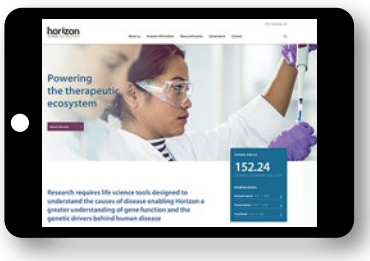
ANNUAL REPORT & ACCOUNTS 2019

Powering the therapeutic ecosystem

horizon™
INSPIRED CELL SOLUTIONS

CONTENTS



FINANCIAL HIGHLIGHTS

GROUP FINANCIAL HIGHLIGHTS

£58.3M
Revenues[1] from Continuing Operations of £58.3m (FY 2018: £54.1m) growth of 7.8% (£56.7 on a constant currency basis[2] 4.8% YoY increase)

70.0%
Gross Margin from Continuing Operations 70.0% (FY 2018: 69.7%)

£3.9M
Adjusted EBITDA[3] from Continuing Operations of £3.9m (FY 2018: £2.1m)

£18.8M
Cash position at 31 December 2019 of £18.8m (FY 2018: £26.7m)

£(11.5)M
Loss on continuing operations before tax of £11.5m (FY 2018: £6.6m loss)

BUSINESS UNIT PERFORMANCE[4]

Research Reagents: Revenues of £33.5m, growth of 8.4% (FY 2018: £30.9m) or growth of 5.2% on a constant currency basis

Screening: Revenues of £11.4m, growth of 28.1% (FY 2018: £8.9m) or growth of 24.7% on a constant currency basis

BioProduction: Revenues of £8.6m, down 1.1% (FY 2018: £8.7m) or a decline of 3.7% on a constant currency basis

Diagnostics: Revenues of £4.8m, down 14.3% (FY 2018: £5.6m) or a decline of 17.0% on a constant currency basis

OPERATIONAL HIGHLIGHTS

Disposal of In Vivo business unit completed in December 2019

Strategic collaboration with Mammoth Biosciences signed in December 2019

Post period end, in January 2020, the Group exercised an option to exclusively license base editing technology

from Rutgers, The State University of New Jersey (U.S.), for use in all therapeutic applications

In April 2020 the Group successfully placed 6,764,365 shares at a price of 102 pence per share raising gross proceeds of £6.9m

1 During the 2019 financial year the In Vivo business unit contributed revenues of £4.6 million. The In Vivo business unit is reported as discontinued operations in the FY2019 and FY2018 results.

2 We calculate revenue on a constant currency basis by translating any current year revenues generated in foreign currencies into British Pounds, our reporting currency, using the average foreign currency exchange rate from the prior period.

3 We define this as loss for the year from continuing operations before taxation, finance costs, investment income, amortisation and depreciation and items which are non-recurring and do not form part of our underlying year to year expense base. Adjusted EBITDA incorporates a positive £2.5m impact of IFRS 16 which was adopted on 1 January 2019. A reconciliation of our loss for the period from continuing operations to adjusted EBITDA is presented in the Financial Review section.

4 New market aligned business unit structure introduced in January 2019. Prior year equivalents provided for comparison.

THE PHONE ICON CAN BE FOUND THROUGHOUT THIS REPORT AND MEANS YOU CAN FIND MORE INFORMATION AT
WWW.HORIZONDISCOVERYPLC.COM

HORIZON DISCOVERY GROUP PLC

The go-to provider of cell engineering solutions

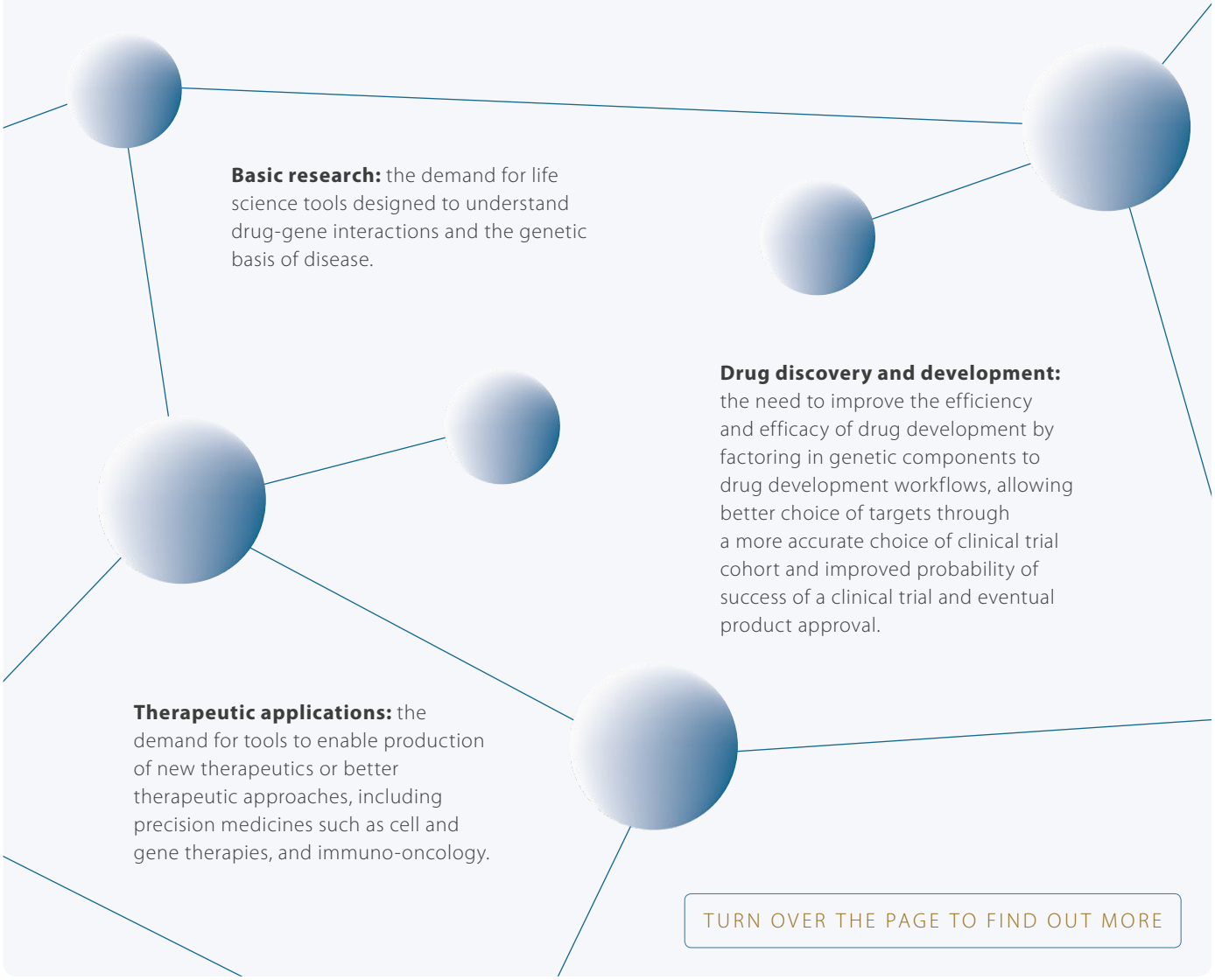
We are a cell engineering company focused on commercialising the application of gene editing and gene modulation to accelerate scientific innovation and biopharmaceutical drug development.

Built upon decades of experience in the engineering of cell lines, we have created a unique and high value portfolio of tools and services, which enable almost any gene to be altered, or its function modulated, in human and other mammalian cell lines.

LEVERAGING OUR EXPERTISE

Powering the therapeutic ecosystem

We are leveraging our technological expertise to provide cell engineering tools and services to our customers in three key areas of the therapeutics ecosystem:



Basic research: the demand for life science tools designed to understand drug-gene interactions and the genetic basis of disease.

Drug discovery and development: the need to improve the efficiency and efficacy of drug development by factoring in genetic components to drug development workflows, allowing better choice of targets through a more accurate choice of clinical trial cohort and improved probability of success of a clinical trial and eventual product approval.

Therapeutic applications: the demand for tools to enable production of new therapeutics or better therapeutic approaches, including precision medicines such as cell and gene therapies, and immuno-oncology.

TURN OVER THE PAGE TO FIND OUT MORE

WHO WE ARE

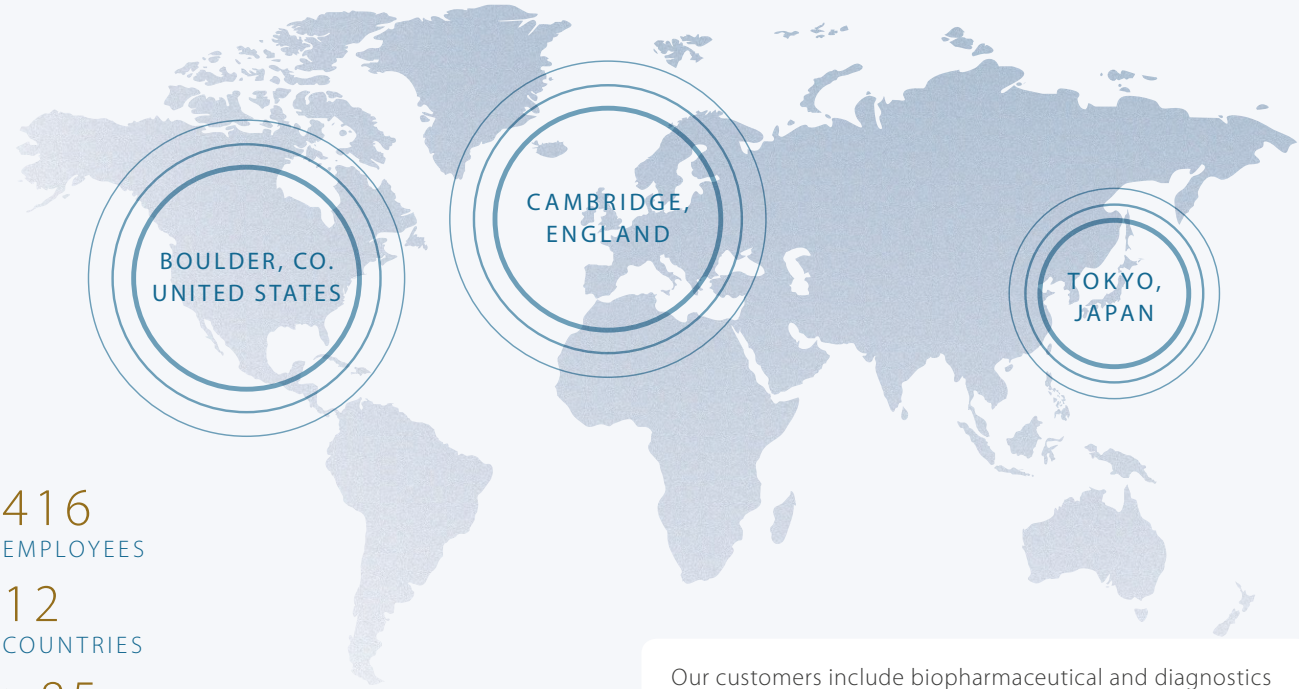
A high growth pure-play tools and services company

Horizon Discovery is a world-leader in the design, manufacture, and application of gene editing and gene modulation tools, driving their use within the global life science market.

We achieve this by providing the key enabling technologies that allow researchers to effect a change in the protein synthesis pathway by either modulating (gene modulation) or permanently altering (gene editing) the function of any particular gene.

Our business is underpinned by a portfolio of cell engineering tools and services, featuring leading gene editing technologies such as CRISPR and base editing, and gene modulation technologies such as RNAi. Our offerings support and enable critical elements of the drug development and therapeutic value chain, particularly in the area of precision medicine. This is a growing field of therapeutic development in which disease states are characterised through an understanding of genomic expression. Through this understanding, therapeutic treatments may be tailored to specific patient populations based on their genetic makeup.

- Horizon is headquartered in Cambridge, U.K. and Boulder Colorado U.S.A., with a sales office in Japan.
- Horizon is listed on the London Stock Exchange's AIM market under the ticker HZD.
- The Group has 416 employees in 12 countries of which more than 85 are PhD-level scientists.



416
EMPLOYEES

12
COUNTRIES

>85
PHDS

>2,000
CUSTOMERS

Our customers include biopharmaceutical and diagnostics companies, contract research and manufacturing organisations and academic researchers across the globe. In 2019, we sold our tools and services to more than 2,000 unique customers in over 60 countries, including 19 of the largest 20 biopharmaceutical companies by revenue.

HOW WE ARE ORGANISED

Our portfolio of tools and services address key areas of the therapeutics ecosystem

To meet the needs of our target market sectors, we are organised in business units, each of which is led by a Business Unit Manager. In FY 2019, these Business Units comprised Research Reagents, Screening, BioProduction, Diagnostics and In Vivo. This is a new market-aligned business unit structure for FY19.

In December 2019, we completed the divestment of our In Vivo business unit to Envigo RMS LLC.

In January 2020, we created a new Business Unit focusing on our new opportunities in base editing.

COMPANY PROFILE

DIVISIONS & REVENUE

RESEARCH REAGENTS PAGE 21

provides the tools and services that allow scientists to better understand disease mechanisms, and to identify the drivers behind a disease by inducing both permanent and transient changes in gene expression.

£33.5M
FY 2019 REVENUE

SCREENING PAGE 22

provides the tools and services that enable biopharmaceutical companies to understand disease pathways, find and validate novel drug targets, identify mechanisms of drug resistance or sensitivity, repurpose existing therapeutics for new indications and patient populations and stratify patients for clinical trials based on their genetic profile.

£11.4M
FY 2019 REVENUE

BIOPRODUCTION PAGE 23

business unit provides biotechnology, biopharmaceutical and contract manufacture organisations with a Chinese Hamster Ovary (CHO) cell line that has been modified by gene editing to enable efficient biologics manufacturing.

£8.6M
FY 2019 REVENUE

DIAGNOSTICS PAGE 24

business unit provides platform developers, biopharmaceutical companies and diagnostic laboratories with molecular reference standards derived from gene-edited cell lines that have been developed to mimic human genetic diseases, particularly in oncology.

£4.8M
FY 2019 REVENUE

IN VIVO PAGE 25

provides genetically engineered rat and mice models featuring specific gene deletions, insertions, repressions and modifications, which are used as pre-clinical models for human genetic disease for drug discovery.

£4.6M
FOR 11 MONTHS TO 2 DECEMBER 2019 REVENUE

BASE EDITING PAGE 25

In January 2020 we exercised our option with Rutgers, the State University of New Jersey, to exclusively license its novel base editing platform. We expect to refine this technology over the next 18 months ahead of full commercialisation. From the start of 2020 we have created a new dedicated business unit to provide the necessary focus on its development.

NEW FOR FY 2020

MARKET POSITION

Uniquely positioned

Horizon is uniquely positioned with a robust market-leading portfolio of tools and differentiated service capabilities that support and enable critical elements of the drug development and therapeutic value chain.

Basic research: the demand for life science tools designed to understand the genetic basis of disease

Underlying each disease is a genetic signature that differentiates the disease's pathologic cells from those that are healthy. By reproducing these genetic profiles in a cellular or animal model through the use of gene editing, researchers can investigate and better understand a disease's genesis and pathology. Importantly, a single disease can have many different genetic profiles, so it is important that researchers can generate or have access to a wide variety of genetic alterations for a given disease or animal model.

Drug development: the need to improve the speed and reduce the costs of drug development

Whereas drugs were formerly developed on a "one-size fits all basis" drug development is increasingly focused on the underlying genetic profile of diseases. This has the potential to significantly shorten drug development timelines by allowing companies to refine clinical trials to select patient populations within a disease type based on their genetic makeup.

Disease diagnosis is another area that has adopted gene editing tools. More specifically, tailored genomic reference standards are necessary to ensure quality control for molecular assays, which inherently have some degree of variability. By using controls alongside the molecular diagnostic assay, customers can ensure their results are correct.

Therapy: providing the tools to enable new therapeutic approaches, including the growth of personalised medicines

Gene editing is a particularly important tool for the development of precision medicines. This is because having access to highly specific and well-curated disease cell lines and preclinical models that mimic a certain disease's mutational profile is paramount to success. Cell line models are used extensively to develop pre-clinical evidence for validity of therapeutic targets and the drugs used to treat them. Where greater predictability can be achieved through use of the most relevant cell line model, the greater the likelihood that a therapeutic programme will succeed in impacting the well-being of patients.

Gene editing is also being adopted to improve the performance of the "work-horse" CHO cell lines that are used in the manufacture of biological drugs (biologics) such as antibodies. By using genetically modified cells, the production of the biologics can be improved resulting in outcomes which are quicker, cheaper, better or a combination of all three.

MARKET OPPORTUNITY

Transforming drug development

CRISPR and other gene editing and gene modulation technologies are revolutionising biology. The tools and services derived from these technologies are fuelling our understanding of disease and transforming the drug development process.

We believe the following factors will drive growth in the cell engineering market:

- Diseases are increasingly being understood and treated by their specific impact on genetic expression.
- The demand for new and more complex cell models continues to grow, both to improve productivity of results and to support replacement of animal models
- The demand to increase the efficiency and efficacy of drug development and discovery requires tools and services that help to lower the overall cost of development and shorten drug development timelines.
- There is an increasing demand for precision medicine including novel therapeutic approaches for genetic diseases.

"Despite strong vetting for disease activity, only 10% of novel drug compounds in early stage clinical trials are eventually approved."[1]

HELPING TO IMPROVE THE RETURN ON INVESTMENT ON DRUG DEVELOPMENT

The life sciences industry is in an era of fundamental transformation. The cost of drug development continues to rise, largely inflated by the high rate of attrition in the testing of drug compounds. Despite strong vetting for disease activity, only 10% of novel drug compounds in early stage clinical trials are eventually approved.

Recent technological innovations have enabled researchers to not only 'read' the human genome but also to be able to 'write' the code, giving them a better understanding of how DNA is being read and translated into proteins. As a result, life science researchers and drug developers are increasingly using genetic information to increase the efficiency and efficacy of the drug development process, empowering the cost-effective development of medicines targeted to specific patient populations or targeting existing therapies more effectively to the most suitable populations. We believe that the risk of drug development failure can be reduced by leveraging the knowledge around the genetic drivers of diseases and drug resistance to create more focused drug development programmes, which could significantly lower the overall cost of development and shorten drug development timelines.

For example, the use of genetically engineered cell models enables researchers to ask critical questions about the underlying causes and potential progressions of diseases and to probe the effectiveness of potential new therapeutics far earlier and more efficiently in the drug discovery process than what had previously been possible. In this way, these models can improve the quality of research and patient outcomes and increase the return on investment on drug development.

"Drug targets with human genetic evidence of disease association are twice as likely to lead to approved drugs."[2]

1 King et al., 2019.

2 Nelson et al., 2015.

BUSINESS MODEL

Unmatched expertise

We are a leader in leveraging technologies in gene editing and gene modulation and have demonstrated our ability to develop and commercialise innovative applications. The expertise and know-how, which we have developed over several decades, underpins our portfolio of tools and services, helping scientists to gain a greater understanding of gene function, identify genetic drivers behind human disease, deliver biotherapeutics and cellular and gene therapies for precision medicine.

Resources → What we do

Expertise
Our portfolio of tools and services is built on decades of experience in altering the expression of genes across mammalian and human cell types.

Technology
Our business is underpinned by our portfolio of cell engineering tools and services, featuring gene editing technologies such as CRISPR and base editing, and gene modulation technologies such as RNAi.

People
We are led by a senior management team whose members have decades of experience in the healthcare sector, and a proven track record of growing successful global life sciences tools and services businesses.

Financial
We are committed to continued, focused investment in commercially-led, scientific innovation to stay at the forefront of emerging technologies, to maintain a leading market position and to democratise the use of novel technologies by bringing them to the broader market.

Partnership
Unique market insights derived from longstanding deep customer relationships with leading academic institutes, biopharmaceutical and diagnostics companies globally.

- We are focused on commercialising the application of gene editing and gene modulation technologies to accelerate scientific innovation and biopharmaceutical drug development.
- We have access to a variety of cell engineering technologies, which means we can take a technology-agnostic approach when providing our customers with a cell engineering solution.
- In turn, the knowledge that we gain through these deep customer relationships informs our own product development, allowing us to create the market-aligned innovative solutions that not only differentiate the company's offering, but also fuel development of the next wave of precision medicine.

STRATEGY KEY

Our business model underpins our strategic objectives

EXPAND OUR TOOLS AND SERVICES OFFERINGS

AUTOMATE AND SCALE OUR BUSINESS

GROW REVENUES FROM EXISTING CUSTOMERS AND WIN NEW CUSTOMERS

CONTINUE TO INNOVATE

PEOPLE – INVEST IN TOP TALENT

READ MORE **ON NEXT PAGE**

What we deliver

- We have developed a broad portfolio of cell engineering tools and services that addresses critical elements of the therapeutic ecosystem.
- All of our business units are underpinned by our core expertise in cell engineering.

RESEARCH REAGENTS PAGE 21

SCREENING PAGE 22

BIOPRODUCTION PAGE 23

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BASE EDITING PAGE 25

The value we create

Therapeutic Ecosystem
We believe our expertise in gene editing and gene modulation applications can have a positive impact on the wider therapeutic ecosystem by helping our customers to improve the quality of basic research, enhancing patient outcomes and increasing the return on investment on drug development.

Customers
Our mission is to leverage our expertise in gene editing and gene modulation applications to help our customers to transform human health. We will do this by providing them with market-aligned tools and services that enable them to achieve operational and competitive advantage.

Investors
Our goal is to provide superior returns to shareholders through delivering sustainable growth in revenue, whilst maintaining gross margins in excess of 65%.

Employees
We strive to provide our employees with challenging and rewarding careers with fair pay, training and career progression in a stimulating working environment. Delivering on this objective will help us to continue to recruit, train and retain high quality scientific, commercial and leadership candidates from around the world.

Communities
We aim to create a positive impact beyond technical innovation in healthcare by engaging with local communities, caring for the environment and by improving access to health and education – see Corporate Social Responsibility on page 37.

STRATEGY

Our clear purpose

Our mission is to leverage our expertise in innovative gene editing and gene modulation applications to provide customers with tools and services to transform human health. Key to the delivery of this mission is our "Investing for Growth" strategy that we launched in late 2018. We developed this strategy to support our overarching goal to become the "go-to" provider of cell engineering solutions. The strategy involved us restructuring our business model to prioritise the highest-value, highest growth areas of our markets, while investing in automation, data management and digitisation.

Appropriate assessment, monitoring and mitigation of risk is essential for our successful execution of our strategy. Our risk management is discussed on pages 34 to 38.

