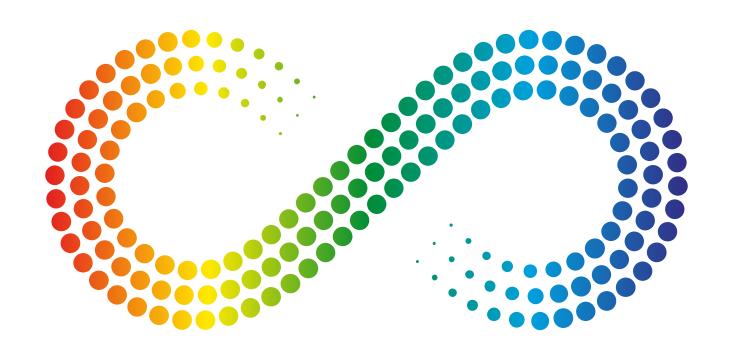
## Interim results presentation

For the six months ended 31 January 2020





possibilities

### DISCLAIMER



The following presentation is being made only to, and is only directed at, persons to whom such presentation may lawfully be communicated ("relevant persons"). Any person who is not a relevant person should not act or rely on this presentation or any of its contents. This presentation does not constitute an offering of securities or otherwise constitute an invitation or inducement to any person to underwrite, subscribe for or otherwise acquire securities in Nanoco Group PLC or any of its subsidiaries ("Nanoco").

It should be noted that past performance cannot be relied on as a guide to future performance. This presentation contains forward-looking statements with respect to Nanoco's plans and objectives regarding its financial conditions, results of operations and businesses.

The financial information referenced in this presentation does not contain sufficient detail to allow a full understanding of Nanoco's results. For more detailed information, the entire text of the Interim Results announcement for the half year ended 31 January 2020, can be found on the Investor Relations section of the Nanoco website (<a href="www.nanocogroup.com">www.nanocogroup.com</a>).

### **SUMMARY**



#### **Operational**

All milestones completed for US Customer

Runcorn facility increasing capacity and reducing cost

New IRQD POs received

Lawsuit filed against Samsung

#### **Financial**

Revenue in line with expectations £2.9m (FY19: £3.1m)

**Loss reduced by** ~**50%**\* **to £1.1m** (FY19: £2.5m\*)

Period end monthly cash burn £0.7m, now cut further to ~£0.4m

Cash runway extended to Q2 2021

#### **PRIORITIES**



- Preserve cash
  - Suspended all longer term development efforts
  - Reduced monthly cost base to c. £400k
  - Retained core operational capability to respond to future demand
- 2 Focus all operational activities on delivering near term revenue
  - Ramping IRQD sales
  - Negotiating IRQD sensor development deals
  - Selling latest generation of CFQDs into display applications
- 3 Defend extensive patent portfolio
  - Law suit filed against Samsung for IP infringement in display
  - Securing third-party litigation finance to support law suits
- 4 Support Strategic Review activities
  - Pursue other sources of medium-term funding

## **COVID-19 OPERATIONS**



### Protecting staff while continuing to service customers

- Two thirds of staff have been furloughed under UK Government scheme
- Safety focused lab operations on behalf of customers are being maintained:
  - Social distancing enabled in labs and offices
  - Increased use of PPE much of our work is already performed using PPE
  - Enhanced cleaning / disinfecting routines of re-usable PPE and working environments
- Remainder of staff working from home where necessary
- Company-wide salary cut for the Board from 1 April and other staff from 1 May
- Employer pension contributions and staff benefits maintained at unreduced rates

