kromek technology in their customer offering
- Successful certification for ECAC Type C scanner using Kromek algorithm and detectors



Hold Baggage Scanning



Checkpoint Baggage Scanning



Bottle scanner at Checkpoints

## **Outlook**

- Entered H2 2019/20 well-positioned to report highest ever FY revenues as Kromek continues to ramp up delivery of high value, multi-year contracts
- Ramp up due to customers commercially launching next-generation CZT-based products and from increasing adoption of CZT-based technology across its target markets
- On track to achieve significant revenue growth and EBITDA profit for FY 2019/20 in line with market expectations – visibility of 90% of revenues
- At the early stages of delivering contracts worth c. £100m won over the past three fiscal years
  - Compared with c. £50m and c. £30m for the three years to 31 October 2018 and 2017 respectively
- Growth over the next few years underpinned by multi-year contracts that are expected to provide an ever-increasing order book at the beginning of each year
- Continued growing demand from commercial and government customers globally for flagship products is expected to convert to further multi-year contracts

## Thank you



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## **UK Operations**



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#### **US Operations**



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Los Angeles, California, USA

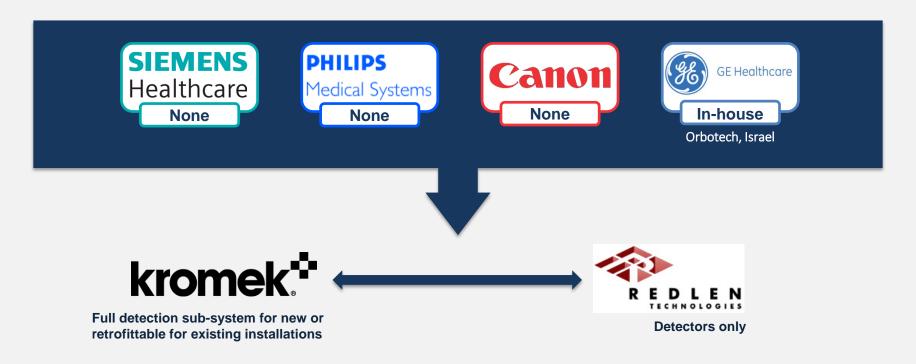


# **Medical Imaging** – markets served

	Use of CZT established		Niche + early adoption	R&D + future opportunity
Segment	Gamma Probes	BMD 🚔	SPECT	CT
Function	Radio Guided Surgery	Osteoporosis Detection	Cancer Detection	Heart Disease Detection
Detection Mode	Gamma	X-ray	Gamma	X-ray
Product			00	
Market Size	Addressable market \$1.6m p/a	Addressable market \$30m p/a	Addressable market \$110m p/a	Market of \$5.9bn p/a by 2019
Market Characteristic		A market leading OEM converting to CZT detectors Customer sales growth driven by uptake in China	Market dominated by GE, Philips and Siemens Adoption of CZT in full-body SPECT driven by GE Significant opportunities in China	GE, Toshiba, Philips, Siemens have significant market share and active R&D product plans using CZT detectors
	3 OEM customers	5 OEM customers	4 OEM customers	2 R&D customers

# **Medical Imaging** – strong strategic position

CZT is recognised as key to SPECT future by the four major OEMs

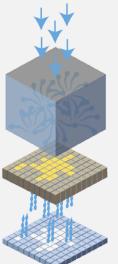


These four major OEMs have published over 550 peer reviewed papers and patents in the last three years

High barriers to entry for any new player

## The technology – CZT

## **Existing Scintillator**



High energy radiation

Scintillator converts radiation to light

Light is collected by Photomultiplier or Photodiode

Photodetector electronics

Low resolution spectra and images

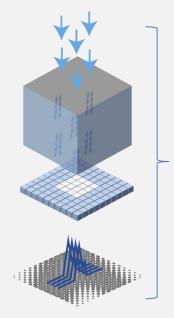
#### **Kromek - CZT**

High energy radiation

CZT directly converts radiation to electrical signals

ASIC signal readout

High resolution spectra and images



#### **Benefits of CZT**

- 1. Colour
- 2. Digital
- 3. Low maintenance and miniaturised systems

### **Nuclear detection - D3S**

The flagship product, D3S, is the world's most advanced, portable, nuclear detection device used by counter-terrorist agencies to protect civilians, key infrastructure in cities including ports, borders and transport hubs