To advance our mission, we are driven by the following strategic pillars:

Strategic priorities	EXPAND OUR TOOLS AND SERVICES OFFERINGS	GROW REVENUES FROM EXISTING CUSTOMERS AND WIN NEW CUSTOMERS
2019 Goals	Develop and commercialise tools and services that address high-growth end markets: Screening, BioProduction and Base Editing	Increase penetration within our target customers and secure larger share of their global budget spend
2019 Achievements	• Divestment of In Vivo business unit • Launched T-cell CRISPR screening service • Increased our capacity in Cell Line Engineering	• Completion of our OneWeb e-commerce project
2020 Priorities	• Ensure our portfolio of products and services supports the Group's strategy • Strengthen our capabilities and relationships with biopharma and CMOs	• Leverage our Key Account Partners to drive high value complex sales • Enhance our e-commerce platform to drive high volume sales in Research Reagents
KPIs	• Innovation projects (see page 31)	• Revenue growth (see page 30) • Revenue per head (see page 30)

READ MORE PAGE 31

READ MORE PAGE 30

Broadening our capabilities

We aim to continuously extend our capabilities through both internal research and development as well as in-licensing, partnerships and collaborations in order to best serve our customers. Key recent examples include:

- **BioProduction:** Our strategic collaboration with Mammoth Biosciences is focused on jointly developing new CRISPR gene editing tools to provide the next generation of engineered Chinese Hamster Ovary (CHO) cell lines which have been optimised to solve current challenges in biologic drug development.
- **Base Editing:** Our strategic collaboration with Rutgers, The State University of New Jersey, is focused on developing tools and services based on Rutgers base editing technology. Base editing is a novel gene editing technology with potential to have fewer and off-target effects than competing CRISPR technologies, which we believe may enable a broader use in therapeutic applications.

AUTOMATE AND SCALE OUR BUSINESS

Drive operational leverage in our business through investment in people, processes and automation

- Delivered tripling of capacity in cell line engineering with no increase in headcount

- Investment in people, processes and automation
- Further increase in capacity in cell line engineering to address broader market

- Revenue per head (see page 30)
- Gross Margin (see page 30)

READ MORE **PAGE 30**

CONTINUE TO INNOVATE

Extend our capabilities through both internal R&D as well as in-licensing, partnerships, acquisitions and collaborations

- Signed strategic collaboration agreement with Mammoth Biosciences

- Champion and democratise novel technologies such as CRISPR screening and base editing to expand their use

- Innovation projects (see page 31)

READ MORE **PAGE 31**

PEOPLE – INVEST IN TOP TALENT

Successful recruitment of seasoned individuals with relevant expertise including new Heads of Marketing, Sales, Finance, Legal, HR and IR

- Increased employee engagement

- Recruit senior hires across the business to drive the investing for growth strategy and plans for a U.S. listing

- Employee engagement in the business as a measure of employee satisfaction (see page 31)

READ MORE **PAGE 31**

CHAIRMAN'S REVIEW

Another successful year

It was a solid year for Horizon, with strong financial performance and continued successful implementation of our 'Investing for Growth' strategic plan. While global macro-economic uncertainty abounds, Horizon is well-placed for future growth having implemented key strategic changes and prepared for a secondary U.S. listing through the year.

"As a result of the changes we have made to the business over the last 12 months, Horizon has never been better placed to capitalise on its unique market position."

DR IAN GILHAM, NON-EXECUTIVE CHAIRMAN

DELIVERING ON OUR GOALS

I am delighted to report on a very successful year for the Group in which we achieved another solid financial performance and delivered on the goals that we set ourselves under the Investing for Growth strategy.

Key strategic changes implemented during the year include the divestment of our In Vivo business unit and a new strategic collaboration with Mammoth Biosciences. Just after year end, following a year of proof of concept testing, we exercised our option to exclusively license a novel base editing technology from Rutgers, The State University of New Jersey (U.S.).

INTENTION TO LIST ON NASDAQ

In addition to all of the above the executive management team have been preparing the business for the next stage of its development namely a secondary listing in the U.S.

The rationale for this secondary listing is driven both by the recognition that the U.S. market plays an increasingly important role in Horizon Discovery's growth story, and the greater access that it will give Horizon to a U.S. investor base that is well attuned to growth-oriented life sciences organisations.

In particular, the Board believes that the U.S. capital markets offer Horizon a larger pool of capital and a broader and deeper investor base in the biotechnology and life science tools sectors, both of which we believe would

FOR BIOGRAPHY VISIT **PAGE 42**

provide additional trading liquidity in our ordinary shares. Furthermore, listing in the U.S. would allow the Group to accelerate its 'investing for growth' strategy which could support further growth in shareholder value.

With approximately 50% of our shares already held by U.S. investors at the time of writing, this is a timely move and one the Board has had under review for a considerable time.

Preparing Horizon for the U.S. listing has impacted almost all aspects of the business from strengthening our financial controls and reporting, through to IT, legal and marketing. During the year, Jayesh Pankania (who himself was appointed as CFO in January 2019) significantly bolstered the corporate function and recruited a number of key senior management hires in finance, legal and IR who brought with them relevant experience to help lead the U.S. listing project.

It is testament to the hard work of Terry, the executive leadership and the project team that they have been able to complete the necessary preparations, whilst continuing to restructure and streamline the business at the same time as doing the day job of delivering a solid financial performance against the backdrop of uncertain global macro-economic conditions. At the time of writing the U.S. listing process is currently delayed, but we will continue to pursue it when market conditions are more favourable.

ALIGNED TO HIGH GROWTH MARKETS

Our customers use the Group's products and services to identify the genetic drivers behind human disease, gain a greater understanding of drug-gene interactions, develop and validate diagnostic workflows, and deliver biotherapeutics, cellular and gene therapies for precision medicine. In turn, the knowledge that we have gained through our many customer engagements, enables us to identify market areas where cell line engineering expertise can be applied to new market opportunities and the development of novel solutions for existing customers and new customers alike.

Our offerings in BioProduction and Diagnostics are two clear examples of business opportunities which we have created organically by leveraging our cell engineering expertise. Our ambition is to capitalise on this success by launching new disruptive technology platforms in adjacent high value market areas either organically or through selected acquisitions and in-licensing opportunities.

We were therefore delighted to conclude our strategic collaboration agreement with Mammoth Biosciences in December 2019, which will see us jointly develop new CRISPR gene editing tools for the biopharmaceutical industry. If successful, it will provide us with an opportunity to become a disruptive provider of best in class engineered CHO cells, offering a novel gene editing approach for this high value market.

Similarly, our licencing agreement with Rutgers, The State University of New Jersey (U.S.), for use of its novel base editing technology is potentially transformative for our business. Base editing is a novel highly accurate gene editing platform which has the potential to revolutionise the treatment of genetic diseases. Our license includes the right for Horizon to sublicense the technology to entities seeking to use it for therapeutic development. We are already seeing strong interest from pharma companies seeking early access to help us to shape the development of this exciting technology platform.

BOARD AND GOVERNANCE

We have a very strong and diverse Board, comprising directors with a broad spectrum of complementary skills, personalities and competencies. There were no changes to the Board during the year.

Post the date of signing of the Annual Report the Board will be appointing Dr Siddhartha Kadia as Non-Executive Director replacing Dr Susan Galbraith who will be stepping down from the Board as of the same date as a result of an increase in her other commitments.

Dr Kadia has an extensive background in executive management and public company governance in a range of global businesses, and crucially given our U.S.-Listing ambitions, has been a Director of U.S.A. listed companies Newport Corporation (NSDQ: NEWP) and Volcano Corporation (NSDQ: VOLC). We are delighted to welcome him to the Board.

At the same time, we are very sorry to be saying goodbye to Susan who has served the Board with distinction since her appointment in 2014. On behalf of my colleagues I would like to thank her for her invaluable contribution over the last six years and to wish her every success in her expanded role within AstraZeneca.

EFFECTIVE CORPORATE GOVERNANCE

The importance of strong and effective corporate governance both at Board level and throughout the Group is not underestimated by the Board and we pride ourselves on clear and transparent reporting. Our corporate governance report on pages 42 to 60 sets out our governance framework.

MACRO-ECONOMIC HEADWINDS

On 23 June 2016, the U.K. held a referendum on continuing membership of the EU, the outcome of which was a decision for the U.K. to leave the EU (Brexit). As we have all witnessed, this has become a protracted and divisive issue for the U.K.

CHAIRMAN'S REVIEW CONTINUED

However, following negotiations on the terms of the U.K.'s exit from the EU, the U.K. parliament, the European Council, the European Commission and the U.K. Prime Minister signed the Withdrawal Agreement on 24 January 2020.

Under the terms of this agreement, the U.K. left the EU at 11:00 p.m. GMT on 31 January 2020 but will remain within the EU single market and customs union for a transitional period through December 2020.

There is still considerable uncertainty concerning the U.K.'s legal, political and economic relationship with the EU after Brexit. The Board reviews the potential impact of Brexit regularly and has responded by engaging proactively with key external stakeholders and establishing a cross-functional team to understand, assess, plan and implement operational actions that may be required.

In the meantime, the Group has adopted a base case planning assumption of a hard Brexit/no deal and the Board believes it is fully prepared in the event of such an outcome.

IMPACT OF COVID-19

From the beginning of 2020, we have seen the rapid emergence of the COVID-19 (more commonly referred to as coronavirus) pandemic have a dramatic impact on entire countries, industries and global markets.

Consistent with the Group's COVID-19 update announcement of 27 March 2020 and the Placing announcement of 17 April 2020, Horizon initially experienced a limited impact from the COVID-19 outbreak but events in relation to the pandemic continue to evolve rapidly.

Horizon's trading for the first quarter of 2020 has been broadly in-line with management expectations. However, orders towards the end of March indicated pressure in Research Reagents as academic research labs slowed or stopped working following the widespread lock-down in major economies that was implemented in the second half of the month. This trend appears to have continued into the second quarter of 2020.

Separately, the Group has seen increasing interest from its BioPharma clients and a trend towards outsourcing as companies continue prioritising key projects and supplement in-house resources. Both of Horizon's U.K. and U.S. sites are open and running client projects without disruption, and the Group is not experiencing any material delays in either distributing its products or running its service projects. The Group is actively monitoring key suppliers regarding potential supply chain interruptions, and so far, no immediate risks to supply have been identified.

Horizon's first priority remains the health and safety of its employees on site. The Group has implemented appropriate action plans aligned to the latest government advice in each respective country of operation. These focus on safety, travel, hygiene (including self-quarantine) and contingency planning, primarily centred around remote working. Laboratory teams can work flexibly, facilitating different working patterns that should minimise the impact of COVID-19.

The Group is implementing measures intended to provide the business with financial flexibility in an unknown and volatile environment, and is conserving cash to minimise expenditure whilst maintaining operational delivery through a number of actions:

- Continuing with key strategic projects but deferring certain non-essential ones
- Deferring capital expenditure where there is no impact on key strategic projects
- Hiring freezes where appropriate
- Pay cuts and pension reductions for staff – on a sliding scale aligned to salary band
- Furloughing of c. 24 staff in the U.K. and planned implementation of U.S. Paycheck Protection Programme covering c. 160 U.S. employees (as well as rent and utilities)
- Travel, conferences and discretionary spend savings

Implementing the cash conservation measures listed above is expected to deliver in-year cash savings in the range of £8 million to £10 million.

Horizon has reviewed its financing options, including evaluating support from both the U.K. and U.S. governments including the COVID-19 related loan schemes, and is also in preliminary discussions with providers of working capital facilities.

The Group's contingency planning includes a package of more extensive actions should conditions deteriorate and/or if additional government support is not available. The Group has modelled further downside scenarios under which adverse trading conditions extend in to H2 2020 and return to trading normality extends beyond the current year-end. The potential downside risks include further reduction in Research Reagents business unit revenues and delays to the phasing of BioProduction revenues. Under these scenarios Horizon would have to take further cash conservation measures including but not limited to:

- Further reduction in capital expenditure
- Further remuneration measures
- Review of staffing levels commensurate with revised revenue levels

These further mitigating measures could be augmented by any additional support available from the U.K. and U.S. governments upon a more prolonged period of economic disruption. While we expect the cash conservation measures described to deliver headroom in each of the downside scenarios contemplated, the net proceeds of the Placing executed in April 2020 should mitigate any further downside risk.

SUMMARY

Despite the continuing macro-economic uncertainties on the global stage, Horizon operates in a number of related attractive, high-growth markets. Gene editing and modulation technologies continue to be increasingly pivotal in drug discovery, development and manufacturing. As a result of the changes we have made to the business over the last 12 months, Horizon has never been better placed to capitalise on its unique position in these markets.

I would like to thank the staff at Horizon for their endless dedication to enabling our customers to deliver better healthcare solutions and our investors and customers for their continuing support.

DR IAN GILHAM
NON-EXECUTIVE CHAIRMAN

SECTION 172

The Board considers the interests of the Group's employees and other stakeholders, including the impact of its activities on the community, environment and the Group's reputation, when making decisions.

The Board, acting in good faith, considers what is most likely to promote the success of the Group for its shareholders in the long term.

- How the views and interests of all our stakeholders were represented in the boardroom during the year and how we responded on pages 32 to 33
- The Group's goals, strategy and business model in the Strategic report on pages 4 to 39
- How we manage risks on pages 34 to 36
- Corporate governance on pages 42 to 60 including how governance supported the delivery of our strategic objectives in 2019.

OUR INVESTMENT CASE

We believe our future growth will be driven by the following competitive strengths:

1. **Broad portfolio and deep expertise in cell engineering.**
   We believe we are a leader in leveraging technologies in gene editing and gene modulation with a proven ability to develop and commercialise them in our markets. We have access to a variety of cell engineering technologies, which allows us to take a technology-agnostic approach to delivering customer solutions.

2. **High growth business comprising a mix of well-established and potentially disruptive business units.**
   Our business is underpinned by our long standing, high growth Research Reagents business which generates over 50% of our revenues from approximately 2,000 customers world-wide. In addition, we are investing in three innovative, non-mutually dependent businesses that we expect will have attractive growth profiles: Screening, BioProduction and Base Editing. All of our business units leverage our core competence in cell engineering.

3. **Attractive, large and high growth addressable end markets.**
   Our portfolio of gene editing and gene modulation tools and services support and enable critical elements of the therapeutic ecosystem, from basic research through to drug discovery and development and therapeutic applications.

4. **Unique market insights derived from longstanding customer relationships.**
   We have established deep customer relationships with leading academic institutes and biopharmaceutical and diagnostics companies globally. The insights we gain from these customer relationships inform our product development and ensure that our tools and services are aligned to customers' needs.

5. **Established commercial team with global reach led by an experienced management team.**
   We have an experienced senior management team whose members have a proven track record of growing successful global life science tools and services businesses and experience in industrialising, scaling and commercialising biological tools and services. We believe our 50-person sales organisation, comprising key account partners, territory sales and field application specialists, provides us with global reach, and is a key differentiator.

CHIEF EXECUTIVE OFFICER'S REVIEW

Delivering on our strategy

We are committed to transforming the business into a high-growth, pure-play tools and services company. Strategic restructuring and a number of new partnerships in the year have made Horizon a simplified, more robust and focused business that is poised for long-term growth.

"Our goal is to leverage our expertise in gene editing and modulation to provide customers with tools and services to transform human health."

TERRY PIZZIE, CHIEF EXECUTIVE OFFICER

DELIVERING ON OUR STRATEGIC GOALS

I am pleased to report on another year in which we delivered on the financial and operational goals that we set ourselves, as well as completing a number of key strategic initiatives that have helped us to continue our transformation into a high-growth, pure-play tools and services company.

These include the divestment of our non-core In Vivo business unit, and the establishment of a strategic collaboration with Mammoth Biosciences. Just after year-end, we exercised our option to exclusively license a novel base editing platform from Rutgers, The State University of New Jersey (U.S.), for use in therapeutic, diagnostic and service applications. In April 2020 we raised gross proceeds of £6.9m through a Placing in order to provide additional financial flexibility to protect and grow the business during the COVID-19 pandemic which emerged in the first quarter of 2020.

GROUP FINANCIAL PERFORMANCE

In December 2019, we completed the divestment of our non-core In Vivo business. In the period in the financial year that Horizon owned In-Vivo, the business unit generated revenues of £4.6 million. These are excluded from Continuing Operations in our FY19 results.

Revenues from Continuing Operations were £58.3 million (FY 2018: £54.1 million), £56.7 million on a constant currency basis. Reported revenues represent growth of approximately 7.8% against the prior year, approximately 4.8% on a constant currency basis.

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Adjusted EBITDA[1] on Continuing Operations was £3.9 million (FY18: £2.1M). Gross margin from Continuing Operations was 70.0% (FY 2018: 69.7%).

We report a loss for the year on continuing operations before tax of £11.5 million, representing an increase in the loss compared to the prior year (FY18: £6.6m loss). This is partly a result of the continued execution of our investing for growth strategy, as the Group invests in its commercial, marketing and research, development and operations functions, but particularly fees associated with a U.S. listing and the impairment of our joint venture in Avvinity.

PERFORMANCE BY BUSINESS UNIT

From the start of this year we implemented a new Business Unit structure to allow the Group to better develop and target the product and service offerings increasingly required by our evolving markets. As a result, we replaced the former reporting structure of Research Products, Applied Products and Services (reported as Products and Services at a Group level), with five market-aligned Business Units: Research Reagents, Screening, BioProduction, Diagnostics and In Vivo. Each of these business units comprise a mix of products and services that are tailored to the specific needs of their respective customer segments and end markets.

Further details of the composition of these Business Units and their performance for the full year are set out below (see pages 21 to 25) but in summary, revenue growth for the year was driven by a notably strong performance in the Research Reagents and Screening Business Units.

The Research Reagents Business unit generated revenues of £33.5 million up 8.4% on the prior year (FY18: £30.9 million). This is an encouraging performance, driven largely by strong growth in sales of RNAi and CRISPR Reagents.

Screening generated revenues of £11.4 million up 28.1% on prior year (FY18: £8.9 million). The primary driver of this increase was increased revenue from our CRISPR screening and molecular screening services.

BioProduction continued to perform well and enjoyed a strong second half performance but as expected, ended the year broadly flat year-on-year, generating revenues of £8.6 million for the year, just below the prior year (FY 18: £8.7 million). This was in line with our expectations and the in-line growth rate reflects the business unit's exceptionally strong prior-year comparator performance.

As previously reported, the Diagnostics Business Unit had a challenging first half of the year reporting revenues of £2.5 million, 28.6% down on prior year as a result of internal organisational challenges. The Group took prompt action to rectify the situation and under new leadership this business unit had a stronger second half, closing the period with revenues of £4.8m, down 14.3% on the prior year's performance (FY18: £5.6 million).

In December 2019 we completed the divestment of our In Vivo Business Unit to Envigo RMS LLC (see below).

STRATEGY

Our overarching goal is to leverage our leadership position in cell line engineering and expertise in innovation of gene editing and modulation applications to provide customers with tools and services to transform human health (see page 8 for more on Strategy).

Key to the delivery of this strategic goal is the "Investing for Growth" strategy that was launched in late 2018. It includes investments in automation to increase production capacity, in Laboratory Information Management Systems (LIMS) to improved data handling, in Business Intelligence to add customer and business insight, and in digitisation to enhance customer experience through our eCommerce channel. Alongside this, we are continuing to invest in commercially led, scientific innovation in order to stay at the forefront of emerging technologies and maintain our market-leading position.

In the first year of this investment programme, we achieved all of the goals we set for ourselves. For example, by re-engineering existing processes, we delivered a tripling of capacity in Cell Line Engineering with no additional headcount. Since then we have increased this further through the addition of automation which, by the end of the first quarter of 2020, resulted in a five-fold increase in capacity compared to the start of 2019. We expect the benefits of the increased capacity and the launch of our new integrated eCommerce-enabled website to come through more strongly in the first half of 2020.

In October 2019, we also completed our "OneWeb" eCommerce project that saw us consolidate what were formerly two separate web sites (Horizon and Dharmacon) into a single platform. This has provided an enhanced customer experience and created new opportunities for cross-selling across the Group's entire portfolio.

1 We define this as loss for the year from continuing operations before taxation, finance costs, investment income, amortisation and depreciation and items which are non-recurring and do not form part of our underlying year to year expense base. Adjusted EBITDA incorporates a positive £2.5m impact of IFRS 16 which was adopted on 1 January 2019.

CHIEF EXECUTIVE OFFICER'S REVIEW CONTINUED

We expect these investments to generate significant payback in the short and long-term, by reducing costs, increasing capacity and operating leverage, whilst also opening up new avenues of growth.

DELIVERING A MORE FOCUSED BUSINESS

Since my appointment as CEO, and the completion of our strategic review in late 2018, we have been focused on transforming the business into a high-growth, pure-play tools and services company. Our focus has been on doubling down on the highest growth areas of our core markets where we believe there is the potential to establish strong market leading position and exiting business areas that were subscale or no longer aligned to our core pharma and biotech focus.

Our In Vivo unit has for some time been facing some difficult market headwinds and whilst we have been working hard to optimise the Business unit's performance, the challenge has always been that it did not offer the same high-growth prospects as the Group's other Business Units.

We were therefore pleased to complete the divestment of In Vivo to Envigo in December 2019, which provides an opportunity for the business to flourish within a larger, market-leading company and also maintains continuity for its many customer relationships. Significantly, both parties remain committed to an ongoing collaboration to support growing opportunities with in-vivo CRISPR screening. This will enable Horizon to continue crucial aspects of its animal model screening work in conjunction with Envigo, and to generate additional business opportunities of benefit to both companies.

MAINTAINING MARKET LEADERSHIP

Horizon is committed to investing in partnerships and high-value technologies that maintain the Group's market leadership positions. By extending our scientific and IP capabilities through such partnerships, Horizon will be able to more fully support our pharma, biotech and academic partners in the delivery of better cell therapy solutions to patients.

During the year the Group signed a number of significant new partnerships:

RUTGERS UNIVERSITY AND BASE EDITING

In January 2019, Horizon signed a strategic partnership with Rutgers, The State University of New Jersey (U.S.), to develop and commercialise base editing, a novel technology platform that has the potential to provide more accurate gene editing and fewer unintended genomic changes than currently available gene editing methodologies.

Base editing could therefore potentially help to target many diseases that to date have no treatment.

In January 2020, following a detailed twelve-month evaluation of the technology, Horizon exercised its option to exclusively license Rutgers' base editing technology for use in all therapeutic applications. This is potentially transformative for our business. There is significant latent demand for access to base editing and currently we believe we are one of only two commercial entities with the ability to enable base editing in therapeutic applications, and the only entity making this technology available to the market broadly.

We expect to refine this technology over the next 18 months ahead of full commercialisation. We are currently seeking early access customers to assess and shape the development of this technology, which we believe could enable customers' development of novel therapeutics that rely on engineering cells either directly in the body (gene therapy), or externally before transplanting back into the patient (cell therapy).

COLLABORATION WITH MAMMOTH BIOSCIENCES

In December 2019, we signed a strategic collaboration agreement with Mammoth Biosciences that will see us jointly develop a next-generation, technologically disruptive suite of CHO cell lines which have been optimised to solve challenges in biologic drug development.