## IRQD SENSOR OPPORTUNITY



#### US Customer contract ended 31 Dec. 20

- All milestones delivered and paid for
- All exclusivity dropped away

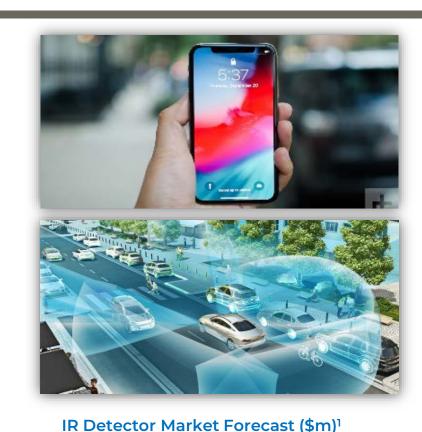
#### Busy working with key industry players

#### IRQD Technology is highly relevant

- Facial recognition (front facing)
- Augmented reality (world facing)
- Autonomous vehicles
- Healthcare

#### Nanoco's differentiation

- Extend silicon range & sensitivity (~10x)
- Enhanced data collection
- Lower power consumption
- Cost effective vs InGaAs





2021E

2022F

2023F

2019E

2020E

2018A

<sup>1.</sup> Yole - Uncooled Infrared Imagers and Detectors 2019

## **CFQD DISPLAY**



Improved red and green CFQD for LCD display film

 China, Japan, Korea and Taiwan focus Next generation CFQD for OLED-QD Hybrid system

 Currently being trialled by leading OEM's in Kr and CH



Merck license up for renewal

Current license expires 30
 June

### CFQD VOLUME GROWTH IN DISPLAY



# QD film technology introduced to mid-range TVs (sub \$1,000 price)

- Will result in higher volumes
- Nanoco pioneered the technology
- Samsung led commercialisation, others following

#### Hybrid QD-OLED TVs to launch 2021

- Further increases importance of QD technology
- QD more cost effective solution than
   OLFD
- QD-OLED uses 3x QD volume than QD film

# Nanoco capacity addresses both opportunities in film and QD-OLED

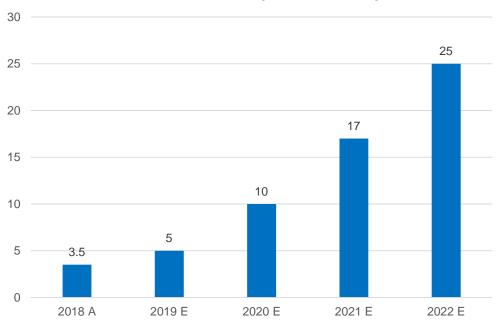
#### News

Sep 24, 2019 – Samsung to invest \$11 billion to build manufacturing lines for QD-OLED displays

#### **Why Quantum Dots?**

- ✓ Improved colour saturation relative to LCD
- ✓ Narrow bandwidth allows for more light extraction through color filters
- Minimal process disruption: uses existing LCD supply chain

#### **Volume QD-TV (million units)**

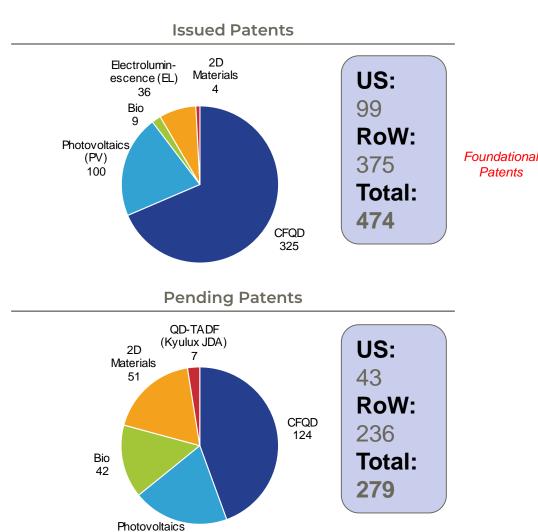


2020 Interim Results

## DEFENDING OUR EXTENSIVE IP PORTFOLIO



# Nanoco has one of the largest quantum dot IP portfolios with >750 patents and patents pending spanning geographies and market applications



#### **Key Patented Technologies and Applications**

# **Seeding Patents**

 Fundamental Nanoco technology which allows for controlled high volume production of high quality nano-materials including CFQDs and IRODs