Mammoth is a San Francisco-based biotech company aiming to provide a CRISPR-based platform in order to democratise disease detection with an easy and affordable point-of-care test that allows real time and simultaneous detection of multiple conditions. The company has the broadest CRISPR IP portfolio of any company, which is powered by its proprietary CRISPR protein discovery engine, and focused on uncovering and developing novel Cas systems. Using this platform Mammoth has characterised new Cas enzymes that are similar to Cas9 (the predominant protein used in gene editing) but without the complex royalty burden.

Under the terms of the agreement, Horizon and Mammoth will collaborate to identify and optimise one of the company's novel proteins for use under license by Horizon, in a novel gene editing tool. This will then be deployed for the development of the Group's next generation of engineered CHO cell lines.

"We are committed to investing in partnerships and high-value technologies to maintain the Group's market leadership positions."

Having secured more than 70 licensing engagements and supported five successful Investigational New Drug (IND) filings, Horizon is now a highly credible player in the BioProduction market. We are now committed to delivering the next generation of CHO cell lines to an industry where greater flexibility, increased speed to market and cost reduction are key drivers. We believe that with a combination of Mammoth's technology and our cell engineering expertise, we have the opportunity to address many of these issues and become a disruptive provider of best in class engineered CHO cells.

CELYAD LICENSING AGREEMENT

In October 2018, we announced a partnership with Celyad a clinical-stage biopharmaceutical company, which has licensed our optimised SMARTvector™ shRNA technology for use in CYAD-02, the company's novel autologous NKG2D based CAR-T cell therapy. In early July 2019, Celyad secured FDA Acceptance of an Investigational New Drug (IND) application which triggered a milestone payment. On the 13 January 2020, Celyad announced that it had commenced the Phase 1 trial of CYAD-02, with the dosing of the first patient.

PLANS FOR A U.S. PUBLIC OFFERING

On 4 February 2020, Horizon announced that it had confidentially submitted a draft registration statement on Form F-1 with the Securities and Exchange Commission (the "SEC") relating to the proposed initial U.S. public offering. The U.S. Listing process is currently delayed due to market volatility, but the Company intends to pursue this when market conditions are considered to be more favourable. The Placing will support Horizon's aim to pursue a dual-listing from a position of strength.

PLACING

In April 2020, the Group raised £6.9m gross through a non-pre-emptive placing of 6,764,365 Placing Shares, representing approximately 4.5% of the current issued share capital of the Company. The net proceeds of the Placing will be used to strengthen the Group's balance sheet, working capital and liquidity position. Significantly, the improved liquidity will also allow Horizon to continue its investment in strategic projects including commercialising its base editing technology, e-commerce enhancements and its collaboration with Mammoth Biosciences even in the event of a prolonged period of economic disruption as a result of the COVID-19 pandemic.

BUILT BY OUR PEOPLE

You cannot build a world-class organisation without world-class people, and we are blessed with many in our organisation. I thank them all for their dedication and hard work during the year.

SUMMARY AND OUTLOOK

2019 was a year that the Group embedded the new strategy focusing investment on our high-growth opportunities. The divestment of our In Vivo business has enabled us to focus on our core areas of growth. Our enhanced corporate and financial governance, investment in automation and IT infrastructure will provide a robust platform for continued, sustainable revenue growth. The additional investment in base editing and our collaboration with Mammoth Biosciences will strengthen the Group's core competence in cell-line engineering (which underpins all of our business units).

Horizon has moved into 2020 with a simplified, more robust and focused business. The Group is now well positioned as a world-leading expert in cell-based technologies with a unique and high value portfolio of tools and services which, combined with our commercial reach, provides the basis for a sustainable competitive advantage.

Following our recent Placing the Group has a robust balance sheet, which when combined with the mitigating actions described previously (see impact of COVID-19 on page 12), will mean the business has a sufficient working capital and liquidity position providing protection in the event of a prolonged COVID-19 related economic downturn.

The Group's order book is growing which underpins confidence for H1 2020, but given the ongoing uncertainty around the scope, duration and impact of the pandemic, Horizon is unable to predict the full year consequences of the coronavirus pandemic. The Group does not expect to be in a position to provide revised guidance until the duration and extent of the market disruptions from the COVID-19 pandemic are known.

However, the vast majority of the Group's products and services support and enable critical elements of the drug development and therapeutic value chain, particularly in the area of precision medicine. We believe the fundamental drivers of the pharma-biotech market remain strong and will continue to support the growth of our business for the long-term. The Board therefore looks forward to the future with cautious confidence.

TERRY PIZZIE
CHIEF EXECUTIVE OFFICER

CHIEF EXECUTIVE OFFICER'S Q&A

Interview with Terry Pizzie

In this section we have asked CEO Terry Pizzie some of the questions that are most frequently asked by investors and other stakeholders.

Q. **Are you surprised by the continuing strong growth enjoyed by the RNAi market, especially given the rapid emergence of CRISPR?**
A. No. RNAi modulation has seen a resurgence in interest following the launch of successful RNAi-based therapeutic drugs in the last few years. This has created a positive tailwind for the RNAi market and renewed interest in the gene silencing market from researchers in both the academic and pharma communities.

Q. **How will the increase in capacity impact Cell Line Engineering?**
A. We believe that we have an opportunity to significantly grow revenues and market share as a result of the increase in capacity that has been delivered through re-engineering our existing business processes in H1 and the introduction of automation in H2 of 2019. These changes have enabled us to launch more compelling solutions on both price and turnaround times. We expect the benefits of the increased capacity to come through more strongly in the first half of 2020.

Q. **What is the significance of the collaboration with Mammoth Biosciences?**
A. Having established our credentials in the very conservative bioproduction market, we believe that the opportunity now exists for us to become a technologically disruptive provider of next-generation CHO cell lines to an industry where greater flexibility, increased speed to market, cost reduction and a move towards next-generation biologics are key drivers.

Our strategic collaboration with Mammoth Biosciences is critical to this ambition because it will provide us with access to Cas enzymes that will offer similar benefits to CRISPR Cas9 in terms of speed and ease of gene editing but without the associated royalty burden.

Q. **What are the advantages of base editing over gene-editing systems like CRISPR-Cas9?**
A. CRISPR/Cas9, Zinc Finger Nucleases or TALENs all rely on generating double strand breaks (DSBs) to knockout the target gene. This is a highly efficient way of generating knockouts through the formation of small insertions or deletions of the DNA (indels) but also carries risk when applied to a therapeutic setting.

As base editing works by nicking the DNA instead of breaking it, the indel formation is substantially lower and the chance of errors being introduced is reduced. We believe base editors may therefore have the potential to provide more accurate gene editing with broad therapeutic applicability.

Q. **What is the primary difference between the base editing platform offered by Beam Therapeutics and the one that you are commercialising with Rutgers?**
A. Firstly, the two base editing systems are similar in that they both achieve base changes through a CRISPR/Cas mediated targeting of a chosen deaminase (the enzyme that actually edits the DNA bases) to the target site. However, the primary difference between the two systems result from how the deaminase is recruited into the Cas9-guide-RNA module (the "gps-like" system that directs the enzyme to the precise location at which the edits are to be made).

The Beam system is based on direct fusion between the deaminase and Cas9. The Rutgers system is more modular in design and there are no components that are directly fused to Cas9. What this means in practice, is that if you wish to change the deaminase which you want to use to effect a base change, it is relatively easy to do. However, with the Beam system, because the deaminase is directly fused to the large Cas9 module, swapping deaminases takes a bit more work. The two base editing platforms are protected by distinct patent portfolios.

TERRY PIZZIE, CHIEF EXECUTIVE OFFICER

Q. **When will the platform be ready for customers to access?**
A. We have spent a year evaluating the technology and it is already available for early access testing. We are now seeking 3–5 partners to assess and shape the development of its platform and expect a 12–18 month period of R&D before we have a fully commercialised product.

Q. **What are your ambitions for the business in terms of growth?**
A. We have been preparing the business for growth by doubling down on the parts of the business where we see high-growth opportunities. Our long-term ambition is to be able to accelerate our top-line growth to mid-teens growth rates, whilst also maintaining our margins above 65%. But we will not get there overnight. We have more work to do over the next 18 months to two years, particularly in terms of capitalising on our leadership in CRISPR screening and prosecuting the opportunities that we see in BioProduction and Base Editing.

Q. **What are the financing needs of the business to achieve all you want to do?**
A. We had £18.8m of cash at the year end and we aim to manage the business such that we conserve cash resources to provide us with options in the future. In April 2020 we raised gross proceeds of £6.9m through a share placing in order to provide additional financial flexibility and grow the business during the COVID-19 crisis.

Q. **Is that what is behind the proposed secondary listing in the U.S.?**
A. Partly. Our Board and advisers firmly believe that the U.S. capital markets would offer Horizon a larger pool of capital and a broader and deeper investor base. Any proceeds raised by the listing process would also allow us to accelerate our 'investing for growth' strategy.

Q. **What sort of reception have you had so far in the U.S.?**
A. It has been very encouraging. There has been a lot of interest in what we are doing and the feedback suggests that our equity story would have a strong resonance in the U.S. market once we are ready to launch.

Q. **So where are you in the process and what are the next steps?**
A. Actually the rules prevent me from commenting on any timeline. All I can say is that we have been working hard in preparing the business for this next stage of its development. Of course, the timing is not just down to our preparedness, it also depends upon market conditions over which we have absolutely no control. But rest assured we are working closely with our advisers and will move as soon as the timing is apposite.

OUR BUSINESS

Our Customers

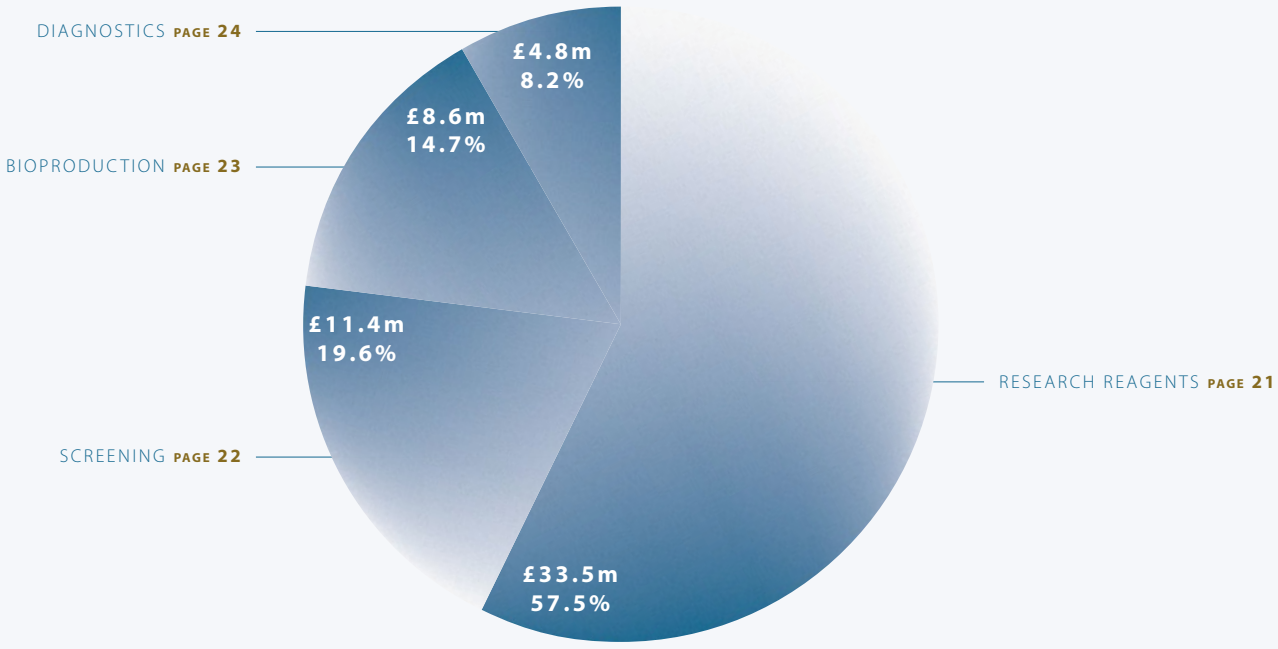
Our customers include biopharmaceutical and diagnostics companies, contract research and manufacturing organisations and academic researchers across the globe. All these institutions use Horizon's products and services to gain a greater understanding of gene function, identify genetic drivers behind human disease, develop and validate diagnostic workflows, and deliver biotherapeutics, cellular and gene therapies for precision medicine.

OUR BUSINESS UNITS

In 2019 our business is comprised of five business units: Research Reagents, Screening, BioProduction, Diagnostics and In Vivo. We believe that this structure allows us to better develop and target the product and service offerings increasingly required by our target markets.

Each of these business units comprise a mix of tools and services that are tailored to the specific needs of their respective customer segments. In December 2019, we completed the divestment of our In Vivo business unit to Envigo RMS LLC. During the 2019 financial year the In Vivo business unit contributed revenues of £4.6 million and is reported in the FY19 results as a Discontinued Operation. The diagram below shows revenues for Continuing Operations only. The Base Editing Business Unit was formed in January 2020 and is therefore not included in the graphic.

REVENUE CONTRIBUTION BY BUSINESS UNIT: CONTINUING OPERATIONS



OUR CUSTOMERS

TRANSACTION VOLUME: LOW ↑ HIGH

TRANSACTION VALUE: HIGH ↑ LOW

PHARMA/BIOTECH THERAPEUTICS
GENE EDITING

Engineering patient cells for cell and gene therapy using base editing technology

Single base engineering, minimizing off-target effects

PHARMA/BIOTECH BIOPRODUCTION
GENE EDITING

Engineered CHO Cell Lines used to produce biological drugs

Cost-efficient production of protein therapeutics

PHARMA/BIOTECH DRUG DISCOVERY & DEVELOPMENT
GENE MODULATION
GENE EDITING

Cells used to investigate biological pathways and mechanisms of drug action

Fast, efficient development of high value drugs

DIAGNOSTIC TEST DEVELOPERS
GENE EDITING

Cells engineered to provide renewable, reproducible reference material

Enable safe, accurate, profitable diagnostics

ACADEMIC RESEARCH
GENE MODULATION
GENE EDITING

Cells used to investigate biological pathways

Share knowledge in peer-reviewed publications

RESEARCH REAGENTS IN ACTION

In December 2019, we announced the launch of predesigned synthetic single guide RNA (SgRNA). The use of synthetic SgRNAs enables researchers to achieve reliable knockdown in even complex, difficult-to-edit cell types and experimental models. There is a growing body of research that indicates that such synthetic single guide RNA strands are able to edit genes in primary cells without any detectable changes elsewhere in the genome.

The synthetic SgRNAs have been designed using the Group's patented algorithm, to maximise targeting of the gene(s) of interest with minimal off-target effects. The SgRNAs complete Horizon's Edit-R gene engineering platform, to provide customers with a more convenient and accessible approach to CRISPR gene editing. Library collections of SgRNAs are also available to support large-scale screening programmes.

FIND MORE AT
WWW.HORIZONDISCOVERY.COM/RESEARCH-REAGENTS

BUSINESS UNIT

FY19 REVENUE OF £33.5M (FY18: £30.9M)

Research Reagents

Enabling a better understanding of disease mechanisms and the drivers behind disease

The Research Reagents business unit provides both tools and services to enable customers to better understand disease mechanisms and identify drivers behind disease by inducing permanent (gene editing) and transient (gene modulation) changes in gene expression.

The Research Reagents business unit includes three primary offerings:

- Custom-made and off-the-shelf (OTS) RNAi gene modulation reagents that are manufactured in our facility in Boulder, Colorado;
- CRISPR reagents that are manufactured in our facility in Boulder, Colorado; and
- OTS cell models and custom cell engineering services that are delivered from our operations in Cambridge, U.K.

In 2017, we acquired Dharmacon, a major global provider of gene modulation technologies with an automated manufacturing platform and e-commerce infrastructure. Today, we are a market leader in the supply of RNAi gene modulation reagents and custom-made CRISPR reagents, both of which we believe are recognised as "industry standards" and are used by leading academic researchers around the world.

Our core expertise in cell line engineering is the source of our broad catalogue of cell lines and custom cell line engineering services, which are sold to biopharmaceutical companies and top-tier academic institutions. Our OTS catalogue comprises engineered cell models that have been developed over the last 10 years and are sold from our e-commerce platform.

Our main customers for OTS reagents are academic researchers and biopharmaceutical companies that use RNAi and CRISPR reagents to perform gene modulation and editing. Sales are typically high volume and captured primarily through our e-commerce channel, with a smaller proportion of sales captured via territory field sales.

Our cell line engineering service has been predominantly sold to biopharmaceutical companies through our field sales and Key Account Partners. Cell line engineering is available in two versions, a specialist custom engineering service for customers with highly specific requirements and a standard service that meets the needs of the broader market and provides a custom engineering service based on a limited number of cell types and engineering techniques. As we execute our automation expansion, we expect to introduce the ability for our customers to order our standard offering through our e-commerce platform.

Research Reagents generated revenues of £33.5 million up 8.4% on the prior year (FY18: £30.9 million). This Business unit contributes 57% (FY18: 57%) of overall Group revenues and provides a solid platform that underpins the growth of the other business units, with a customer base of approximately 2,000 customers spending regularly with us.

Whilst revenue growth benefiting from currency movement (most of this Business Unit's revenues are derived in U.S.$) it also reflects a renewed market interest in RNAi. This follows recent launch of a number of therapies which have been successfully developed by companies such as Alnylam Therapeutics (Nasdaq: ALNY) using this long-established gene modulation technology.

The full year performance is all the more encouraging given that the performance of the Research Reagents Business unit, was held back somewhat by the performance of Cell Line Engineering where we were struggling to compete on price and delivery times.

We are pleased to report that the increase in capacity that has been delivered in Cell Line Engineering through the "Investing for Growth" strategy (see Strategy section) has enabled us to significantly decrease our manufacturing costs and extend our offering, with more compelling solutions on both price and turnaround times. We expect the benefits of the increased capacity and the launch of our new integrated eCommerce-enabled web site to come through more strongly in the first half of 2020, which will also see a further capacity increase through implementation of automation.

BUSINESS UNIT

FY19 REVENUE OF £11.4M (FY18: £8.9M)

Screening

Enabling improved target discovery and patient stratification

Our Screening business unit provides tools and services that allow our customers to understand disease pathways, find and validate novel drug targets, identify mechanisms of drug resistance or sensitivity and stratify patients for clinical trials based on their genetic profile. We believe we have a market-leading position in CRISPR screening and are also an established market leader in the supply of both siRNA and CRISPR screening libraries. Both can be applied across the full spectrum of drug discovery and development.

The business unit includes three primary business lines:

- Pooled CRISPR screens;
- Arrayed RNAi and CRISPR screens, drug screens and immunology assays; and
- RNAi and CRISPR screening libraries.

Pooled screening can produce quantitative data on new and established compounds, their relationship with disease pathways, the genetic determinants of disease or how genetic variation predicts patient responses to drug intervention. Arrayed CRISPR screening is more complex than pooled screening and gives researchers an inherently greater insight into single specific gene edits, and combinations of edits. Often an experiment will begin with a pooled screen and then proceed to an arrayed screen. A CRISPR library consists of thousands of plasmids or synthetic molecules, with each one containing a single gRNA that targets a specific gene. CRISPR screening libraries enable the investigation of entire gene families or biological pathways through the use of custom or pre-defined libraries of CRISPR-Cas9 reagents.

Customers for this business unit are biopharmaceutical companies that are targeted by our field sales and Key Account partners and have the choice of buying either a fully outsourced service or just the specific tools they need, for example, CRISPR and siRNA libraries, to perform their own screening in-house.

Horizon was a commercial pioneer for CRISPR Screening, starting in 2013 with various in-house development programs to evolve a commercial offering. We believe our first mover advantage provides us with a market leading position, due to the following factors:

- We had 655 functional genomic screens completed and ongoing at the end of FY19, more than 97% of which were CRISPR screens, including with 8 out of the largest 20 global biopharmaceutical companies by revenue.
- The majority of CRISPR screens are novel, either in the library set up, the cells that are being used, the read-out that is desired and/or the analysis.
- We believe that the ability to provide both the screening services and libraries and reagents under one organisation is unique and a key point of differentiation, resulting in learning synergies that can be applied from screening to library development (and vice versa).
- We have made significant R&D investments to optimise screening services. Combined with the insights we have gained around disease areas such as oncology, we are able to understand our clients' needs and advise them of the best CRISPR screening approach for their desired outcomes.

Screening generated revenues of £11.4 million (FY18: £8.9 million) up 28.1% on prior year, with the volume of Pooled and Arrayed, including CRISPR and RNAi, screens up year on year and orders nearly doubling, continuing the strong momentum we have seen in previous years. Much of this growth has been driven by an increase in the number of highly complex large-scale screens for major biopharmaceutical companies. During the second half of the year we secured an order of £850,000 from one of the leading global pharma companies – our largest single order to date.

SCREENING IN ACTION

In January 2019, we announced the launch of the world's first primary human T-Cell CRISPR screening service to meet the requirements of immunology-based research in drug discovery.

In the past, the use of CRISPR screens in primary T lymphocytes has proved to be challenging, owing to complex issues around the introduction of the screening components and Cas9 in particular. Horizon has adapted its established CRISPRko (knockout) platform to address these issues enabling us to deliver a robust screening platform, which allows customers working in the immuno-oncology space to find gene targets and potential therapeutic avenues in primary cells (T lymphocytes freshly isolated from the body) rather than having to work through surrogate cell lines.

This is significant because we believe that the therapeutic development pipeline for all diseases will move away from screening in immortalised cell lines and move towards screens in primary cells, as they more closely represent real patients.

In order to capitalise on this market shift, Horizon has leveraged its proprietary manufacturing expertise to make guide RNAs as a long single strand (sgRNA), rather than as two separate components (CRISPR RNA (crRNA) and tracrRNA) which is how they are usually supplied.

FIND MORE AT
WWW.HORIZONDISCOVERY.COM/SCREENING

BIOPRODUCTION IN ACTION

Over the past several years, biologics have continued to account for an increasing proportion of biopharmaceutical sales, increasing from ~10% of total biopharma revenues a decade ago, to >25% in 2018. Biologics have revolutionised the treatment of many diseases and now account for 7 of the top 10 'blockbuster' drugs, as measured by revenue. CHO cells are the predominant system used in the biologics manufacturing processes due to their ability to produce complex biologics at scale and their track record of regulatory approval.

On 30 September 2019, Glenmark Pharmaceuticals, a global, integrated pharmaceutical organisation ranked among the top 80 Pharma & Biotech companies of the world, became the latest company to take a full commercial license for Horizon's Chinese Hamster Ovary (CHO) K1 cell line.

The licensing agreement followed a stringent evaluation of the cell line by Glenmark to assess its suitability for adoption into the Company's biomanufacturing processes.

Martin Bertschinger, Deputy Director of Cell Sciences, Glenmark, explained:

"After extensive evaluation, Horizon's GS knockout CHO K1 cell line demonstrated consistently impressive performance. We generated clones with high levels of productivity and a favourable stability profile relative to our previous system. Incorporating this technology into our biomanufacturing processes enhances our ability to efficiently generate high quality cell lines."

FIND MORE AT
WWW.HORIZONDISCOVERY.COM/BIOPRODUCTION

BUSINESS UNIT

FY19 REVENUE OF £8.6M (FY18: £8.7M)

BioProduction

Delivering a commercial disruptive cell line for the production of biologics

Our BioProduction business unit provides biopharmaceutical and contract manufacturing organizations with a commercially disruptive CHO cell line for use in the production of biologic drugs.

The BioProduction business unit includes two primary business lines:

- OTS gene-edited CHO cells; and
- custom CHO cell lines.

The cell lines are provided to customers under license. We also provide custom CHO gene engineering services, either utilising our own cell line or one provided by the customer.

There is strong demand from companies pursuing biologic drugs and looking for cost-effective ways to commence biomanufacturing. However, high entry costs and restrictive licensing conditions can make it difficult to gain access to CHO cells suitable for manufacturing biologics. Our key competitors license cell lines as part of an integrated offering, which typically includes the supply of cell media and feed or manufacturing services. By contrast, we are commercially disruptive by licensing our high quality, gene edited CHO cell line as a standalone allowing our customers to benefit from a high quality, gene edited cell line without the obligation to purchase ancillary products and services.

Since first entering this market in 2013 our cell lines have secured more than 70 licensing engagements and have now been validated by five successful Investigational New Drug (IND) filings by customers (four in the U.S.A. and one in China). The growing acceptance of our CHO cell lines in the market has meant that an increasing number of customers have proceeded directly to full commercial licenses without going through an initial evaluation period. This has significantly shortened our sales cycle.

Bioproduction is moving from high-volume production to small runs of high value biologics, with flexibility, increased speed to market and cost reduction being key drivers. Similarly, biologics manufacturers are seeking to reduce the complexity of the production process, for example, by simplifying the essential purification process. We believe that our expertise in cell line engineering can be leveraged to address many of these issues and that this represents a major growth opportunity.

Having established our reputation in the market, we believe that the opportunity now exists for us to move from being a commercially disruptive provider to a technologically disruptive provider of engineered CHO cells. In December we signed a strategic partnership with Mammoth Biosciences pursuant to which we will utilise Mammoth's novel Cas technology for the development of a suite of next generation engineered CHO lines. We will also have the right to sublicense this technology through Mammoth to customers who wish to modify their own proprietary CHO cell line. We are seeking early access customers through 2020 into 2021.

BioProduction continued to perform well and enjoyed a strong performance during the year generating revenues of £8.6 million (FY18: £8.7 million) but as expected, ended the year flat year-on-year. This is not an indication of momentum stalling, rather it reflects two large contracts with long lead times in FY18 that did not happen in FY19.

BUSINESS UNIT

FY19 REVENUE OF £4.8M (FY18: £5.6M)

Diagnostics
Enabling expert diagnosis

Our cell line derived reference standards provide a source of genetically defined, quantitative, sustainable reference material.

The Diagnostics business unit provides molecular reference standards derived from gene-edited cell lines that we have developed to mimic human genetic diseases. The offering includes three primary business lines.

- OTS cell-based reference standards;
- Made to Order (MTO) reference standards (generally large volumes of OTS cell-based reference standards and/or modifications to their format);and
- Custom cell-based reference standards that are developed to meet customers' specific requirements.

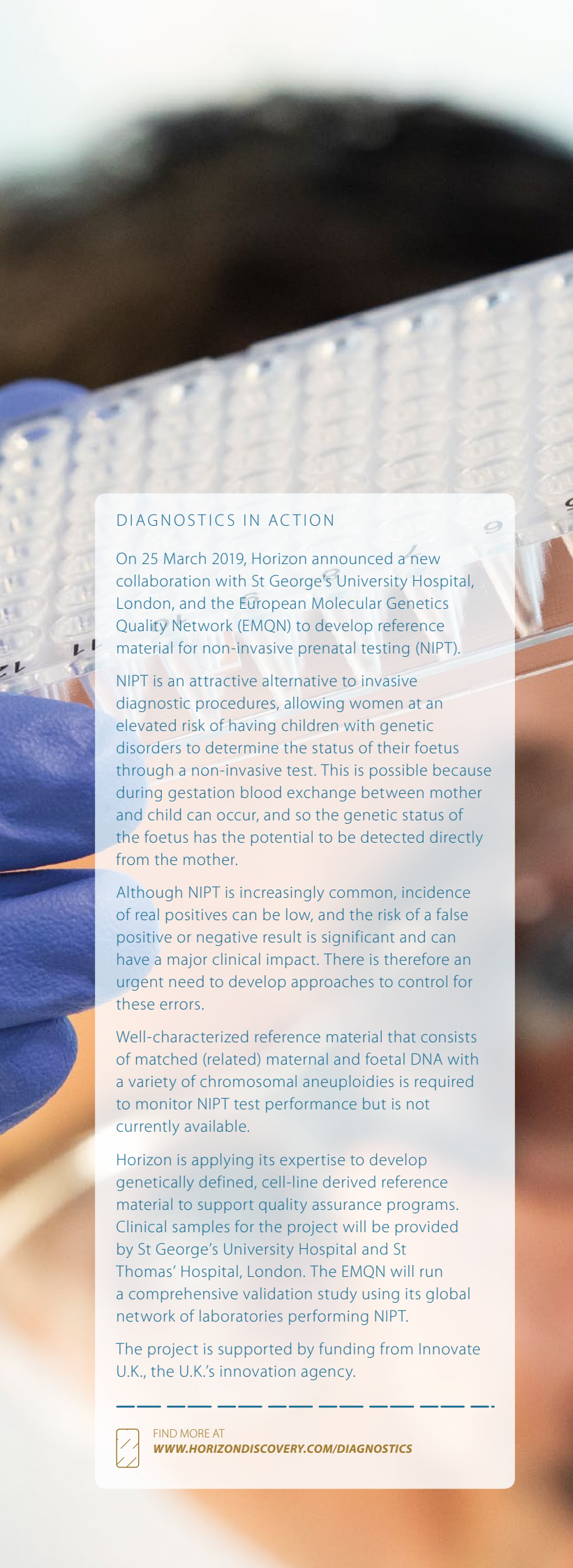
These reference standards are used to evaluate molecular assays on a research use only basis.

We are an innovator of cell line-derived reference standards. We provide a source of genetically defined, quantitative, sustainable and independent third-party reference material, critical to the validation and routine performance monitoring of assays, primarily in oncology. These cell-derived tools are more effective than oligonucleotides and plasmids in replicating the complexity of human samples while also being more reproducible than patient-derived controls. As a reference standard, these products are an inexhaustible supply of consistently reproducible tools.

Our offering includes OTS and MTO cell-based reference standards, which are typically sold through our e-commerce platform, and both tailored and custom-developed reference standards that are developed to customers' specific requirements and predominantly sold via our field sales team. Customers for these reference standards include platform developers, biopharmaceutical and diagnostics companies.

The key drivers for these tools are the need for fast, minimally invasive methods for detection of disease (as opposed to patient derived biopsies) against a regulatory backdrop for increased standardisation to remove subjectivity. The competition in this space is fragmented, with the bulk of the reference standard market comprising non-profit companies offering patient samples.

Performance in the first half of the year was disappointing, with the Business unit reporting revenues of £2.5 million (HY18: £3.5 million), 28.6% down on prior year. The root cause of this was internal organisational issues rather than external market factors. As expected, under new leadership this business unit recovered strongly in the second half, closing the period with revenues of £4.8 million, down 14.3% on the prior year performance (FY18: £5.6 million).



DIAGNOSTICS IN ACTION

On 25 March 2019, Horizon announced a new collaboration with St George's University Hospital, London, and the European Molecular Genetics Quality Network (EMQN) to develop reference material for non-invasive prenatal testing (NIPT).

NIPT is an attractive alternative to invasive diagnostic procedures, allowing women at an elevated risk of having children with genetic disorders to determine the status of their foetus through a non-invasive test. This is possible because during gestation blood exchange between mother and child can occur, and so the genetic status of the foetus has the potential to be detected directly from the mother.

Although NIPT is increasingly common, incidence of real positives can be low, and the risk of a false positive or negative result is significant and can have a major clinical impact. There is therefore an urgent need to develop approaches to control for these errors.

Well-characterized reference material that consists of matched (related) maternal and foetal DNA with a variety of chromosomal aneuploidies is required to monitor NIPT test performance but is not currently available.

Horizon is applying its expertise to develop genetically defined, cell-line derived reference material to support quality assurance programs. Clinical samples for the project will be provided by St George's University Hospital and St Thomas' Hospital, London. The EMQN will run a comprehensive validation study using its global network of laboratories performing NIPT.

The project is supported by funding from Innovate U.K., the U.K.'s innovation agency.

FIND MORE AT
WWW.HORIZONDISCOVERY.COM/DIAGNOSTICS

BASE EDITING IN ACTION

Many human diseases are caused by single base changes in DNA caused through heredity genetics or an infectious agent. There are at least 3,000 inherited diseases that are the result of a single base error, such as sickle cell anaemia and Duchenne muscular dystrophy.

Base editing is a new category in gene editing that allows scientists to make specific edits to base pairs in DNA or RNA, which means it could potentially target many of these diseases. The technology causes far fewer unintended genomic changes than are inherent with the use of current gene editing techniques (such as CRISPR) and could enable the development of novel therapeutics that rely on engineering cells either directly in the body (gene therapy), or externally before transplanting back into the patient (cell therapy).

Base editing is a novel platform and its market potential is yet to be fully determined. We intend to commercialise this technology for potential out-licensing to customers for use in therapeutic applications, which we envision could generate revenue from access fees as well as "reach through" revenue such as royalties and milestones.

FIND MORE AT
WWW.HORIZONDISCOVERY.COM/BASEEDITING

BUSINESS UNIT FY19 REVENUE OF £4.6M (FY18:£4.6M)

In Vivo

Providing pre-clinical animal models for drug discovery

The In Vivo Business Unit provided genetically engineered rat and mice models from its premises in Boyertown, Pennsylvania and St Louis, Missouri, U.S.A. In Vivo's animal models feature specific gene deletions, insertions, repressions and modifications, and are used as pre-clinical models for human genetic disease for drug discovery.

In December 2019 we completed the divestment of the In Vivo Business Unit to Envigo RMS LLC for a nominal consideration settled in cash. In the period in the financial year that Company owned the In-Vivo business revenues of £4.6 million were generated. These are excluded from Continuing Operations in the Company's FY19 results and going forward.

The acquisition by Envigo will provide an opportunity for the In Vivo business to flourish within a larger, market-leading company and also provides continuity for its many customer relationships. Significantly, both parties are committed to an ongoing collaboration to support growing opportunities with in-vivo CRISPR screening. This will enable Horizon to continue crucial aspects of its animal model screening work in conjunction with Envigo, and to generate additional business opportunities of benefit to both companies.

NEW FOR 2020

Base Editing

Enabling more accurate gene editing

We have a strategic collaboration with Rutgers to develop base editing technology and in January 2020 we exercised our option for an exclusive license to commercialise this technology. We expect to refine this technology over the next 18 months ahead of full commercialisation and from the start of 2020 we have created a new dedicated business unit to provide the necessary focus on its development.

Base editing is a new category in gene editing that allows scientists to make specific edits to base pairs in DNA or RNA. This technology allows for more accurate gene editing by minimising the unintended genomic changes that are inherent with the use of CRISPR gene editing techniques. It therefore has the potential to enable a large therapeutic opportunity by making gene editing a viable treatment option for many diseases that to date have no treatment.

Currently we believe we are one of only two commercial entities with the ability to enable base editing in therapeutic applications and the only entity with plans to make this technology available to the market broadly.

We are now seeking early access partners to assess and shape the development of this platform. We expect that the future revenue model will include initial access fees, milestone payments and royalty payments for marketed therapeutics products.

CHIEF FINANCIAL OFFICER'S REVIEW

Delivering solid year-on-year growth

2019 was a year in which the Group focused its investment on its high-growth opportunities. The additional investment in Base editing and our collaboration with Mammoth Biosciences further strengthen our position as a world-leading expert in cell-based technologies.

"During 2019, the Group delivered year-on-year growth of 7.8% driven by strong performance of our Screening and Research Reagents business units."

JAYESH PANKHANIA, CHIEF FINANCIAL OFFICER

FINANCIAL HIGHLIGHTS

- Group revenue on continuing operations of £58.3m up 7.8%, driven by screening and research reagents business units
- Revenue on a Constant currency[1] basis for continuing operations of £56.7m up 4.8%
- Gross profit on continuing operations up 30bps to 70.0%
- Loss before tax on continuing operations £11.5m
- Adjusted EBITDA[2] on continuing operations of £3.9m up £1.8m

1 Constant currency is a non-IFRS financial measure that we define as the impact of applying the prior period average exchange rates to the current period revenues.

2 Adjusted EBITDA is a non-IFRS financial measure that we define as loss for the year on continuing operations adjusted for finance costs, investment income, amortisation and depreciation, and items considered as non-recurring and infrequent in nature as disclosed in Note 6 of the Financial Statements. Adjusted EBITDA incorporates a positive £2.5m impact of IFRS 16 which was adopted on 1 January 2019.

FOR BIOGRAPHY VISIT **PAGE 42**

GROUP FINANCIAL PERFORMANCE

During 2019, the Group delivered £58.3m of revenues on continuing operations (FY18: £54.1m), representing solid year-on-year growth of 7.8% (4.8% growth on a constant currency basis). The increase is primarily driven by strong performance of our screening and research reagents business units, which offset a weaker performance of the Diagnostics business unit.

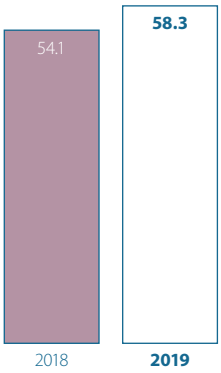
On 2 December 2019 the Group completed the sale of the Group's In Vivo business unit ("In Vivo") to Envigo RMS LLC ("Envigo"), for a nominal consideration satisfied in cash. The consolidated income statement (page 72) reports the results for the In Vivo business unit as discontinued. The combined continued and discontinued operations reported revenues of £62.9m (FY18: £58.7m), up 7.2%.

The Group maintained overall gross profit levels reporting a slight increase to 70.0% (FY18: 69.7%) driven by improved margins in Research Reagents and BioProduction. The discontinued operations reported a gross profit of 40.4% (FY18: 39.3%).

The Group reports a loss after taxation on continuing operations of £9.2m (FY18: loss after tax on continuing operations of £3.7m) for the full year and a positive adjusted EBITDA of £3.9m (FY18: £2.1m). The increased loss is a result of continued investment for growth, but particularly fees associated with a U.S. Listing and the impairment of our joint venture in Avvinity.

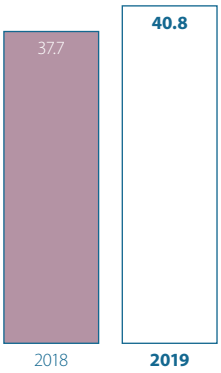
We present alternative performance measures because we believe they are frequently used by analysts, investors and other interested parties to evaluate companies in our industry and facilitate comparisons on a consistent basis across reporting periods. The reconciliations are presented below.

REVENUE – CONTINUING OPERATIONS (£M)



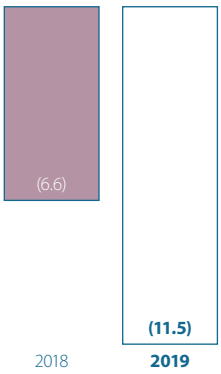
£58.3M +7.8%

GROSS PROFIT – CONTINUING OPERATIONS (£M)



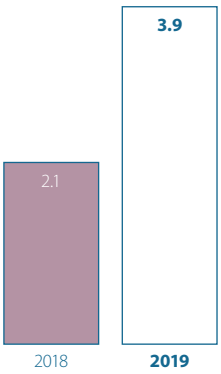
£40.8M +£3.1M

LOSS BEFORE TAX – CONTINUING OPERATIONS (£M)



£(11.5)M

ADJUSTED EBITDA – CONTINUING OPERATIONS (£M)



£3.9M +£1.8M

ADJUSTED EBITDA

The following is a reconciliation of our loss for the period from continuing operations, the most directly comparable financial measure calculated under IFRS, to adjusted EBITDA:

Year Ended 31 December	**Continuing Operations 2019 £'000**	Continuing Operations 2018 £'000
Loss for the year on continuing operations	(9,227)	(3,680)
Add back:		
Taxation	(2,285)	(2,938)
Finance costs	866	7
Investment income	(58)	(90)
Depreciation and Amortisation	9,608	7,700
Costs associated with preparation for NASDAQ listing	1,682	–
Impairment of investment in Joint Venture	3,019	–
Executive management exit costs	281	476
Non recurring legal and advisory fees	–	585
ADJUSTED EBITDA[2]	**3,886**	**2,060**

CHIEF FINANCIAL OFFICER'S REVIEW CONTINUED

The reported 2019 Adjusted EBITDA incorporates the impact of IFRS 16 (refer to Financial Statements Note 1) which was adopted on 1 January 2019. There is a positive £2.5m impact to EBITDA due to the reclassification of operating lease expenses previously recorded in operating expenses to depreciation, amortisation and interest payments. The Adjusted EBITDA for 2019 before the impact of IFRS16 is £1.4m (FY18 £2.1m). The movement in EBITDA is the result of the continued strategy of investment for growth, as the Group continues to invest in its commercial, marketing and Research, Development and operations functions to support this.

CONSTANT CURRENCY

Constant currency is the measured current year revenues based on the prevailing foreign exchange rates from the prior year.

REVENUE AND GROSS PROFIT BY BUSINESS UNIT – CONTINUING OPERATIONS

Total revenue for continuing operations was £58.3m for the year (FY18: £54.1m, representing an increase of £4.2m, or 7.8%. Summary of the performance by business unit:

	Revenue 2019 £'000	**Revenue – constant currency 2019 £'000**	**Gross Profit 2019 £'000**	**Gross Profit % 2019**	Revenue 2018 £'000	Gross Profit 2018 £'000	Gross Profit % 2018
Research Reagents	33,464	32,491	21,761	65.0%	30,871	19,668	63.7%
Screening	11,409	11,139	7,873	69.0%	8,931	6,402	71.7%
Bioproduction	8,565	8,391	7,397	86.4%	8,717	7,242	83.1%
Diagnostics	4,815	4,659	3,724	77.3%	5,614	4,408	78.5%
CONTINUING OPERATIONS	**58,253**	**56,680**	**40,755**	**70.0%**	**54,133**	**37,720**	**69.7%**

RESEARCH REAGENTS

Research reagents revenue increased to £33.5m for the year (FY18: £30.9m), representing an increase of £2.6m, or 8.4%. The primary driver of the strong performance was growth in sales of our RNAi and CRISPR reagents. As the business unit sustains its gross margin level, reporting 65.0% (FY18: 63.7%) it results in a growth of reported gross margin of £2.1m to £21.8m (FY18: £19.7m).

SCREENING

Screening revenue increased to £11.4m for the year (FY18: £8.9m), representing an increase of £2.5m, or 28.1%. The driver is our CRISPR screening and molecular screening which has seen solid interest from our customers. The business unit reported a slight decrease in gross margin rates to 69.0% (FY18: 71.7%). Overall the business unit reports an increase in gross profit of £1.5m to £7.9m (FY18: £6.4m).

BIOPRODUCTION

Bioproduction experienced a slight decrease in revenue reporting £8.6m (FY18: £8.7m). FY18 was particularly strong with two large orders, as expected they did not repeat in 2019. The business unit reported a gross profit of £7.4m or 86.4% (FY18: £7.2m or 83.1%).

DIAGNOSTICS

Diagnostics revenue decreased to £4.8m (FY18: £5.6m) representing a decrease of £0.8m, or 14.3%. The Group faced challenges during H1 due to organisational issues, being the main driver for the FY19 decline. The action taken to resolve the matters saw an improvement in the business unit during the second half of the year. The business unit reported a gross profit of £3.7m or 77.3% (FY18: £4.4m or 78.5%) which is the direct results of the fall in revenue.

OTHER OPERATING INCOME

Other operating income was £2.1m (FY18: £2.2m) and includes grant income, R&D tax credits and sublease income.

SALES, MARKETING AND DISTRIBUTION COSTS

During 2019, Horizon continued to make substantial investments in building world-class commercial operations, resulting in sales, marketing and distribution expenses of £14.3m (FY18: £12.5m). The increase in cost is primarily due to increased marketing spend and the full-year impact of hires in 2018.

RESEARCH, DEVELOPMENT AND OPERATIONS COSTS

Innovation remains central to sustainable value creation for the business. During 2019, we continued to invest in our innovation capability, and our expenditure on research, development and operations was £14.2m (FY18: £13.4m). Spending on R&D, new product introduction, customer support, attendance at scientific conferences, and training contribute to this increase.

We expect to increase investment in research and development, specifically concerning the development of our next generation CHO cells and our base editing programme.

In January 2020 we announced that we have entered into a strategic collaboration and licence agreement with Mammoth Biosciences. Horizon gains access to Mammoth's novel CRISPR platform which facilitates the delivery of a new generation of genetically engineered CHO cells to produce biotherapeutics such as therapeutic antibodies.

We are excited to announce we have advanced to the next stage with our agreement with Rutgers University concerning the development and commercialisation of base editing. The gene-editing approach has the potential to provide significant benefits in cell therapy, among other applications.

CORPORATE AND ADMINISTRATIVE EXPENSES

During 2019 we incurred corporate and administrative expenses of £24.4m (FY18: £20.4m). Included in this expense category is the impairment of £3.0m (FY18: nil) of our investment in the Avvinity joint venture. The resultant increase is due to the Group expanding the corporate team to drive improved corporate and financial governance and strengthening the Group's resources in finance and IT to support a potential U.S. listing.

BALANCE SHEET

Non-current assets decreased by £0.2m to £112.3m (FY18: £112.5m), this is primarily the result of the recognition of the right of use assets of £10.0m on the adoption of IFRS 16 offset by the impairment of £3.0m in respect of the Joint Venture and amortisation and depreciation of £9.6m. Non-current liabilities have increased by £8.1m, driven by the recognition of lease liabilities of £10.3m on the adoption of IFRS 16.

Net current assets decreased to £28.9m (FY18: £37.5m), which is significantly driven by the reduction of our cash and cash equivalents of £8m.