### Heavy Metal Free Patents

 Composition of matter patents relating to fundamental cadmium-free quantum dot technology

#### Surface Chemistry Patents

 Critical technology covering the modification and tuning of the QD surface to ensure the QDs are compatible with different resins, ink, photo-resist systems and work in devices

#### **Device**

 Range of electroluminescent and photovoltaic device patents utilizing Nanoco's nano-particles and QDs

(PV) 55

### SAMSUNG LITIGATION



## Aggressively defending Nanoco's Intellectual Property to secure value for all stakeholders

- Retained IP litigation specialists 'Mintz, Levin' and strategic IP group, 'Epicenter'
- Filed patent infringement complaint, Eastern District of Texas, 14 February, 2020
- Various Samsung entities named as defendants in the lawsuit
- Complaint states Samsung wilfully infringed Nanoco's core intellectual property
- Five patents cited relating to Nanoco's unique synthesis and resin capabilities for quantum dots
- Infringing products are Samsung's range of quantum dot enabled TV's previously sold under the SUHD brand and current sold under the QLED brand
- Samsung estimated to have sold <u>14 million TV's</u> using Nanoco technology
- Case currently focuses on US (largest market), can extend to other major markets
- Next step in the lawsuit is to formally serve the suit
- Number of offers received for third party funding, final agreement being negotiated





### FINANCIAL OVERVIEW





- → Billings £1.3m down on H1 FY19 following completion of US contract
- → Revenue and other operating income £2.9m 10% down on H1 FY19
- → Post period end, new orders and billings for sensing and display customers



- → Cost base cut to £0.7m per month 12.5% reduction on July 2019
- → Cost base still protects value in R&D, production capability, Samsung lawsuit
- → Post period end, cost base now reduced to under £0.4m per month



- → Cash £4.2m, slightly below expectations FSP related sales slow down
- → Further reductions in monthly cash costs to £0.4m per month
- → Cash runway, even in a restructured downside, still extends to Q2 2021

## **INCOME STATEMENT**

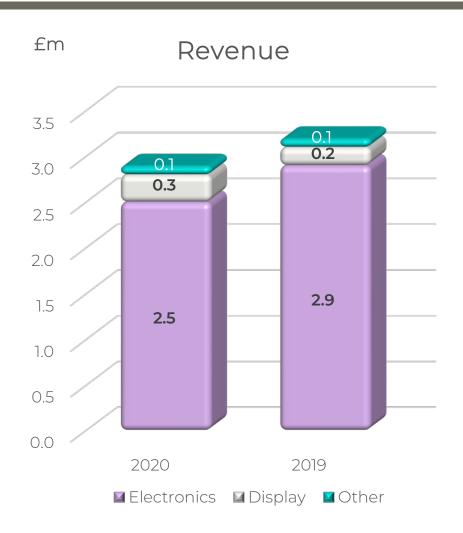


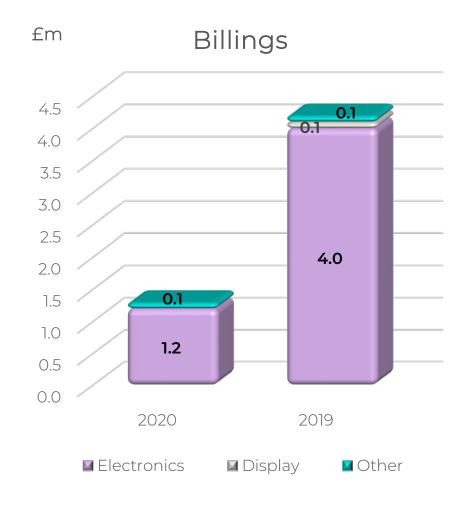
	H1 20 £m	H1 19 £m	Change £m
Revenue and other operating income	2.9	3.2	(0.3)
Cost of sales	(O.O)	(0.5)	+0.5
Gross profit	2.9	2.7	+0.2
R&D investment	(1.7)	(1.6)	(O.1)
Other administrative expenses	(2.3)	(3.7)	+1.4
Exceptional items and share based payments	(0.3)	-	(0.3)
Loss Before Interest, Tax, Depreciation & Amortisation	(1.4)	(2.6)	+1.2
Depreciation & Amortisation	(1.0)	(0.5)	(0.5)
Operating loss	(2.4)	(3.1)	+0.7
Tax and financing costs	0.5	0.6	(O.1)
Loss after tax	(1.9)	(2.5)	+0.6