CASHFLOW

The Group had cash resources on 31 December 2019 of £18.8m (2018: £26.7m). For the second year, the Group experienced a positive cash flow from operating activities. Overall cash resources decreased as the Group continued to invest for growth, with cash investments mainly consisting of £4.7m in respect of property, plant and equipment and intangible assets, along with change in working capital.

CAPITAL EXPENDITURE

During 2019, Horizon invested £2.7m (FY18: £0.9m) in intangible assets and £2.0m (FY18: £2.7m) in plant and equipment to enhance our intellectual property, automation and business infrastructure including the creation of an enhanced website. In 2020, the Group will continue investing in programmes including automation, eCommerce and improved IT infrastructure, which will enable Horizon to scale up operations and deliver sustainable growth.

COVID-19 AND PLACING

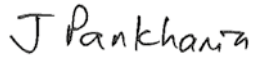
Over the last year we have worked hard in preparing the company for a listing on the Nasdaq in addition to our AIM listing. We are ensuring that our governance, financial controls and processes are strengthened to be appropriate for a dual listed business. The COVID-19 pandemic has caused capital markets to become highly volatile and, whilst it is still our intention to list on the Nasdaq, we will review the timing of a list when market conditions are more appropriate.

Details of how the COVID-19 pandemic could impact the Group are included on page 35 in the risk management section and on page 12 in the Chairman's Review. The first quarter of 2020 was broadly in line with management expectations, however orders towards the end of March 2020 indicated pressure on Research Reagents as academic research labs slowed or stopped working following the widespread lock-down in major economies that was implemented in the second half of the month. This trend has continued in Q2 2020.

In response we have proactively implemented plans to conserve cash and raised gross proceeds of £6.9m in a placing on 17 April 2020. The net proceeds of the placing will be used to strengthen the Group's balance sheet, working capital and liquidity position. As the COVID-19 situation is evolving, the full impact for the year remains unclear, however we have modelled a number of downside scenarios which shows cash headroom for at least the next 12 months.

SUMMARY AND FINANCIAL OUTLOOK

2019 was a year that the Group embedded the new strategy focusing investment on our high-growth opportunities. The divestment of our In Vivo business enables us to focus on our areas of growth. The enhanced corporate and financial governance, investment in automation and IT infrastructure will provide a robust platform for continued, sustainable revenue growth. During the COVID-19 pandemic, we intend to minimise cash expenditure whilst prioritising our key strategic projects such as our collaboration with Mammoth Biosciences and Base Editing.



JAYESH PANKHANIA
CHIEF FINANCIAL OFFICER

KEY PERFORMANCE INDICATORS

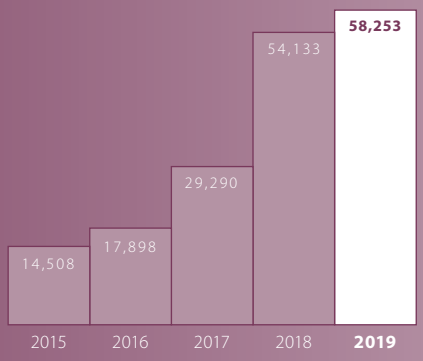
Measuring performance and growth of continuing operations

We use the following KPIs to measure our performance and growth against our key strategic pillars.

Results of continuing operations are presented in all years.

REVENUE GROWTH

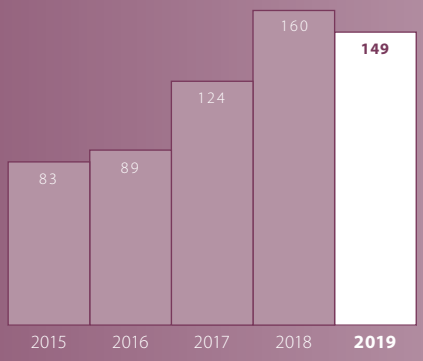
REVENUE (£000'S)



GROW REVENUES FROM EXISTING CUSTOMERS AND WIN NEW CUSTOMERS

REVENUE PER HEAD – AS A MEASURE OF PRODUCTIVITY

REVENUE PER HEAD (£000'S)

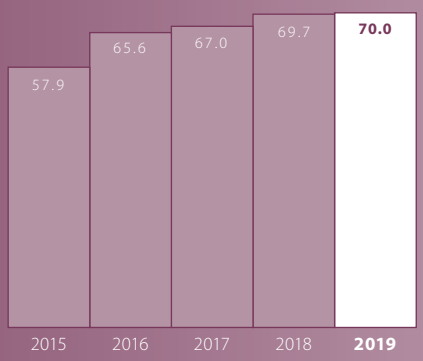


GROW REVENUES FROM EXISTING CUSTOMERS AND WIN NEW CUSTOMERS

AUTOMATE AND SCALE OUR BUSINESS

GROSS MARGIN – AS A MEASURE OF OPERATING EFFICIENCY

GROSS MARGIN (%)



AUTOMATE AND SCALE OUR BUSINESS

STRATEGY KEY

EXPAND OUR TOOLS AND SERVICES OFFERINGS

AUTOMATE AND SCALE OUR BUSINESS

GROW REVENUES FROM EXISTING CUSTOMERS AND WIN NEW CUSTOMERS

CONTINUE TO INNOVATE

PEOPLE – INVEST IN TOP TALENT

INNOVATION PROJECTS

WE DEFINE INNOVATION PROJECTS AS KEY PROJECTS WHICH WILL EXPAND OUR TOOLS AND SERVICES OFFERING IN THE FUTURE. WE HAVE INCREASED RESOURCES ON OUR INNOVATION PROJECTS IN 2019 EXTENDING OUR CAPABILITIES THROUGH BOTH INTERNAL RESEARCH AND DEVELOPMENT AS WELL AS IN-LICENSING, PARTNERSHIPS AND COLLABORATIONS. FOR EXAMPLE, WE HAVE INVESTED IN OUR STRATEGIC COLLABORATIONS WITH RUTGERS, WHICH FORMS THE FOUNDATIONS OF OUR NEW BASE EDITING BUSINESS UNIT, AND MAMMOTH BIOSCIENCES WHICH WILL SIGNIFICANTLY ENHANCE OUR BIOPRODUCTION CAPABILITIES.

EXPAND OUR TOOLS AND SERVICES OFFERINGS

CONTINUE TO INNOVATE

EMPLOYEE ENGAGEMENT – AS A MEASURE OF EMPLOYEE SATISFACTION

83%

EMPLOYEE ENGAGEMENT HAS CONTINUED TO RISE, WITH A POSITIVE ENGAGEMENT SCORE OF 79% RECORDED IN 2018 INCREASED TO 83% IN 2019.

PEOPLE – INVEST IN TOP TALENT

OUR STAKEHOLDERS

How the Board gathers and acts on feedback from our key stakeholders

OUR CUSTOMERS

ABOUT
Our mission is to leverage our expertise in gene editing and gene modulation applications to help our customers to transform human health. We will do this by providing them with tools and services that enable them to achieve operational and competitive advantage.

WHY WE LISTEN
The knowledge that we gain through these deep customer relationships informs our own product development, allowing us to create the market-aligned innovative solutions that differentiate our offering.

HOW WE TAKE FEEDBACK
We communicate with customers through the following:

- Direct feedback from our commercial organisation which we use to build market awareness, drive customer engagement and secure high-value sales. Our Key Account Partners play a crucial role in understandlng the complex nature and requirements of our international biopharma companies, building deep relationships that benefit both parties.
- Attendance at relevant industry conferences.

OUR BOARD

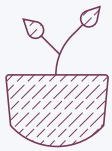
OUR PEOPLE

ABOUT
We are committed to a safe, inclusive, secure and ethical working environment where all our people have the opportunity to contribute to our success.

WHY WE LISTEN
As a knowledge-based business our people are our biggest asset. We are committed to creating and maintaining a work environment which offers equal opportunities to all, which is inclusive and diverse and encourages those with different backgrounds and experience to develop. In addition, we embrace a performance culture in which all employees are able to perform to the best of their abilities, feel motivated and are recognised for their contribution to overall Company performance. Employee engagement forms an integral part of our strategy and is a key non-financial KPI.

HOW WE TAKE FEEDBACK
We communicate with employees through the following:

- Quarterly townhalls, through intranet campaigns and internal communication emails so we can ensure that all our people across the business understand our strategic priorities and how they can contribute to their delivery.
- We carry out an annual employee survey to ensure that all staff have an opportunity to share their views on the running of the business on an unattributable basis and contribute to its future direction.
- In 2019 we launched a Senior Leadership Conference which brought together our Executive Leadership Team and Senior Leaders from across the business to share our performance to date and discuss our Five Year Plan.



OUR INVESTORS

ABOUT
Our investors are the ultimate owners of the company and their continued support is crucial for the development of our business.

WHY WE LISTEN
Maintaining regular and transparent dialogue with shareholders is important in order to ensure that there is a clear understanding of strategic objectives, financial and operational performance, and governance of the Group.

HOW WE TAKE FEEDBACK
We communicate with shareholders through the following:

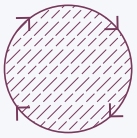
- Investor meetings: the CEO and CFO meet with major institutional shareholders at least twice a year, following mid-year and full-year results, through roadshows that take place in London and in the major investment centres in the United States.
- Investor Relations Website: provides extensive information for investors and allows interested parties to register to receive electronic copies of all RNS and RNS-Reach announcements.
- Annual General Meeting (AGM): The Board actively encourages participation in the AGM, which is the principal forum for dialogue with shareholders.

OUR PARTNERS AND SUPPLIERS

ABOUT
We recognise that we operate in a global market through a network of suppliers, business partners and customers all of whom play a key role in helping us to Power the Therapeutic Ecosystem.

WHY WE LISTEN
We believe by acting with integrity in our everyday dealings with these stakeholders we create a harmonious working environment that benefits all parties, and importantly has societal impact.

HOW WE TAKE FEEDBACK
- We gather direct feedback through our Commercial organisation, which includes Key Account Partners, Field Sales and Customer Service.
- However, all employees play an important role as ambassadors of the Group.



OUR COMMUNITIES

ABOUT
We aim to create a positive impact beyond technical innovation in healthcare by engaging with local communities, caring for the environment and by improving access to health and education.

WHY WE LISTEN
We believe that by behaving as a responsible corporate citizen we will create a working environment that is not only consistent with the values and aspirations of our global employees but will also ultimately drive value for the business as a whole.

HOW WE TAKE FEEDBACK
Our social and charitable activities are at the heart of our engagement and cultural programmes.
Our activities in fundraising make a valuable difference to the local communities and charities we support. For more information see Corporate Social Responsibility on page 39.

RISK MANAGEMENT

Informing decisions from expert diagnosis

Our strategy of "Investing for Growth", is based on an entrepreneurial and collaborative spirit which supports the rapid growth of long-term value for the business. Appropriate assessment, monitoring and mitigation of risk is an essential driver for our success.

We put active mitigation programmes in place if any event or circumstance threatens the ability of the Group to achieve its business objectives or execute its strategies successfully.

Horizon's Business Risk Management Process forms a sound basis for the understanding, prioritisation and management of risk, elevating opportunity while reducing the potential for significant downside impact on the business. Through this process, risks are identified based on our strategic priorities while risk management strategies are designed, implemented, monitored and evolved continually.

The Group reviews risk on an enterprise-wide basis. The risk review is dynamic with principal risks amended in line with the current position of the Group. Our principal risks are those that threaten the delivery of the Group strategy and those that impact our business model, future performance, solvency or liquidity. The review includes discussion and appraisal of the risk registers across all business functions. The full risk register is considered by the Executive team, which is responsible for ensuring adequate risk mitigation controls and processes are implemented. The Board formally assesses the process at least once every year and monitors progress on an ongoing basis.

BREXIT

Due to the uncertainty of the impact and its significance, Brexit is managed via a task force committee. This committee sits alongside the broader risk review process. Accordingly, our summary of Brexit risk is separately presented in this section.

On 23 June 2016, the U.K. held a referendum on the U.K.'s continuing membership of the E.U., the outcome of which was a decision for the U.K. to leave the E.U. (Brexit). Following Royal Assent of the European Union (Withdrawal Agreement) Act on 23 January 2020 and ratification of the Withdrawal Agreement by the European Parliament on 24 January 2020, the U.K. left the E.U. on 31 January 2020. The progress of current negotiations between the U.K. Government and the E.U. on their future relationship and the ratification of the outcome of those negotiations will likely determine the future terms of the U.K.'s relationship with the E.U. following the end of the transition period. Until these negotiations and parliamentary ratification processes are complete, it is difficult to anticipate the potential impact on Horizon's market share, sales, profitability and results of operations.

The Group operates from a global footprint and retains the flexibility to adapt to changing circumstances. The uncertainty during and after the period of negotiation is expected to increase volatility and may have an economic impact, particularly in the U.K. and Eurozone. Since the time of the referendum in 2016, the Group has responded by engaging proactively with key external stakeholders and establishing a cross-functional internal task force committee to understand, assess, plan and implement operational actions that may be required. The actions the Group undertook in 2019 were based on the assumption that the U.K. left the E.U. without a deal. In January 2020, the assumption was updated to assume no extension to the transition period beyond 31 December 2020/no trade deal between the E.U. and U.K. agreed and ratified at that time, the effect of which would be similar to the previous hard Brexit/no deal assumption. The key operational actions necessary to respond to this scenario are being addressed including planning for additional inventory stock and builds, changing logistics plans and shipping routes and, customs and duties set up for introduction or amendment of existing tariffs or processes.

The Board reviews the potential impact of Brexit regularly as an integral part of its assessment of our principal risks.

IMPACT OF COVID-19

From the beginning of 2020, we have seen the rapid emergence of the COVID-19 (more commonly referred to as Coronavirus) pandemic have a dramatic impact on entire countries, industries and global markets.

Events concerning the COVID-19 pandemic continue to evolve rapidly, and the Group is monitoring the situation closely. Horizon's priority remains the health and safety of its employees and visitors to its sites. We have actioned business continuity plans aimed at safeguarding our employees and their dependants while maintaining our inventory, manufacturing, production and service capacity.

As part of our business continuity plans, we invested in an I.T. infrastructure that enables effective remote working when needed. Our experienced laboratory teams can work flexibly, facilitating different working patterns that will both minimise the impact of COVID-19 and meet our duty of care to our employees.

The long-term ramifications of COVID-19 to our business are hard to determine. Already we have seen how this health epidemic has adversely impacted the economies and financial markets of many countries. Any sustained economic downturn could affect demand for our products and services, which could have a material adverse effect on our business, operating results and financial condition. The Board, however, does not consider there to be a material uncertainty for the next 12 months.

While we are addressing our internal risk mitigation plan, there could be external parties that impact our business continuity, and we are also taking measures to mitigate such risks. Our materials suppliers, licensors or collaborators, could also be disrupted by conditions related to COVID-19. Our customers could also be disrupted, possibly through deferring purchasing decisions or delaying research programs. Customers may not be able to place sales orders with Horizon due to several factors, including disruptions in travel, whether by our customers or our global sales team. Our sales teams have built close relationships with customers enabling sales processes to proceed via video conference connections.

We are monitoring the situation not only on a global basis but also locally in the communities where we operate and have implemented appropriate action plans aligned to the latest government advice in each geography.

Further details on the impact of COVID-19 are included in the Chairman's review on page 12.

PRINCIPAL RISKS

The risks outlined on pages 36 to 38 are the principal risks of the Group, measured by their likelihood of occurrence and their significance should they occur. These are not the only risks the Group faces, but in addition to Brexit and COVID-19, they are the ones considered to be the most significant and relevant at the time of preparation of this report.

RISKS CONTINUED

PRINCIPAL RISKS

STRATEGY KEY

EXPAND OUR TOOLS AND SERVICES OFFERINGS

AUTOMATE AND SCALE OUR BUSINESS

GROW REVENUES FROM EXISTING CUSTOMERS AND WIN NEW CUSTOMERS

CONTINUE TO INNOVATE

PEOPLE – INVEST IN TOP TALENT

TREND KEY

 INCREASING RISK

 DECREASING RISK

 UNCHANGED

RISK CATEGORY AND PRINCIPAL RISKS	IMPACT ON STRATEGIC PRIORITIES	RISK DESCRIPTION	MANAGEMENT	TREND VERSUS PRIOR YEAR
CORPORATE				
Ability to raise sufficient capital to execute plan for growth		The Group may not be able to raise sufficient capital to execute its plan for rapid growth because it may not be able to raise additional equity on AIM and/or execute a U.S. listing during the next 12 months.	Create a robust U.S. listing readiness plan. Ensure adequate and appropriate resources are deployed to support the execution of the plan.	NEW
Sustainable profitable growth		Business resources may not be effectively deployed. Business strategies may not be scalable or repeatable or may be inadequately planned.	A plan to deliver the Investing for Growth strategy has been agreed, and progress is regularly monitored and appropriate action taken. The business is focusing on the most impactful allocation of resources to ensure a repeatable and scalable operating model.	
Ability to adapt to the external environment		The ability of the Group to quickly adapt to external events such as Brexit and the outbreak of Coronavirus may impact the delivery of our strategic goals and financial targets.	Where significant events occur such as Brexit and the outbreak of Coronavirus, the executive leadership team carefully monitor the situation, where required mitigating strategies are devised and implemented.	
Investments to drive growth		The implementation of the strategic plan requires significant capital investment, including an automation programme. Inappropriate capital investments may impede the delivery of expected growth.	Full capital expenditure plans are a core component of the Annual Strategic Plan, which is subject to Board approval. Both the Executive Team and the Board closely monitor the execution of the plan.	

RISK CATEGORY AND PRINCIPAL RISKS	IMPACT ON STRATEGIC PRIORITIES	RISK DESCRIPTION	MANAGEMENT	TREND VERSUS PRIOR YEAR
PRODUCT PIPELINE AND INTELLECTUAL PROPERTY				
I.P. landscape		The I.P. infrastructure within the life science sector is complex, which leads to uncertainty over who owns certain I.P. rights. Consequently, there is a potential risk of utilising I.P. which the Group does not have a contractual right or license.	Continuous monitoring of the external I.P. landscape is carried out by the Group's I.P. team with support from external I.P. attorneys. As new patents come to light, the team assesses whether they are of relevance to the Group's activities.	
I.P. obsolescence		The Group is dependent on technology for new product development. External technological advances could overtake the technologies and products being developed by the Group.	The Group deploys resources to protect and enforce its intellectual property rights and its ability to preserve the confidentiality of its know-how. An innovation development team has been established to ensure the Group remains at the forefront of its markets.	
I.P. confidentiality		Confidential information may leak to and from the business through movement of key employees, fraud, theft or other action.	Significant I.P. and know how is legally protected. Every employee is required to sign confidentiality agreements. The I.P. team discusses trade secrets when employees join and leave the organisation. Security measures are in place to assure against loss of confidential data. A trade secrets audit of the Group is being established.	
FINANCIAL				
Failure to achieve strategic plans or meet targets or expectations		Failure to deliver expected financial performance; specifically, the achievement of revenue and EBITDA targets would undermine the credibility of the Group.	The Group regularly engages with analysts and investors to manage expectations. The financial performance of the Group is regularly monitored by the Executive Leadership Team and the Board.	
COMMERCIAL				
Commercial delivery		Lack of strategic focus, commercial team performance or failure to achieve market penetration result in lower than expected revenue growth and margins.	A strategic review is performed annually to establish plans for revenue, contribution, profitability and investments at the business line level. Performance is tracked against plan monthly, and corrective action is taken. There has been significant investment in the commercial team. The team is now well established, organised into key account and territorial managers.	

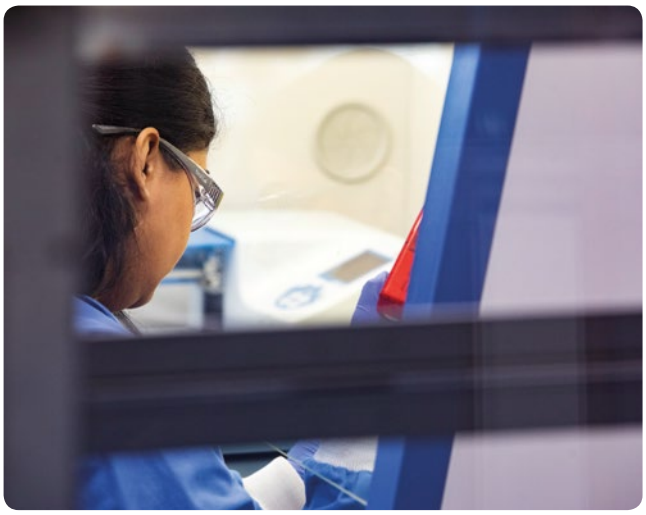
RISKS CONTINUED

RISK CATEGORY AND PRINCIPAL RISKS	IMPACT ON STRATEGIC PRIORITIES	RISK DESCRIPTION	MANAGEMENT	TREND VERSUS PRIOR YEAR
OPERATIONAL				
Change management		The delivery of the strategic plan requires significant investment and rapid delivery of critical projects to support this. As a result of the aggressive timescales, there is a risk that the delivery of change programs will compromise the quality of the processes and control environment. Also, the risk that the impact of change is not sustainable which impedes future scalability.	The executive team closely monitor all change programs. Project charters are established, and cross-functional working groups deliver the program. Any deviations in scope, timing and budget are escalated to the executive team.	
Knowledge and support for legacy systems		As a result of past acquisitions, the Group has amassed several legacy systems. Some of these systems have limited support and knowledge which may impact the scalability aspirations of the Group.	The Group has identified the systems at risk. The use of these systems is under review as part of the Group's I.T. strategy.	
Talent retention and acquisition		A high degree of dependence on key personnel, or an inability to recruit and retain personnel of the requisite skill level at an acceptable cost.	The Group has invested in its team at all levels. The Directors also believe that the senior management team is appropriately structured for Horizon's size and is not overly dependent upon any particular individual. Training and incentive plans are in place to ensure that the Group can attract and retain talent.	
Cybersecurity		The Group is increasingly exposed to cybersecurity risks due to the degree of eCommerce, the increased profile of the business and its growing global footprint. The Group is also exposed to the risk of insider threats of cybersecurity.	During 2018 a penetration test was performed which included external and internal testing. An ongoing process to address vulnerability has been established along with an annual penetration test.	

CORPORATE SOCIAL RESPONSIBILITY

Horizon aims to create a positive impact beyond its innovation in healthcare

We believe that by behaving as a responsible corporate citizen we will create a working environment that is consistent with the values of our global employees and ultimately drive value for the business as a whole.



PHILOSOPHY

At Horizon, we are building a culture of trust, diversity and inclusion that will deliver sustainable growth for our organisation whilst enhancing the world around us. We aim to enrich the lives of our stakeholders by creating value for our customers, investors, employees, patients, life science research and local communities.

We achieve this by engaging with local communities, caring for the environment and by acting with integrity in our everyday dealings with suppliers and customers. We make a difference by improving access to health and education, always hoping that our innovative science and experienced staff can add value.

HEALTH AND SAFETY

Horizon is committed to proactively managing safety, eliminating harmful incidents and improving staff health and well-being. We have an established safety team, led by a dedicated health and safety manager. The key mandate of the team is to ensure zero incidences and ensure high standards of monitoring, reporting, inspection and documentation across all sites, through a proactive and consistent approach.

"Our annual staff survey showed exceptionally strong employee engagement."

Each of Horizon's laboratories perform a monthly health and safety audit, whereby these audits enable the safety team to quickly highlight areas of concern for rapid corrective and preventative action. The audit reports are reviewed at Executive and Board level.

OUR PEOPLE

Horizon is committed to creating and maintaining a work environment which offers equal opportunities to all, which is inclusive and diverse and encourages those with different backgrounds and experience to develop. Horizon is keen to support all diverse populations including reference to race, disability, gender and sexual orientation. Horizon will also make reasonable adjustments to enable anyone with a disability to work safely and productively. To maintain our inclusive environment we review gender pay annually.

To encourage feedback we conduct an annual staff survey which showed exceptionally positive engagement of 83% in 2019, a good increase from 79% in 2018. In addition to ensure employees are fully informed we hold quarterly global Town Halls and local Q&A sessions.

CORPORATE SOCIAL RESPONSIBILITY CONTINUED

OUR COMMUNITY

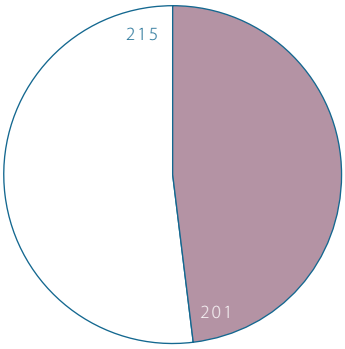
Our social and charitable activities are at the heart of our engagement and cultural programmes. Our activities in fundraising makes a valuable difference to the local communities and charities we support. In the U.K., we support the Addenbrooke's Charitable Trust, raising funds to assist in organising the transportation for sick babies in the Acute Neonatal Transfer service and the Child Play Unit area. We also participate in fundraising activities such as 25km treks and Chariots of Fire races to support our community.

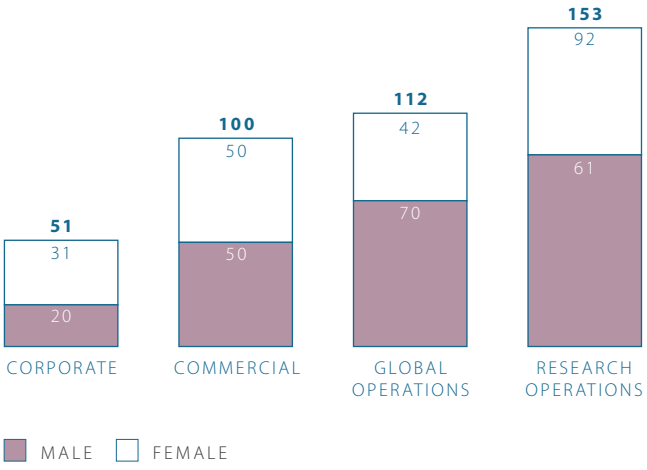
In the U.S.A. we support the The Little Bit Foundation, St Louis Food Bank, the Salvation Army and the Alzheimer's Association.

LIFE SCIENCES MENTORING

Horizon continues to play an active role in mentoring and supporting emerging businesses and entrepreneurs within the life science sector. The journey from "the bench" to "the market place" is complex and challenging. New schemes such as Panacea Stars, Start Codon and the Babraham Accelerator have created frameworks to deliver early stage funding and broad expertise to enable scientists who wish to translate their scientific ideas into a commercial solution. Horizon engages actively with these various schemes through provision of time and expertise of senior staff.

GENDER BALANCE





OUR EDUCATIONAL COMMUNITY – STEM

Horizon continued its partnership with the Cambridge Launchpad programme. This initiative, managed by a local STEM charity, Form the Future, gives students the opportunity to visit the Horizon site and learn more about the work that we do.

- In addition to learning key skills, it is also a great chance for students to interact with real scientists and understand how they reached the position they are in now. We display several careers available to students who have an interest in science and technology and provide examples of real-life career paths, from Lab scientist to Marketing specialist and everything in-between.
- GESTEM. In May, 10 employees spent the day in Denver at a large event that runs STEM workshops for 7th grade girls. We designed and hosted eight workshops for approximately 60 girls.

Dr Geraldine Rodgers Enterprise Fund. The Studentship is open to applicants from any country to the MPhil in Bioscience Enterprise programme and covers up to £20,000 towards their fees and maintenance. Horizon continues to support and fund this studentship in memory of Dr Geraldine Rodgers.

OUR ENVIRONMENT

We are always looking for ways to lessen our environmental impact and to improve our operational efficiency. Our sites have established Green Teams whom continually assess optimising recycling streams, waste reduction strategies and energy saving initiatives.

- At the inception of these schemes we will calculate our current level of energy usage and waste production so that we can measure monetary savings to the business from the introduction of various initiatives. This exercise will also assist in developing metrics and goals for the future.
- During the week of Earth Day, we organised a group of employees to clean up the trail behind our Lafayette facility.
- During the year we constructed a garden planter on site and grew vegetables and herbs to be shared with the staff. The rationale of the scheme is the promotion of the efficient use of land, food sharing, and creating a shared sense of sustainability.

"We are always looking for ways to lessen our environmental impact."

Governance

CHAIRMAN'S INTRODUCTION

Communicating clearly

Horizon's Directors believe that strong Corporate Governance is fundamental to the immediate and long term success of the business, and the Board bears the ultimate responsibility to ensure that strategy, operations, and financial reporting are all underpinned by robust processes. We are therefore committed to playing a central role in the Group's governance by providing an external and independent perspective on matters material to our stakeholders, by establishing a framework that ensures that effective internal controls and risk management measures are in place, and by ensuring that good governance is part of a broader culture of openness, transparency, and responsibility that is felt at all levels of the organisation.
The Company has adopted the Quoted Companies Alliance Code for Small & Mid-sized Quoted Companies 2018 (the "QCA Code"). See page 48 for further details.

This section of the Annual Report describes Horizon's leadership, corporate governance structures and committees, and risk management and accountability practices.

DR IAN GILHAM
NON-EXECUTIVE CHAIRMAN

LEADERSHIP

BOARD OF DIRECTORS → **EXECUTIVE LEADERSHIP TEAM**

Responsible for the long-term success of the Group. It sets strategy and oversees implementation, ensuring only acceptable risks are taken. It provides leadership and direction and is also responsible for corporate governance and the overall financial performance of the Group.

Operates under the direction and authority of the CEO and CFO. Additional members include the Head of Global Commercial, Head of Research Operations, Head of Global Operations, Global Head of Strategy and Corporate Development, Global Head of Human Resources and Head of Business Operations. Responsible for the day-to-day running of Group operations and making recommendations to the Board on strategy and subsequent implementation.

AUDIT COMMITTEE

Provides oversight over the Group's financial reporting, the integrity of the financial statements, the external and internal audit processes, and of internal control and risk management processes.

REMUNERATION COMMITTEE

Recommends Group policy on the remuneration of senior leadership and Executive Directors and is responsible for making recommendations for grants of options under the Long-Term Incentive Plan.

NOMINATION COMMITTEE

Responsible for reviewing the size, structure and composition of the Board and reviewing succession planning. Leading the process and making recommendations for Board appointments.

BOARD OF DIRECTORS

Providing effective guidance through a depth of skills and experience

Horizon has a very strong and diverse Board, comprising directors with a broad spectrum of complementary skills, personalities and competencies.

EXECUTIVE DIRECTORS

TERRY PIZZIE
Chief Executive Officer, Director

APPOINTMENT TO PLC BOARD
May 2018

BACKGROUND
Terry was appointed Chief Executive Officer in May 2018, having joined Horizon Discovery in February 2017 as Head of Global Commercial. Previously, he served as a Vice President in Europe from 2010 to 2012 and as Vice President of Global Sales from 2012 to February 2017 at Pacific Biosciences of California, Inc., a biotechnology tools company. He has amassed more than 30 years of commercial experience within the biotechnology tools sector. Terry holds a degree in physiology and biochemistry from the University of Reading and has spent most of his working life focused on commercial excellence within the sector.

EXTERNAL APPOINTMENTS
None.

JAYESH PANKHANIA
Chief Financial Officer, Director

APPOINTMENT TO PLC BOARD
January 2019

BACKGROUND
Jayesh was appointed Chief Financial Officer in January 2019 having joined Horizon Discovery in April 2018 as Interim Chief Financial Officer, leading the transformation of the finance function, the implementation of strong financial and corporate governance and the development of Horizon Discovery's strategy. Prior to joining Horizon Discovery, he served as Chief Financial Officer of Xtera Limited, a provider of subsea telecoms technology, from 2017 to 2018, and HOC Group, a construction company, from 2015 to 2016. From 2011 to 2015, he was in a Deputy Chief Financial Officer role at Asia Resource Minerals plc. Jayesh is a Chartered Accountant with over 25 years' senior finance experience. He is the founder and director of Nisaba Limited. He holds an M.B.A. from the London Business School and a degree in Accountancy from the University of East Anglia, and qualified with PricewaterhouseCoopers.

EXTERNAL APPOINTMENTS
Jayesh is a founder and Director of Nisaba Limited.

NON-EXECUTIVE DIRECTORS

DR IAN GILHAM
Non-Executive Chairman

APPOINTMENT TO PLC BOARD
March 2014

Ian is Chair of the Nominations Committee and sits on the Remuneration Committee.

BACKGROUND
Ian has served as a member of Horizon Discovery's board of directors since 2013 (Horizon Discovery Limited) and as chairman since 2014. From 2008 to 2011 he was Chief Executive Officer of Axis-Shield plc, a FTSE-listed global diagnostics company which was sold to Alere Inc. for £260 million in 2011. Ian also previously worked at GlaxoSmithKline as Vice President – Pharmacogenetics and held international general management, marketing business development and R&D positions. Previously, Ian served as chairman of the board of directors of Multiplicom N.V. (2013-2017) and as a non-executive director of Vernalis plc (2015-2018). He holds a life sciences Ph.D. from the University of Bath and a degree in zoology from Bangor University.

EXTERNAL APPOINTMENTS
Ian is non-executive chairman on the boards of directors of Cytox and genedrive plc.

SUSAN SEARLE
Director

APPOINTMENT TO PLC BOARD
June 2014

Susan acts as the Senior Independent Director on Horizon's Board. She is Chair of the Remuneration Committee and sits on the Audit Committee and Nominations Committee.

BACKGROUND
Susan has served as a member of Horizon Discovery's board of directors since 2014 and has over 20 years' commercial experience as an entrepreneur and innovator. She co-founded Imperial Innovations Group plc, (now part of IP Group plc), a leading technology venture investment business, leading the company as Chief Executive Officer from 2002 to 2013. She has previously held commercial roles with Shell Chemicals, Montech PTY Ltd, Signet Group plc and the Bank of Nova Scotia. Susan holds a degree in chemistry from Oxford University.

EXTERNAL APPOINTMENTS
Susan serves as a chairman of the board of directors of Schroder U.K. Public Private Trust and as a non-executive member of the boards of directors of Benchmark Holdings plc and QinetiQ plc.

DR SUSAN GALBRAITH
Director

APPOINTMENT TO PLC BOARD
June 2014

Susan sits on the Remuneration Committee.

BACKGROUND
Susan has served as a member of Horizon Discovery's board of directors since 2014 and has over 20 years' combined academic and industry experience. Since 2010, she has been Senior Vice President and Head of Oncology Innovative Medicines at AstraZeneca, and prior to that, worked at Bristol-Myers Squibb from 2001 to 2010, where she was Vice President of Oncology and Clinical Biomarkers from 2008 to 2010. In her roles at both Bristol Myers Squibb and AstraZeneca, Susan successfully developed and delivered strategies for the oncology and biomarker groups, resulting in increased success rates, enhanced scientific reputation and high value collaborations. She has also delivered major reorganizations, redesigned governance processes and contributed to discussions on drug and diagnostic development with regulatory agencies in North America and Europe.
Susan trained as a clinical oncologist and holds degrees in medicine from the University of Cambridge and physiology from the University of Manchester.

EXTERNAL APPOINTMENTS
None.

DR VISHAL GULATI
Director

APPOINTMENT TO PLC BOARD
March 2014

Vishal sits on the Audit and Remuneration Committees.

BACKGROUND
Vishal has served as a member of Horizon Discovery's board of directors since 2014 and is currently a venture partner at Draper Esprit plc, a leading European venture capital firm, having joined in 2014, with investment interests in healthtech, 'omics' and synthetic biology. Vishal holds a degree in medicine from the University of Rajasthan and received postgraduate medical training at centres including the Nuffield Department of Medicine (Oxford) and Department of Medicine (St Mary's Hospital, London) as a Rhodes Scholar.

EXTERNAL APPOINTMENTS
He is a non-executive member of the boards of directors of Sensyne Health plc, Fluid Analytics Limited, Evonetix Limited, Push Doctor Limited, Ieso Digital Health Limited, Mimi Hearing Technologies and Lifesum AB. He is chairman of Digital Health Forum and serves on investment and awards committees of Innovate U.K., the MRC and British Heart Foundation.

GRAHAME COOK
Director

APPOINTMENT TO PLC BOARD
May 2015

Grahame chairs the Audit Committee and sits on the Nominations Committee.

BACKGROUND
Grahame has served as a member of Horizon Discovery's board of directors and chairman of Horizon Discovery's Audit Committee since 2015. He is a chartered accountant with seven years in the accounting profession in the U.K. and U.S. with Arthur Andersen. He was then an investment banker for 18 years focusing on global equity capital markets, M&A and corporate advisory, having been a director of Corporate Finance at Barclays de Zoete Wedd, Managing Director and Member of the Global Investment Banking Management Committee at UBS Investment Bank and joint Chief Executive Officer at WestLB Panmure. For the past 18 years, he has been a professional non-executive director. Grahame also advised the London Stock Exchange on the creation of TechMark, the specialist segment of the Main Market focusing on innovative technology and healthcare companies. Grahame holds a double first degree from Oxford University and is a member of the Institute of Chartered Accountants.

EXTERNAL APPOINTMENTS
Grahame sits on the following boards: KS Halkins LLP, Minoan Group plc, Morgan Rossiter Limited and Pertsemit Limited.

MARGARITA KRIVITSKI
Director

APPOINTMENT TO PLC BOARD
November 2018

BACKGROUND
Margarita has served as a member of Horizon Discovery's board of directors since 2018 and has been a Vice President at ValueAct Capital Management, L.P. since 2015.
Prior to joining ValueAct, she was an associate at TPG Capital in the North American Buyout Group focused on healthcare investments, from 2013 to 2015, and an investment banker at Goldman Sachs, from 2011 to 2013. She brings experience in finance, strategy, accounting, investment, portfolio management and mergers and acquisitions, as well as a deep knowledge of Horizon Discovery's business. Margarita holds a B.A. in applied mathematics from Harvard University.

EXTERNAL APPOINTMENTS
None.

MANAGEMENT

GABE LONGORIA
Head of Global Commercial

Gabe was appointed Head of Global Commercial in January 2019, having joined Horizon Discovery in April 2017 as Head of Strategic Alliance until December 2017 and then serving to Head of Global Sales from January 2018 until December 2018. He is responsible for leading and managing all commercial operations of the business to ensure that profitable business growth is accelerated and commercial success is achieved. Prior to joining Horizon Discovery, Gabe was Director of North America Sales of the Bioproduction and Drug Discovery Divisions, from August 2015 to April 2017, and the Biotherapeutics Division, from July 2012 to July 2015, of Molecular Devices LLC, a subsidiary of Danaher Corp. He has more than 25 years' commercial experience in cell biology, biotherapeutics and drug discovery, encompassing various sales, marketing and product management roles. Gabe holds a degree in microbiology from the University of Arizona.

KIM NICHOLS
Head of Global Operations

Kim joined Horizon Discovery as Head of Global Operations in September 2017, following the acquisition of Dharmacon. She is an experienced Senior Operations Director with over 17 years' experience in product/project development within the RNA interference (RNAi), gene editing, consumables (plastics), and molecular biology and brings extensive experience in global supply chain management, manufacturing, performance and quality assurance, information technology, cross-functional team leadership, scientific collaboration management and cost reductions through improved process performance. Prior to becoming part of Horizon Discovery's team, She had been with the Dharmacon business for more than 18 years in various operational roles under Thermo Fisher Scientific and GE Healthcare. Kim holds a degree in genetics from Iowa State University.

DR CHRIS LOWE
Head of Research Operations

Chris was appointed Head of Research Operations in January 2017, having joined Horizon Discovery in 2011. Prior to leading all research operations within the Horizon Discovery Group, he led the scientific teams responsible for the development and provision of a range of translational research services to support preclinical drug discovery programs as RRD Director from September 2013 to January 2017. He serves on the board of directors of Avvinity Therapeutics Limited. Chris has a background in the genetic analysis of complex disease. He obtained his Ph.D. in the field of medical genetics from the University of Cambridge, where he engaged in research into the genetic causes of Type 1 diabetes in the laboratory of Prof. John Todd, and followed with postdoctoral work focusing on Type 2 diabetes and metabolic disease in the laboratory of Prof. Stephen O'Rahilly. Chris holds a bachelor's degree in molecular biology and biotechnology from the University of Hull.

JULIE CORMACK
Global Head of Human Resources

Julie joined Horizon Discovery as Global Head of Human Resources in July 2019. She has extensive experience helping organizations in high growth environments and is a Chartered Fellow of the Institute of Personnel Development. Prior to joining Horizon Discovery, Julie was Global Head of Human Resources at Getronics, an information technology and services company, from September 2018 to May 2019, and CPA Global Ltd., an intellectual property management and technology company, from May 2014 to September 2017. She holds a degree in Ancient History and Archaeology from the University of Birmingham and a masters in Japanese from the University of Essex.

DR BRIAN BURKE
Global Head of Strategy and Corporate Development

Brian was appointed Global Head of Strategy and Corporate Development in August 2018, having joined Horizon Discovery in August 2012 as a Global Business Development Manager. He is responsible for driving strategic development and execution across Horizon Discovery's business. Before joining Horizon Discovery, Brian worked in a number of commercial and licensing roles with a particular focus on gene editing, bioproduction and next-generation sequencing. He holds a first class honours degree from the University of Glasgow and a Ph.D. from the University of Leeds.

DR PAUL BROOKS
Head of Business Operations

Paul was appointed Head of Business Operations in November 2019. He has over 20 years of experience in leading the successful development and commercialization of tools and services for academic, pharmaceutical, biopharmaceutical and molecular diagnostic markets. Previously, he was Interim Head of Sales for Abcam plc, from January 2019 to July 2019. He has held senior leadership positions in the U.S. and the U.K., including Chief Commercial Officer and Executive Board member of Oxford Genetics Ltd; Head of Discovery Research Services at MilliporeSigma (Merck KGaA); and Global Marketing Manager at Sigma-Aldrich Corp. Paul has a BSc in Biochemistry from the University of Wales, a Ph.D. in Molecular Biology from the University of Manchester Institute of Science and Technology (UMIST), and an MBA from the University of Nottingham Business School.

BOARD ACTIVITIES AND OPERATIONS

BOARD MEETINGS

The Board meets in full on at least a bi-monthly basis, with attendance required in person whenever practicable, with at least one meeting per year scheduled in a Horizon facility outside the U.K. In addition, ad hoc meetings may be called to discuss urgent pertinent issues arising during the course of the year. The Chairman meets with the Executive Directors prior to scheduled and ad hoc meetings to discuss and set each Board agenda, including a forward schedule of items for future consideration.

BOARD EVALUATION

Led by the Chairman, the Board regularly evaluates its own composition and performance in order to confirm that:

- A suitable level of discussion on strategic, financial performance, operational and governance matters is taking place,
- The Board is acting independently, challenging the Executive Leadership as appropriate,
- The composition of the Board contains the right combination of skills and experience for current and forthcoming challenges and opportunities of the Group, and
- Each member of the Board is able to dedicate sufficient time and attention to the business.

Directors are subject to reappointment in accordance with the provisions of the articles of association, with at least one third of the Board members put up for reappointment by shareholder vote at each year's AGM.

INDEPENDENCE

The Board applies a rigorous process to ensure that its Non-Executive Directors remain independent. In accordance with established procedure, all Directors are required to notify the Board of any conflicts of interest, and a register of such interests is maintained. Also under procedure, all share purchases or sales are disclosed in Director/PDMR Shareholding RNS releases, and option holdings by the Directors are publicly disclosed in each Annual Report. Any changes to these interests are similarly notified to the Board. The Board considers that all Non-Executive Directors are independent except for Margarita Krivitski who is currently a Vice President for ValueAct Capital which is a holder of 20.9% of shares in the Company as of 29 April 2020.

Horizon Directors are not permitted to participate in any vote in which they have a conflict of interest, and in most instances recuse themselves from any such discussion.

BOARD COMMITTEES

In accordance with best practice, the Group has established Audit, Remuneration and Nominations Committees with written terms of reference for each which deal with their authorities and duties.

AUDIT COMMITTEE

The Audit Committee is responsible for ensuring that the financial performance of the Group is properly reported on and monitored, including reviews of the annual and interim accounts, results announcements, internal control systems, risk management and procedures and accounting policies. The Committee also reviews the work of external auditors and monitors non-audit fees. The Committee meets at least twice per year. The Committee is chaired by Mr Grahame Cook with Mrs Susan Searle and Dr Vishal Gulati as additional members. Other Directors may attend meetings at the Committee's invitation, together with the Group's external auditors.

REMUNERATION COMMITTEE

The Remuneration Committee has responsibility for recommending, within agreed terms of reference, the Group's policy on the remuneration of senior executives and specific remuneration packages for Executive Directors, including pension rights and compensation payments. It is also responsible for making recommendations for grants of options under the Long-Term Incentive Plan.

The Board as a whole is responsible for approving recommendations made by the Remuneration Committee. The remuneration of Non-executive Directors is a matter for the Board, based on recommendations made by the Remuneration Committee. No Director may be involved in any discussions relating to their own remuneration.

The Remuneration Committee is chaired by Mrs Susan Searle and its other members are Dr Susan Galbraith, Dr Ian Gilham and Dr Vishal Gulati. The Committee meets not less than twice per year. Executive Directors may attend meetings at the Committee's invitation, and the Committee obtains advice from third parties where appropriate.

NOMINATIONS COMMITTEE

The Nominations Committee is responsible for reviewing the size, structure and composition of the Board, evaluating the skills, knowledge, experience and diversity on the Board, leading the process for Board appointments, making recommendations to the Board in relation to new appointments and reviewing succession planning.

The Board as a whole is responsible for approving recommendations made by the Nominations Committee.