- → Adjusted EBITDA loss cut by 50% to £1.1m for the Period, despite the fall in revenue
- → Administrative costs benefit from Q4 FY19 restructure, tight cost control and IFRS16 benefit (£0.2m)
- → Depreciation and amortisation increase reflects IFRS16 and final write down of Runcorn plant

## **REVENUE AND BILLINGS**





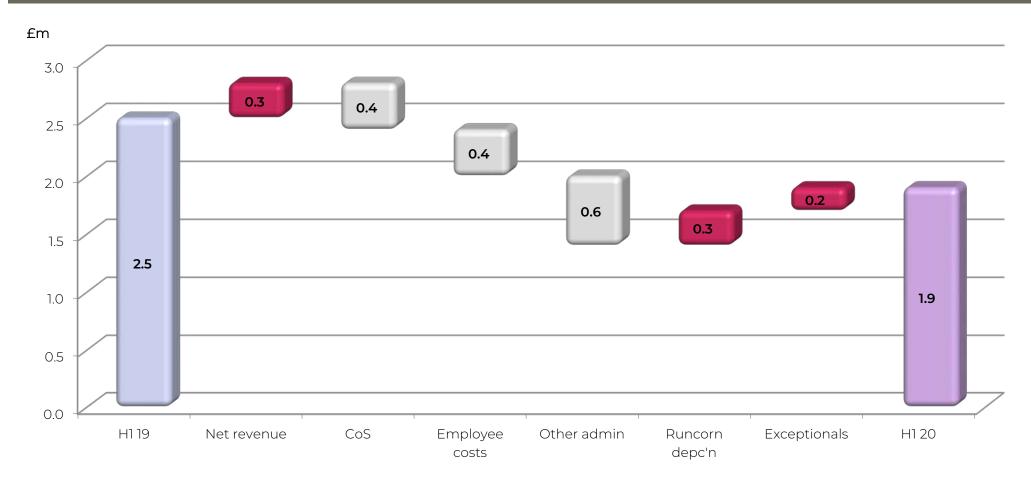


- → Electronics revenues driven by US Customer
- → Increased display revenue from small R&D projects