BOARD ACTIVITIES AND OPERATIONS CONTINUED

The Nominations Committee is chaired by Dr Ian Gilham and its other members are Grahame Cook and Susan Searle. The Nominations Committee normally meets at least once a year. This meeting usually takes place in December but the meeting scheduled for December 2019 was rescheduled for January 2020. In subsequent years it will meet not less than twice a year. Other Directors may attend meetings at the Committee's invitation and the Committee obtains advice from third parties where appropriate.

ACCOUNTABILITY

CORPORATE COMPLIANCE

The board of Horizon Discovery Group plc (the "Company") is responsible for the Group's corporate governance policies and recognises the importance of high standards of integrity. The Company has adopted the Quoted Companies Alliance Code for Small & Mid-sized Quoted Companies 2018 (the "QCA Code").

The following link sets out how the Group complies with the ten principles of the QCA code:

https://horizondiscoveryplc.com/governance/accountability/

WHISTLEBLOWING POLICY

Horizon prides itself on its honesty, integrity and high professional standards in its dealings with customers, with its staff and with the public. The Group demands the maintenance of these high standards in everything that it does, and to this end the Group has established an internal policy and procedures that encourage and support employees in coming forward and reporting certain types of conduct or activities that fall short. The chairman of the audit committee is responsible for ensuring that any concerns raised are followed up in an effective and timely manner. Training on the Group's whistleblowing policy is included in the on-boarding process for all new employees.

COMMUNICATION WITH SHAREHOLDERS

The Board believes that maintaining regular and transparent dialogue with shareholders is important in order to ensure that there is a clear understanding of strategic objectives, financial and operational performance, and governance of the Group.

INVESTOR MEETINGS

The Non-Executive Chairman, CEO and CFO, working in consultation with the Group's advisers, make themselves available and expect to meet with major institutional shareholders at least twice a year, following mid-year and full-year results, through roadshows that take place in London and in the major investment centres in the United States (New York, Boston, and San Francisco).

Additional support for current and prospective shareholders is available throughout the year from the Executive Directors. The Board is responsible for oversight of these activities, including giving careful consideration to feedback from investors.

INVESTOR RELATIONS WEBSITE

The Group provides extensive information regarding share price, investor news, analyst consensus, and resources and reports on the investor relations section of the Group's website. Interested parties can also register to receive electronic copies of all RNS and RNS-Reach announcements on the day they are issued.

ANNUAL GENERAL MEETING (AGM)

The Board actively encourages participation in the AGM, which is the principal forum for dialogue with shareholders. The Notice of Annual General Meeting and Form of Proxy are issued with the Annual Report and are made available on the Group's website. At the AGM each resolution is voted on. Proxy votes are counted and the level of proxies lodged on each resolution is reported after it has been dealt with on a show of hands. All results of voting are published in an RNS announcement and on the Group's website following the meeting.

AUDIT COMMITTEE REPORT

GRAHAME COOK
NON-EXECUTIVE DIRECTOR –
CHAIRMAN OF THE AUDIT COMMITTEE

On behalf of the Board, I am pleased to present Horizon's Audit Committee report for 2019. The purpose of the Committee is to provide effective governance of the Group's financial reporting, together with risk identification and risk management, to ensure that shareholders' interests are properly protected. This report describes the Committee's core functions, interactions with auditors, key business risks and significant activities throughout the year.

FUNCTIONS OF THE AUDIT COMMITTEE

Our principal role is to assist the Board in carrying out its oversight responsibilities in relation to internal and external financial reporting, risk management, the Group's control environment and maintaining an appropriate relationship with Deloitte, our external auditor. The Committee also oversees the Group's internal compliance including maintaining a global whistleblowing hotline.

COMPOSITION

The Audit Committee comprises of three Non- Executive Directors, Susan Searle, Vishal Gulati and myself in my role as Chairman. I am a chartered accountant with over 30 years' financial and risk experience of listed companies. I currently chair the audit committee of three quoted companies. My fellow Committee members also have extensive financial and risk experience.

FINANCIAL REPORTING

The Group's financial reporting is underpinned by appropriate accounting practices and policies, exercising sound judgements when making key estimates and the monitoring and managing of key business risks and controls. During 2019, the Committee reviewed the Group's significant accounting matters, which included revenue recognition along with a comprehensive goodwill and intangibles impairment review. Where appropriate, the Committee challenges management's decisions before approving the accounting treatment adopted. The Committee continues to monitor new or updated accounting standards, legislation and reporting requirements that could materially impact the Group.

INTERNAL CONTROL AND RISK MANAGEMENT

The Committee has responsibility for monitoring and reviewing the effectiveness of the Group's internal control environment, including consideration of any need for an internal audit function.

The Committee regularly reviews the control environment including the processes for, and controls of information systems. We challenge management's assessment of the internal control environment and ensure the control recommendations proposed by the external auditor are implemented.

During 2019 the Group made significant progress in developing its internal control framework. Key achievements include documenting and mapping the core financial controls and IT processes, enhancing policies and testing controls for effectiveness. Such measures are to strengthen our ability to manage business risks, allow faster, more accurate reporting and to manage expenditures. Enhancing controls also enables us to meet the requirements of a Group dual-listed in the U.S. and U.K. During this process both management and the external auditors identified certain control weaknesses and deficiencies, including in respect of review over goodwill impairment and revenue recognition. As part of our evolution of the controls environment, mitigating actions are being established to address these issues.

The Committee reviews the Group's approach to risk identification and the associated risk reporting framework and risk management. Risks are identified by considering the overall risk environment; the specific internal operating risks that the Group has exposure to; risks in the Group's key market segments along with an evaluation of external risks that the Group is facing, for example Brexit.

Further information on the Group's Principal Risks can be found in the Risk Overview from page 34.

AUDIT OVERSIGHT

The Committee is responsible for overseeing the relationship with Deloitte LLP, the Group's external auditor. The Committee meets regularly with the external auditor, including as a minimum: once at the audit planning stage; once at the interim results reporting stage; and once prior to finalizing the external reporting. Regular communication between the Committee and the external auditor is maintained throughout the audit process.

The Committee continually reviews the performance of the external auditor and the effectiveness of the external audit process. The annual audit plan and terms of engagement are subject to approval by the Committee. Resolutions relating to the appointment, reappointment and removal of the Group's external auditor are subject to shareholder approval at the Annual General Meeting.

Information on Deloitte's audit and non-audit fees can be found in note 6 of the accounts on page 94.

MR G COOK
DIRECTOR
29 APRIL 2020

REMUNERATION COMMITTEE REPORT

SUSAN SEARLE
SENIOR INDEPENDENT DIRECTOR –
CHAIR OF THE REMUNERATION COMMITTEE

INTRODUCTION

Horizon Discovery has strong prospects for growth and is well positioned to capitalise on rapidly growing market demand through its scientific and commercial leadership position. As noted elsewhere in the report, Horizon initially experienced a limited impact from the COVID-19 pandemic and Q1 2020 was broadly in line with management expectations. However orders towards the end of March 2020 indicated pressure on Research Reagents and this trend has continued in Q2 2020. The Group has prepared itself well to respond to various scenarios but the long-term ramifications of the disease to our business are hard to determine. We have therefore taken a number of mitigating actions to ensure our ability to deliver on our longer-term growth plans. These are outlined in this report.

During 2018 the Board agreed to a revised Investing for Growth plan led by Terry Pizzie and his senior team. The priority is to focus on growth in core areas, supported by a long-term investment plan to help drive the scale necessary to meet market demand and fulfil the significant potential of the business. To support that vision, in 2019 the Company divested the In Vivo business unit to Envigo RMS LLC and hired three new members to its executive leadership team: Jayesh Pankhania as CFO, Julie Cormack as the Global Head of HR and Paul Brooks as the Head of Business Operations.

Looking forward, Horizon Discovery is pursuing another key strategic shift in the company to dual list on Nasdaq. A secondary listing is driven both by the recognition that the U.S. market plays an increasingly important role in Horizon Discovery's growth story, and the greater access that it will give Horizon to an American investor base well attuned to growth-oriented life sciences organisations. A dual listing will also have implications for the Directors and the leadership team: evidenced by the recruitment of Dr Siddhartha Kadia, an experienced U.S. Non-Executive Director, who will be appointed shortly after the publication of this report, and the potential for more roles within the executive leadership team to be based in the U.S. over time. As such, in setting remuneration policy, Horizon developed a programme that would be both compliant with U.K. regulations and investor norms, whilst also being competitive with pay levels and practices observed in the U.S. biotechnology sector.

Horizon's remuneration policy is continuously reviewed to ensure that remuneration is aligned to delivery of the strategy whilst being agile in a high-growth environment and delivering value to shareholders. During the year, the Committee reviewed the current policy with a view to ensuring that it is aligned with the delivery of the Investing for Growth plan. To assist with this review, Horizon Discovery retained Aon to provide guidance around pay practices and policies in the U.K. and the U.S. and how Horizon could manage the evolution of its remuneration policy to reflect the Company's current strategic aims. This process concluded that the Single Incentive Plan should be replaced by a market standard annual bonus and annual grants of long-term incentives and that new best practice features such as alignment of pensions with the workforce, a two-year post-vesting holding period and that changes to the share ownership requirements, including a requirement to maintain a holding after employment has ended should be introduced.

The revised policy is designed to:

- Reward the delivery of Horizon Discovery's growth potential and long-term innovation strategies
- Provide a clear link to delivery of the strategy by creating an increased focus on the creation of long-term shareholder value as well as short-term execution implementation
- Simplify the package through the use of separate arrangements to reward short-term and long-term remuneration
- Ensure packages are competitive in comparison to companies of similar size to Horizon Discovery across the life science industry in order to incentivise, reward and retain the talent the organisation needs over the next five years
- Promote the values of the organisation by adopting a common approach to reward at all levels within the company
- Provide increased alignment with shareholders by increasing the exposure of executives to the performance of the Company's shares

Performance will be linked to the achievement of annual financial targets, longer term strategic delivery goals and clearly aligns the interests of shareholders and the continued focus on delivering a sustainable and value-led organisation that contributes to advancing science.

The Remuneration Committee seeks to set remuneration levels which ensure that Executive Directors are fairly rewarded for achieving high levels of performance.

COVID-19 AND REMUNERATION

It is difficult to determine the long-term ramifications of the COVID-19 pandemic on Horizon. However, as part of temporary measures taken to ensure that the business is best positioned for future growth and delivery of its strategy over the longer-

term, around 10% of U.K. employees have agreed to be furloughed. Non furloughed employees in the U.K., including Executive Directors, earning more than £35,000 per year have agreed to a temporary reduction in salary. Non furloughed employees in the U.K. have also agreed to a temporary reduction in Company pension contributions. We will continue to review these measures on an ongoing basis.

EXECUTIVE DIRECTORS

Mr Terry Pizzie continues to lead Horizon Discovery as CEO following his promotion from the Global Head of Commercial to the CEO role effective 8 May 2018.

As announced on 29 January 2019, Mr Richard Vellacott stepped down from his position as CFO of Horizon Discovery on 29 January 2019 and continued with the Company in an advisory capacity for a period of time to facilitate a smooth transition before starting a 12-month garden leave period from 18 March 2019.

Mr Jayesh Pankhania was appointed as CFO with effect from 29 January 2019. Mr Pankhania joined Horizon Discovery in 2018 in an interim CFO capacity to ensure the successful integration of the acquisitions and has deep expertise in providing financial leadership to growing businesses, building high performance finance teams with strong corporate and financial governance and working in partnership with management teams and Boards to develop robust business strategies.

The Committee is confident that Mr Pizzie and Mr Pankhania will deliver Horizon's future market success and enhance the inclusive, valued culture that Horizon promotes.

DIRECTORS' REMUNERATION OUTCOMES AND CHANGES FOR 2020

During the year, the Committee reviewed the remuneration of the Executive Directors resulting in the following outcomes:

BASE SALARY

Mr Pizzie's and Mr Pankhania's salaries were increased by 2% with effect from 1 February 2020 in line with the general increase applied to employees across the Group. From 1 February 2020 their salaries are £341,445 and £229,500, respectively.

However, as part of the COVID-19 contingency measures referred to above, the Executive Directors have agreed to a temporary salary reduction of 10%.

PENSION CONTRIBUTIONS

The Group operates a defined contribution pension plan which is available to all U.K. employees. The Company contribution for Executive Directors in 2019 was 15% of base salary. For 2020, recognising investors desire for pension contributions for Directors to be aligned with the workforce the Remuneration Committee has decided to reduce the company contribution to Executive Directors to 8%. This in line with the policy for the rest of the U.K. workforce.

As part of the COVID-19 contingency measures referred to above, the Executive Directors have agreed to a temporary reduction in Company pension contributions to 6% of salary in-line with the reduction for non-furloughed staff.

SINGLE INCENTIVE PLAN

The Single Incentive Plan was introduced in 2017 and combines annual bonus with a longer-term share-based incentive.

For 2019, the on-target payment opportunity was 100% of salary and the maximum potential was 175% of base salary. The first 30% of salary of any pay-out from the Single Incentive Plan is delivered in cash, with the remainder split 30% in cash and 70% in nominal cost options, vesting in two equal tranches on the second and third anniversaries of grant.

The financial performance metrics for the Single Incentive Plan in 2019 were based on Revenue and EBITDA with appropriate threshold, meet and stretch targets. Individual performance objectives for the Executive Directors were linked to scaling the Group for growth, strategic investment, investor relationships and longer-term sustainability.

2019 Revenue was between the threshold and target levels and the EBITDA threshold target was not satisfied.

Based on the partial satisfaction of the financial performance metrics and individual performance during 2019, at its meeting in February 2020, the Remuneration Committee determined that an appropriate level of payment under the Single Incentive Plan would be 90% of salary to both Mr Pizzie and Mr Pankhania (51% of the maximum potential), reflecting the significant individual contribution and performance during the year. This resulted in a payment of £301,591 to Mr Pizzie and £202,713 to Mr Pankhania. The payment to Mr Pizzie was paid £160,775 in cash and £140,816 in nominal cost options. The payment to Mr Pankhania was paid £108,064 in cash and £94,649 in nominal cost options.

REPLACEMENT OF THE SINGLE INCENTIVE PLAN FOR 2020

In its review of the policy, the Committee identified that in light of the new five year plan an increased link to longer-term value creation would be desirable and that the Single Incentive Plan was not the most appropriate mechanism to achieve this. In addition, the Single Incentive Plan is a type of plan that is not used by competitors in the U.S., who typically grant market value options (i.e., options whose exercise price is equal to the company's share price on the date of grant), making it difficult for the Company to attract and retain executives in this increasingly important market for the Company. The Committee therefore

REMUNERATION COMMITTEE REPORT CONTINUED

concluded that going forward, the Single Incentive Plan should be replaced by a more conventional annual bonus plan with a maximum opportunity of 100% of salary alongside annual long-term incentive grants. These changes will result in a more appropriate balance between annual performance and the creation of value of shareholders over the longer-term.

Beginning in 2020, Executive Directors will be eligible for annual grants of market value options with a face value of normally up to 300% of base salary. Options will vest on the third anniversary of the grant date, with an additional two-year holding requirement for Executive Directors. Executive Directors would then have a 5-year period within which to exercise awards within the 10-year option term. The 2020 options were granted on 26 February 2020.

SHAREHOLDING GUIDELINE

A shareholding guideline was introduced in 2017 which sets the expectation that Executive Directors will build up and maintain a shareholding of at least 200% of salary through retaining 50% of any shares acquired from share incentive arrangements (excluding shares acquired in the open market and those sold to cover tax and acquisition costs). For 2020, the Remuneration Committee agreed to extend this shareholding guideline to cover two years post-cessation, applying to any awards granted from 2020 onwards.

NON-EXECUTIVE DIRECTORS' REMUNERATION

Non-Executive Directors receive a cash fee which is determined by the Board and do not participate in the Group's pension or bonus plans.

The fees paid to Non-Executive Directors were also considered as part of the remuneration review undertaken in 2019. This showed that the fees had fallen considerably below fees paid by companies of similar size to Horizon. The Board therefore determined that it would be appropriate to increase the base fee paid to Non-Executive Directors to £50,000 per year and increase the fees for chairing Board Committees and for the Senior Independent Director to £8,000 per annum. These increases have been deferred as part of the COVID-19 contingency measures and will be implemented when the temporary salary reductions applying to employees and Executive Directors end.

No adjustment is proposed to the Chairman's fee following the review. As part of the COVID-19 contingency measures, a temporary reduction of 10% will be applied to Dr Gilham's fee.

Equity-based compensation has been used in exceptional circumstances to recruit key non-executive directors to join the Board. Dr Gilham was granted a one-off grant of options on his appointment prior to the IPO.

FUTURE POLICY TABLE

Our future policy for the remuneration of the Directors is summarised in the table below:

ELEMENT	PURPOSE AND LINK TO STRATEGY	OPERATION	MAXIMUM	PERFORMANCE TARGETS
Salary	Provides an appropriate level of basic fixed income, reflecting the value of the individual and their role Reflects skills and experience over time	Normally reviewed annually with changes typically effective 1 February Salaries are periodically benchmarked against a relevant peer group of companies with similar market capitalisations and operations Internal reference points, the responsibilities of the individual role, progression within the role and individual performance are also taken into account	There is no formal maximum limit, but increases will generally be in line with those of the wider workforce Larger increases may be awarded to reflect: • a change in responsibilities • individual progression or a significant increase in the scale or complexity of the role • to take account of relevant market movements	None, although the overall performance of the individual and Company is a key determinant for salary increases
Benefits	To provide a competitive benefits package To promote recruitment and retention	Benefits reflect local market practice. For Executive Directors this currently includes private medical insurance, income protection insurance and life assurance, consistent with all other U.K. based employees. In addition, Executive Directors can participate in any new benefits or all-employee share arrangements introduced by the Company for the workforce as a whole Other benefits including relocation allowances may be offered if considered appropriate and reasonable by the Committee	There is no maximum limit, but the Committee reviews the cost of the benefits provision on a regular basis to ensure that it remains appropriate	n/a
Pension	Provide competitive retirement benefits in-line with the workforce	Defined contribution and/or cash in lieu of pension	Up to 8% of salary	n/a

ELEMENT	PURPOSE AND LINK TO STRATEGY	OPERATION	MAXIMUM	PERFORMANCE TARGETS
Bonus	Incentivise delivery of specific stretching annual objectives,	Normally payable in cash (although the Committee reserves the right to deliver some or all of the bonus in shares which may be deferred) Non-pensionable Annual bonus performance targets are set at the start of the year by the Board and performance against objectives is assessed by the Remuneration Committee All bonus payments are at the ultimate discretion of the Committee and the Committee retains an overriding ability to ensure that overall bonus payments reflect its view of corporate performance during the year Clawback provisions apply for a period of three years from the bonus payment date	100% of salary	The performance measures used will normally include financial, operational and non-financial goals related to the company's strategy The weighting for each performance measure is determined by the Remuneration Committee and may vary for each Executive Director according to their role and reflecting their objectives for the year Details of the performance measures for the current year are provided in each year's remuneration report
Long-term incentive	Aligned to main strategic objectives of delivering long-term value creation Align Executive Directors' interests with those of shareholders	Annual grants of market value options The Committee reviews the quantum of awards annually and monitors the continuing suitability of the performance measures A two-year post vesting holding period will be applied to the grant of future awards Clawback and malus provisions apply for a period of three years following the vesting of an award	300% of salary p.a. normal award	None, however, performance measures may be set for future award cycles, as appropriate, to reflect the strategic priorities of the business at that time
Share ownership requirements	To provide alignment of interests between Executive Directors and shareholders	Executive Directors are required to build and maintain a shareholding in the Company's shares through the retention of at least 50% of vested share awards (excluding any shares sold to cover exercise monies or to settle income tax and NICs) On cessation of employment, executives are expected to retain shares equal in value to the lower of the share ownership requirement or their holding on cessation	Executive Directors are required to build up and maintain a shareholding worth at least 200% of base salary	n/a
Chairman and Non-Executive Directors	To attract and retain high calibre Non-Executive Directors with appropriate knowledge and experience	Fees are reviewed on a periodic basis against those in similar sized companies to ensure they remain competitive and adequately reflect the time commitments and scope of the role An annual basic fee is paid to the Chairman and each Non-Executive Director. Supplemental fees are paid for additional responsibilities such as Chairing Committees or where the normal time commitment has been significantly exceeded In addition, an award of market value options may be granted where this is necessary to recruit or to provide a competitive ongoing package of remuneration to an incoming U.S. Non-Executive with specific skills and experience, or in other circumstances deemed appropriate by the Board Non-Executive Directors can be reimbursed for any reasonable business-related expenses and/or receive limited travel and/or hospitality related benefits in connection with the role (including the tax thereon)	There is no prescribed maximum fee or fee increase. Total fees for the Non-Executive Directors are subject to the overall limit set out in the Company's Articles of Association	n/a

Notes:

1 The choice of the performance metrics applicable to the annual bonus scheme reflect the Remuneration Committee's belief that any incentive compensation should be appropriately challenging and tied to both the delivery of key financial targets and individual and/or strategic performance measures intended to ensure that Executive Directors are incentivised to deliver across a range of objectives for which they are accountable. The Remuneration Committee has retained some flexibility on the specific measures which will be used to ensure that any measures are fully aligned with the strategic imperatives prevailing at the time they are set.

2 The Remuneration Committee operates the annual bonus, long-term incentive or any future all-employee share plans in accordance with the relevant plan rules and where appropriate, any applicable listing requirements and legislation. The Remuneration Committee, consistent with market practice, retains discretion over a number of areas relating to the operation and administration of the plans. These include, for example, the timing of awards and setting performance criteria each year, dealing with leavers, discretion to amend performance targets in exceptional circumstances (providing the new targets are no less challenging than originally envisaged) and in respect of share awards, to adjust the number of shares subject to an award in the event of a variation in the share capital of the Company.

3 Directors are eligible to receive payment, and any existing award may vest, in accordance with the terms of any such award made prior to the introduction of this Policy.

REMUNERATION COMMITTEE REPORT CONTINUED

The information provided in this part of the remuneration committee report is subject to audit.