- → Large FY19 billings to US Customer
- → Display royalties are billed annually

## MOVEMENT IN NET LOSS

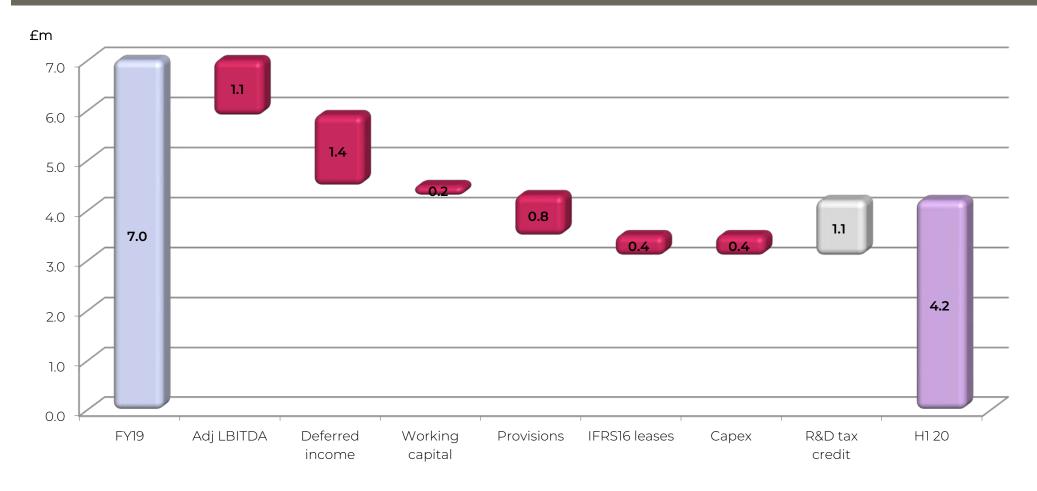




- → Improvement in loss position driven by significant reduction in most cost categories
- → Cost of Sales fell with no repeat of Runcorn commissioning costs from H1 FY19
- → Employee costs reduced by restructure in Q4 FY19 average headcount now 70 compared to 90 in H1 FY19
- → Reduction in other admin costs reflects tight cost control offset in part by one off Runcorn depreciation

## MOVEMENT IN CASH





- → Adjusted LBITDA cut by 50% compared to H1 FY19 includes benefit of change due to IFRS16
- → Changes in deferred income and working capital reflect end of the US Customer contract
- → Various IFRS16 changes onerous lease provision released, leases separate cash flow
- $\rightarrow$  Cash runway, with benefit of employment support and contingency plans, now extends to Q2 2021

## FINANCIAL SUMMARY





- → Withdrawing guidance except for cash, burn rate and runway
- → Material new orders and agreements to be announced when won

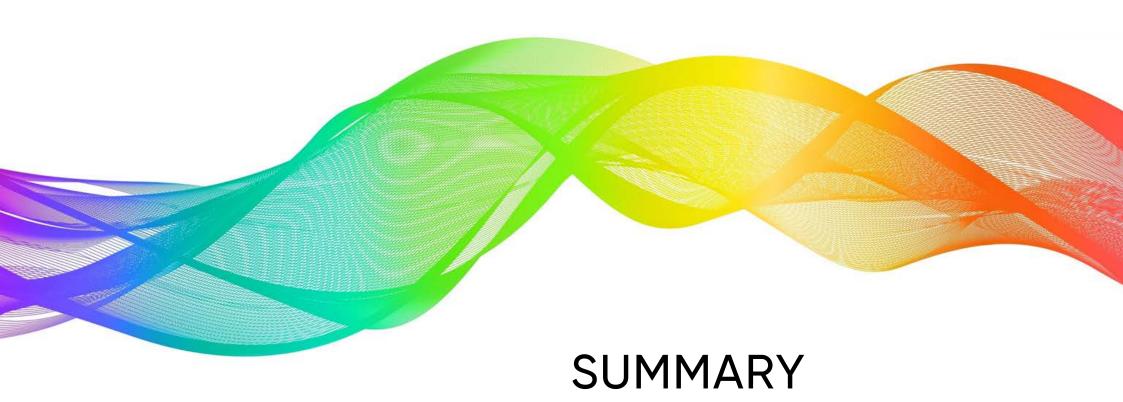


- → Working safely under Covid-19 restrictions to deliver customer orders
- → Protecting core assets, capabilities and significant installed revenue capacity



- → Monthly cash burn reduced further to £0.4m
- → Cash runway extends to Q2 2021 by means of contingency plans





#### **SUMMARY**

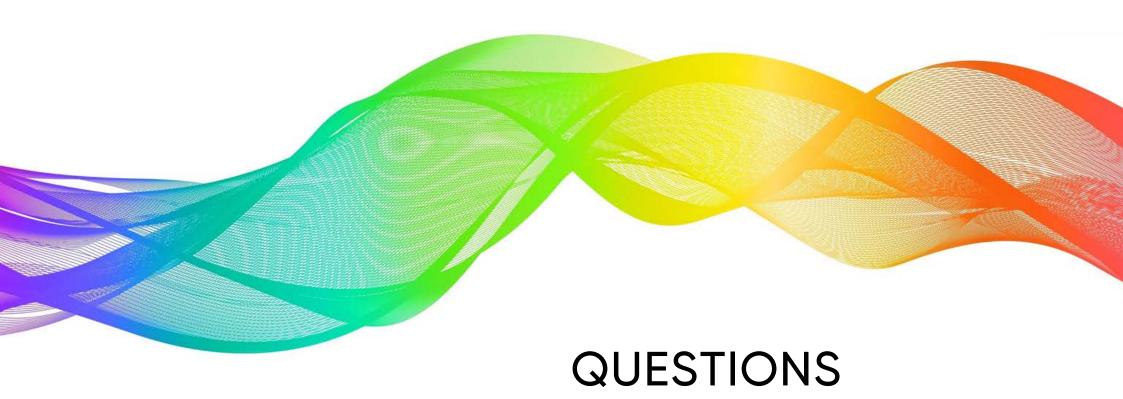


Preserve cash

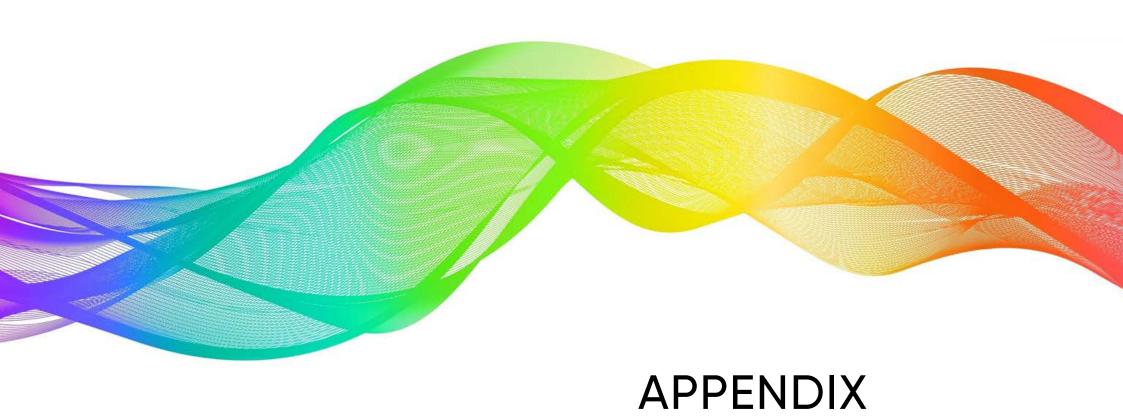
- Monthly cost base reduced to c. £400k
- Cash runway extended to Q2 2021, retaining stream-lined operational capability
- Focus operations on near term revenue
  - Customer operations continue safely under Covid-19 restrictions
  - Advanced stage of negotiating IRQD sensor development deals
- Prosecute extensive patent portfolio
  - Sue Samsung for IP infringement in display
  - Secure third-party litigation finance to support law suits
- Support Strategic Review activities
  - Pursue other sources of medium-term funding

Preserving optionality to deliver maximum value









## NANOCO AT A GLANCE



## Global leader in the R&D, licensing and manufacture of cadmium-free quantum dots and semiconductor nanomaterials

#### **Business Description**

Status: Public (LON: NANO)

Founded: 2001

**Headquarters:** Manchester, UK

**Production:** Runcorn, UK

**Employees:** 69 (30 PhDs)

#### **Key strengths include:**

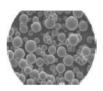
- Pioneer in Cadmium-Free® Quantum Dots (CFQD®)
- Among the largest intellectual property portfolios (~750 patents and patents pending)
- Unique scale-up and mass production capabilities

#### **Critical Technologies**

- Volume production
- Cadmium-free QD pioneer
- Infrared quantum dots
- Next generation 2D materials



**Materials** 



**Surface Chemistry** 



**Process** 



**Devices** 



#### Backed by leading IP portfolio of ~750 granted and pending patents

#### **Current Priorities**

## Molecular Seeding

Unique molecular seeding approach to manufacture CFQDs at scale

- Patented technology
- Reaction via cluster results in more controlled uniform growth than hot-injection
- Uniform growth results in QDs of consistent size distribution and therefore narrow FWHM
- Can cost effectively produce a range of QDs

#### Sensing

Expanding the spectral range of silicon in sensors to the Infrared region

- Direct integration with silicon CMOS technology
- Enables more sensitive, thinner, lower power sensors
- Inexpensive alternative to current InGaAs technology
- Use cases in a variety of sensors from LiDAR to Consumer Devices

#### Display

## Superior displays with CFQDs

- QDs provide superior color and energy efficiency to competing technologies
- QD technology fits in the existing LCD supply and production chain
- Currently working in QD film applications
- Future applications in QD colour conversion for QD-OLED hybrids

#### Longer term

## - Lighting

#### CFQD Quantum Dot Grow Light for horticulture lighting

 QDs work with LEDs to provides the optimal spectra to encourage maximum chlorophyll absorption

#### **Life Sciences**

#### Nanoco Vivodots™ Nanoparticles

- Versatile platform technology for medical applications
- Positioned to penetrate several markets including medical imaging, early diagnostics, PDT and IVD

## LEADERSHIP TEAM



Dr Christopher Richards Non-Executive Chairman	<ul> <li>CEO, Non-Executive chairman, Arysta LifeSciences</li> <li>20 years of increasing management roles at Syngenta</li> <li>Executive chairman of Plant Health Care</li> <li>NED of Origin Enterprises plc</li> </ul>
<b>Dr Michael Edelman</b> CEO	<ul> <li>Led spin-out of Nanoco from University of Manchester</li> <li>GE/Bayer JV, founded www.yet2.com Europe,</li> <li>Commercial Director Colloids Ltd, Brunner Mond, ICI</li> </ul>
<b>Dr Nigel Pickett</b> Co-founder & CTO	<ul> <li>Inventor of Nanoco's key patented scale-up technology</li> <li>Leading expert on semi-conducting nano-crystals</li> <li>Japanese Government, St. Andrews University, Georgia Tech</li> </ul>
Brian Tenner CFO / COO	<ul> <li>Experienced Quoted Company CFO with strong operational and transformation experience</li> <li>Previously Board Member and CFO of British Nuclear Group Ltd, Scapa Group plc, Renold Plc, NCC Group PLC</li> </ul>
Dr Alison Fielding Non-Executive (Remuneration chair)	<ul> <li>NED of Getech Group plc, Zotefoams plc and Maven Income and Growth VCT plc.</li> <li>Astra Zeneca, followed by McKinsey &amp; Co, then co-founded Techtran Group Limited which was acquired by IP Group in 2005 and subsequently held the role of director and COO at IP Group</li> <li>Board member and advisor of several early stage and quoted IP Group backed technology companies</li> </ul>
Chris Batterham Non-Executive (Audit chair)	<ul> <li>20 years of Non-Executive experience in high growth technology companies including:</li> <li>Blue Prism, SDL, Betfair and Iomart</li> <li>Previously CFO of Unipalm, first Internet IPO</li> </ul>

2020 Interim Results

## Shareholder Analysis (As at 28 April 2020)



Name	Shareholding	Percentage
Lombard Odier Asset Management	66,700,015	23.50%
Hargreaves Lansdown Asset Management	38,175,440	13.45%
Mr Richard I Griffiths	36,983,341	13.03%
Interactive Investor	16,695,439	5.88%
Mr Nigel Pickett	11,074,119	3.90%
Barclays Wealth	9,967,981	3.51%
UBS Securities	9,434,284	3.32%
Halifax Share Dealing	8,385,279	2.95%
Close Asset Management	4,959,257	1.75%
Bank of America	4,403,638	1.55%
Total of shareholdings above	206,778,793	72.86%

Note: The total number of voting rights in the Company is 286,219,246