DIRECTORS' REMUNERATION

The Directors received the following remuneration during the year (£):

	Financial year	Fees/ basic salary	Benefits	Pension	Total Fixed	Single incentive***	Share options*	Total variable	Total remuneration
Terry Pizzie	2019	333,938	1,141	45,041	380,120	301,591	5,852	307,443	687,563
	2018	216,577	–	29,120	245,697	267,758	5,052	272,810	518,507
Richard Vellacott**	2019	17,938	121	2,691	20,750	–	–	–	20,750
	2018	252,076	–	37,602	289,678	206,527	74,896	281,423	571,101
Jayesh Pankhania	2019	206,250	17,544	28,095	251,889	202,713	–	202,713	454,602
	2018	–	–	–	–	–	–	–	–
Ian Gilham	2019	130,000	–	–	130,000	–	–	–	130,000
	2018	123,024	–	–	123,024	–	–	–	123,024
Grahame Cook	2019	40,000	–	–	40,000	–	–	–	40,000
	2018	40,000	–	–	40,000	–	–	–	40,000
Susan Searle	2019	46,000	–	–	46,000	–	–	–	46,000
	2018	46,000	–	–	46,000	–	–	–	46,000
Susan Galbraith	2019	35,000	–	–	35,000	–	–	–	35,000
	2018	35,000	–	–	35,000	–	–	–	35,000
Vishal Gulati	2019	35,000	–	–	35,000	–	–	–	35,000
	2018	35,000	–	–	35,000	–	–	–	35,000
Margarita Krivitski	2019	–	–	–	–	–	–	–	–
	2018	–	–	–	–	–	–	–	–
TOTAL	2019	844,126	18,806	75,827	938,759	504,304	5,852	510,156	1,448,915
	2018	747,677	–	66,722	814,399	474,285	79,948	554,233	1,368,632

* theoretical gain on options on vesting date. No options were exercised during the year.

** Richard Vellacott stood down from the Board in early 2019 and was on garden leave until 18 March 2020. During the period of garden leave he received £273,889 by way of compensation for benefits and other contractual entitlements due on termination. In accordance with the rules of the Long-Term Incentive Plan Mr Vellacott has until 18 March 2022 to exercise his vested share options. Mr Vellacott is being treated as a good leaver in relation to his unvested options. These options will therefore vest on a pro rata basis on 18 March 2020 and remain exercisable until 18 March 2022.

*** determined at the February 2020 Remuneration Committee meeting based on 2019 performance.

The Directors hold the following number of options to acquire ordinary shares in the Company. Options vest over a 2,3,4 or 5 year period.

	Options at 31 December 2018	**Options granted in the year**	**Options exercised in the year**	**Options lapsed/ cancelled**	**Options at 31 December 2019**	Date of Grant	Expiry Date	Exercise Price (£)
Richard Vellacott*	286,500	–	–	–	286,500	02/07/2012	02/07/2022	0.68
	114,600	–	–	–	114,600	18/10/2013	18/10/2023	0.68
	103,139	–	–	–	103,139	18/03/2014	18/03/2024	0.87
	150,000	–	–	–	150,000	20/03/2014	20/03/2024	1.80
	122,781	–	–	–	122,781	08/10/2015	08/10/2025	1.51
	118,846	–	–	–	118,846	16/03/2016	16/03/2026	1.56
	51,851	–	–	–	51,851	17/04/2017	17/04/2027	0.01
	10,638	–	–	–	10,638	07/08/2017	07/08/2027	1.69
	37,038	–	–	–	37,038	10/05/2018	10/05/2028	1.57
	995,393	–	–	–	995,393			
Ian Gilham	57,300	–	–	–	57,300	18/10/2013	18/10/2023	0.68
	85,950	–	–	–	85,950	18/03/2014	18/03/2024	0.87
	143,250	–	–	–	143,250			
Terry Pizzie	60,185	–	–	–	60,185	07/04/2017	07/04/2027	1.62
	7,812	–	–	–	7,812	01/11/2017	01/11/2027	0.01
	10,638	–	–	(10,638)	–	07/08/2017	07/08/2027	1.69
	41,401	–	–	–	41,401	10/05/2018	10/05/2028	0.01
	15,031	–	–	–	15,031	10/05/2018	10/05/2028	1.57
	325,000	–	–	–	325,000	09/11/2018	09/11/2028	2.00
	–	70,730	–	–	70,730	15/03/2019	15/03/2029	0.01
	–	15,202	–	–	15,202	05/07/2019	28/02/2023	1.184
	460,067	85,932	–	(10,638)	535,361			
Jayesh Pankhania	–	128,755	–	–	128,755	06/02/2019	06/02/2029	1.7475
	–	45,064	–	–	45,064	06/02/2019	06/02/2029	0.01
	–	15,202	–	–	15,202	05/07/2019	28/02/2023	1.184
	–	189,021	–	–	189,021			

The Directors hold the following number of ordinary shares in the Company:

	2019	2018
Terry Pizzie	22,285	–
Jayesh Pankhania	46,645	–
EXECUTIVE DIRECTORS	68,930	–
Ian Gilham	75,587	56,488
Grahame Cook	62,400	42,250
Susan Searle	54,691	54,691
Susan Galbraith	110,000	110,000
Vishal Gulati	14,100	14,100
Margarita Krivitski	–	–
NON-EXECUTIVE DIRECTORS	316,778	277,529

* Richard Vellacott stood down from the Board in early 2019 and was on garden leave until 18 March 2020. During the period of gardening leave he received £273,889 by way of compensation for benefits and other contractual entitlements due on termination. In accordance with the rules of the Long-Term Incentive Plan Mr Vellacott has until 18 March 2022 to exercise his vested share options. Mr Vellacott is being treated as a good leaver in relation to his unvested options. These options will therefore vest on a pro rata basis on 18 March 2020 and remain exercisable until 18 March 2022.

REMUNERATION COMMITTEE REPORT CONTINUED

SERVICE CONTRACTS AND LETTERS OF APPOINTMENT

Executive Directors have service agreements with Horizon Discovery Group plc. Their appointments are terminable on 12 months' notice from the Company, or on 6 months' notice from the Executive Director, with a provision to make a payment in lieu of notice for base salary only. Any payment will normally be phased on a monthly basis and would be subject to mitigation, whereby the payment made can be reduced (including to zero) if appropriate alternative employment is found.

Other than in good leaver circumstances specified by the relevant plan rules, or otherwise at the discretion of the committee, there is no entitlement to a bonus in respect of the year in which termination occurs or to unvested long-term incentive awards. Where good leaver circumstances do apply any award would remain subject to achievement of any performance conditions and, normally, pro-rating for time. On a change of control unvested share awards would normally vest immediately, subject to achievement of performance conditions and, normally, pro-rating for time.

Non-Executive Directors have entered into letters of appointment with the Company which are terminable on three months' notice by either party.

APPROVAL

Approved by the Board of Directors and signed on behalf of the Board.

MS S SEARLE
DIRECTOR
29 APRIL 2020

NOMINATIONS COMMITTEE REPORT

DR IAN GILHAM
NON-EXECUTIVE CHAIRMAN –
CHAIRMAN OF THE NOMINATIONS COMMITTEE

The Nominations Committee normally meets at least once a year. This meeting usually takes place in December but the meeting scheduled for December 2019 was rescheduled for January 2020.

KEY RESPONSIBILITIES

The committee is responsible for reviewing the size, structure and composition of the Board and the Executive Leadership team, evaluating the skills, knowledge, experience and diversity required. Making recommendations to the Board in relation to new appointments and reviewing succession planning.

ACTIVITY IN THE YEAR

The committee recommended the appointment of two new Executive Team members, a new Global Head of HR, Julie Cormack and also nominated the appointment of Paul Brooks into the new role of Head of Business Operations. The committee has also been actively involved in the search for a new U.S. based Non-Executive to appoint to the Board in order to strengthen the composition of the Board from a global perspective. The committee was also actively involved in making key recommendations for appointments to the following senior management roles, Head of Legal, Head of Investor Relations and Head of Global Marketing and the appointment of the Non-Executive Director following the year end.

DR IAN GILHAM
NON-EXECUTIVE CHAIRMAN
29 APRIL 2020

DIRECTORS' REPORT

The directors present their annual report on the affairs of the Group, together with the financial statements and auditor's report, for the year ended 31 December 2019. Pages 1 to 60 inclusive, together with sections of the financial statements which are included by reference, consist of a Strategic Report and a Directors' Report that have been drawn up and presented in accordance with and in reliance upon applicable English company law.

Horizon Discovery Group plc is a public limited company, registered in England and Wales which is listed on the Alternative Investment Market of the London Stock Exchange.

The consolidated financial statements are presented in Pounds Sterling, being the functional currency of the Group.

In presenting the annual report, the directors use non-GAAP measures in reporting financial performance, a non-GAAP financial measure being a numerical measure that adjusts the most directly comparable measure determined in accordance with GAAP. The non-GAAP measures used in this annual report are:

1 Adjusted EBITDA from continuing operations, being EBITDA after adjusting for items of individual material significance, which are separately presented in note 6 to the financial statements, to estimate cash generated from the core activities of the business; and
2 Constant currency, which is measured by translating the current period results based on the prevailing foreign exchange rates from the previous year. This allows greater comparability of key metrics between reporting periods on a like for like basis.

Adjusted EBITDA from continuing operations is presented because we believe it is frequently used by analysts, investors and other interested parties to evaluate companies in our industry and it facilitates comparisons on a consistent basis across reporting periods. Further, we believe it is helpful in highlighting trends in our operating results because it excludes items that are not indicative of our underlying year-to-year expense base. We define adjusted EBITDA from continuing operations as loss for the year from continuing operations adjusted for finance costs, investment income, amortisation and depreciation, and items considered non-recurring and infrequent in nature. Adjusted EBITDA is reconciled on page 27 of the Chief Financial Officer's review.

CAPITAL STRUCTURE

Details of the authorised and issued share capital, together with details of the movements in the Company's issued share capital during the year are shown in note 23 to the consolidated financial statements. The Company has one class of ordinary shares which carries no right to fixed income. Each share carries the right to one vote at general meetings of the Company.

There are no specific restrictions on the size of a holding nor on the transfer of shares, which are both governed by the general provisions of the Articles of Association and prevailing legislation. The Directors are not aware of any agreements between holders of the Company's shares that may result in restrictions on the transfer of securities or voting rights.

No person has special rights of control over the Company's share capital and all issued shares are fully paid.

Details of employee share schemes are set out in note 24.

RESULTS AND DIVIDENDS

The results for the year are set out on page 72.

The directors do not recommend payment of a dividend (2018: £nil).

INFORMATION SET OUT IN THE STRATEGIC REPORT

In accordance with section 414C(11) of the 2006 Act, the directors have chosen to set out in the Strategic Report the following information required to be included in the Directors' Report:

Employee involvement is set out in the Corporate and Social Responsibility Statement in the Strategic Report.

Key business relationships and effect on principal decision making is included in the Corporate and Social Responsibility Statement in the Strategic Report.

Employment of disabled persons, including information on the Group's policy applied relating to recruitment, employment, training, career development and promotion of disabled employees is set out in the corporate and social responsibility section of the Strategic Report.

Details of research and development activities are throughout the business and financial review in the Strategic Report.

Likely future developments are included throughout the Strategic Report.

Financial risk management objectives and policies, including the Group's exposure to credit risk are contained within note 25 on page 109.

DIRECTORS AND THEIR INTERESTS

The directors who served during the year and to the date of this report, unless otherwise stated, are as follows:

Mr T Pizzie
Mr R Vellacott (resigned 28 January 2019)
Mr J Pankhania (appointed 29 January 2019)
Dr I D Gilham
Dr V K Gulati
Dr S Galbraith
Mrs S J Searle
Mr G Cook
Ms M Krivitski

Full details of their interests in shares of the Company and its subsidiary undertakings are included in the Remuneration Committee Report on page 55.

The powers of the Directors are determined by U.K. legislation and the Company's Articles of Association, together with any specific authorities that may be given to the Directors by shareholders from time to time (for example the authority to allot or purchase shares in the Company).

POST-BALANCE SHEET EVENTS

Details of significant events since the balance sheet date, including the COVID-19 outbreak and the share placing, are included in note 35 to the Financial Statements. An indication of likely future developments in the business of the Group are included in the strategic report.

DIRECTORS' AND OFFICERS' INSURANCE

The Company has purchased and maintained throughout the financial year directors' and officers' liability insurance in respect of itself and for its Directors and Officers in order to provide appropriate cover for legal action brought against its Directors.

CHARITABLE DONATIONS

The donations made by the Company during the year for charitable purposes were £nil (2018: £nil).

AUDITOR

Each Director in office at the date the Directors' Report is approved confirms that:

(a) so far as the Director is aware, there is no relevant audit information of which the Group and the Company's auditor is unaware; and

(b) he/she has taken all the steps that he/she ought to have taken as Director in order to make himself/herself aware of any relevant audit information and to establish that the Group and the Company's auditor is aware of that information.

The directors intend to reappoint Deloitte LLP as auditor for the forthcoming year.

This report was approved by the board of directors on 29 April and is signed on its behalf by:

J Pankhania

MR J PANKHANIA
CHIEF FINANCIAL OFFICER
29 APRIL 2020

DIRECTORS' RESPONSIBILITIES STATEMENT

The directors are responsible for preparing the Annual Report and the financial statements in accordance with applicable law and regulations.

Company law requires the directors to prepare financial statements for each financial year. Under that law the directors are required to prepare the Group financial statements in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union (EU) and have also chosen to prepare the parent company financial statements under IFRSs as adopted by the EU. Under company law the directors must not approve the accounts unless they are satisfied that they give a true and fair view of the state of affairs of the company and of the profit or loss of the company for that period. In preparing these financial statements, International Accounting Standard 1 requires that directors:

- properly select and apply accounting policies;
- present information, including accounting policies, in a manner that provides relevant, reliable, comparable and understandable information;
- provide additional disclosures when compliance with the specific requirements in IFRSs are insufficient to enable users to understand the impact of particular transactions, other events and conditions on the entity's financial position and financial performance; and
- make an assessment of the company's ability to continue as a going concern.

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the company's transactions and disclose with reasonable accuracy at any time the financial position of the company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

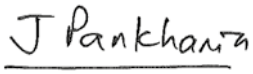
The directors are responsible for the maintenance and integrity of the corporate and financial information included on the company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

RESPONSIBILITY STATEMENT

We confirm that to the best of our knowledge:

- the financial statements, prepared in accordance with International Financial Reporting Standards as adopted by the European Union, give a true and fair view of the assets, liabilities, financial position and profit or loss of the company and the undertakings included in the consolidation taken as a whole;
- the strategic report includes a fair review of the development and performance of the business and the position of the company and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face; and
- the annual report and financial statements, taken as a whole, are fair, balanced and understandable and provide the information necessary for shareholders to assess the company's performance, business model and strategy.

This responsibility statement was approved by the board of directors on 29 April 2020 and is signed on its behalf by:



MR J PANKHANIA
CHIEF FINANCIAL OFFICER
29 APRIL 2020

Financial statements

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF HORIZON DISCOVERY GROUP PLC

REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS

1. OPINION

In our opinion:

- the financial statements of Horizon Discovery Group plc (the 'parent company') and its subsidiaries (the 'group') give a true and fair view of the state of the group's and of the parent company's affairs as at 31 December 2019 and of the group's loss for the year then ended;
- the group financial statements have been properly prepared in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union;
- the parent company financial statements have been properly prepared in accordance with IFRSs as adopted by the European Union and as applied in accordance with the provisions of the Companies Act 2006; and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements which comprise:

- the consolidated income statement;
- the consolidated statement of comprehensive income;
- the consolidated and parent company balance sheets;
- the consolidated and parent company statements of changes in equity;
- the consolidated and parent company cash flow statements; and
- the related notes 1 to 35.

The financial reporting framework that has been applied in their preparation is applicable law and IFRSs as adopted by the European Union and, as regards the parent company financial statements, as applied in accordance with the provisions of the Companies Act 2006.

2. BASIS FOR OPINION

We conducted our audit in accordance with International Standards on Auditing (U.K.) (ISAs (U.K.)) and applicable law. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the financial statements section of our report.

We are independent of the group and the parent company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the U.K., including the Financial Reporting Council's (the 'FRC's') Ethical Standard as applied to listed entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

3. SUMMARY OF OUR AUDIT APPROACH

Key audit matters	The key audit matters that we identified in the current year were: • Revenue recognition for significant non-standard contracts and Bioproduction licences; • Impairment of goodwill and acquisition related intangibles in the Genomic Products Cash Generating Unit ("CGU"); and • Going concern – uncertainty due to the COVID-19 pandemic Within this report, key audit matters are identified as follows: (!) Newly identified (^) Increased level of risk <> Similar level of risk (v) Decreased level of risk
Materiality	The materiality that we used for the group financial statements was £1,040,000 which was determined on the basis of 1.8% of group revenue from continuing operations.
Scoping	Our group audit covered eight components. Two components were subject to full audit scope, contributing 93% of total group revenue, 95% of the group's net assets and 77% of total group expenses at 31 December 2019. Two further components, were subject to audit of specified balances. The remaining four components were subject to review at group level where the extent of our testing was based on our assessment of the risks of material misstatement.
Significant changes in our approach	The key audit matter in respect of impairment of goodwill and acquisition related intangibles has changed since the prior year. In the prior year, the key audit matter related to all cash generating units. In the current year, this is now focused specifically on the Genomic Products CGU. The Genomics Products CGU is highly sensitive to changes in key assumptions whereas, the remaining CGUs are not as sensitive and therefore have been removed from the key audit matter in the current year. A key audit matter in respect of uncertainty related to the COVID-19 pandemic and the impact on the group's assessment of going concern has also been added in the current year. There were no other significant changes in our approach since the prior year.

4. CONCLUSIONS RELATING TO GOING CONCERN

We are required by ISAs (U.K.) to report in respect of the following matters where: • the directors' use of the going concern basis of accounting in preparation of the financial statements is not appropriate; or • the directors have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the group's or the parent company's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.	We have nothing to report in respect of these matters.

INDEPENDENT AUDITOR'S REPORT CONTINUED

5. KEY AUDIT MATTERS

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) that we identified. These matters included those which had the greatest effect on: the overall audit strategy, the allocation of resources in the audit; and directing the efforts of the engagement team.

These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

5.1 REVENUE RECOGNITION FOR SIGNIFICANT NON-STANDARD CONTRACTS AND BIOPRODUCTION LICENCES

Key audit matter description

The cut-off and occurrence of Bioproduction licence revenues have been identified as a key audit matter due to the significant value and number of deals recognised in the period leading up to the financial year end. Revenue recognition for these contracts is at a point in time once the performance obligations have been fulfilled. If the obligations have not been fulfilled or the group does not have an enforceable right to the consideration in respect of each deal, it could lead to a material misstatement of revenue. Per the operating segments disclosure in note 5 of the financial statements Bioproduction revenue for 2019 was £8,565k (2018: £8,717k), of which £7,943k (2018: £7,992k) related to Bioproduction licences included within this key audit matter.

The identification and accounting for non-standard contracts was also identified as part of this key audit matter. These agreements are not a usual revenue stream for the business or have terms that differ from standard contracts, so a material misstatement could occur if management incorrectly applied IFRS 15 Revenue from contracts with customers when recognising revenue.

The accounting policy is disclosed in Note 1 to the financial statements and the revenue disclosure is included in Note 4 to the financial statements.

How the scope of our audit responded to the key audit matter

Bioproduction licences

We obtained an understanding of the relevant controls over the revenue process.

We obtained management's breakdown of revenue for the year relating to Bioproduction licence deals and for all deals obtained we assessed whether:

- There is a signed contract or purchase order
- Management have correctly identified the performance obligations of the contract by reading the contracts and discussing with the relevant project manager.
- The transaction price has been appropriately determined.
- The transaction price is appropriately allocated to the performance obligation.
- Revenue is recognised appropriately at a point in time or over time.
- The amount recognised is recoverable by assessing cash received or obtaining customer confirmations.

We also assessed the recognition of Bioproduction licences recognised in January to challenge cut off.

For the sample selected, we recalculated the revenue recognised in 31 December 2019 to assess whether the revenue had occurred and that revenue cut-off has been correctly applied.

Non-standard contracts

All contracts above a certain monetary threshold were examined to identify whether they represented a new revenue stream or whether the contracts contained any non-standard terms.

Key observations

We identified control deficiencies with respect to management's review controls over revenue recognition. Refer to the Audit Committee report on page 49 of the Annual Report for discussion of the control environment.

Based on the work performed, we concluded that the revenue recognition for significant non-standard contracts and Bioproduction licences is appropriate.

5.2 IMPAIRMENT OF GOODWILL AND ACQUISITION RELATED INTANGIBLES IN THE GENOMIC PRODUCTS CGU

Key audit matter description	The group has a significant goodwill balance of £50,110k as at 31 December 2019 (£51,750k at 31 December 2018), which has arisen on the acquisition of Dharmacon, CombinatoRx and Haplogen Genomics in previous periods. The group also holds other acquisition related intangibles at the balance sheet date. Management performs impairment reviews in accordance with IAS 36 Impairment of Assets. No impairment was recognised in 2019. There is a risk that the key assumptions such as revenue growth, terminal growth rate, variability of costs and discount rates used in the impairment review model are not appropriate. The key audit matter specifically relates to the goodwill and acquisition related intangibles relating to the Genomic Products CGU. Process improvements took place in 2019, and the achievement of the growth rate included in management's impairment review is dependent on the assumptions of successful execution of a plan to utilise the increased operational capacity gained, implementation of a customer segment matched pricing strategy and streamlining of commercial services contracts. These assumptions affect the calculation of the value-in-use, possibly leading to an incorrect conclusion of whether goodwill is impaired or not, and if impaired an incorrect level of impairment being applied. Note 1 to the financial statements sets out the group's accounting policy for business combinations and Note 13 to the financial statements outlines the key assumptions involved in the goodwill impairment assessment. Note 2 to the financial statements provides details of the critical accounting judgements.
How the scope of our audit responded to the key audit matter	We obtained an understanding of the relevant controls over the impairment of goodwill and acquisition related intangibles process. We obtained cash flow forecasts prepared by management and challenged key management estimates included in the forecast, such as revenue growth, terminal growth rates, gross margin and discount rates. The net present value of the forecast cash flows was compared to the carrying value of the Genomic Products CGU. We considered indicators of impairment for other acquisition related intangibles, including reference to historical performance, external market data, and assessment of the group's future strategy and budgets. We assessed the accuracy of management's historical forecasts and, where there were discrepancies, we evaluated the impact of these on the current year forecasts. We involved our internal valuations specialists to estimate an appropriate discount rate with reference to market data and compared that to the rate used by management. We also reviewed the cash flow forecasts in detail, tracing to supporting documentation for the revenue figures, focusing on both capacity and market assumptions, including discussions with the directors and the business unit head as well as assessment of supporting internal analysis. We applied sensitivities to calculations prepared by management to assess the impact on headroom of reasonable possible changes to assumptions. We tested the adequacy of management's disclosures relating to the reasonable possible change disclosure included within Note 13.
Key observations	We identified control deficiencies with respect to management's review controls of goodwill and other intangible assets impairment. Refer to the Audit Committee report on page 49 of the Annual Report for discussion of the control environment. Based on our work performed, we concluded that the carrying value of the Genomics Products CGU is not impaired and that the reasonably possible change scenarios have been appropriately disclosed within Note 13 of the financial statements.

INDEPENDENT AUDITOR'S REPORT CONTINUED

5.3 GOING CONCERN – UNCERTAINTY DUE TO THE COVID-19 PANDEMIC

Key audit matter description	As at 31 December 2019, the group held total cash of £18,779k (2018: £26,740k) and had no external borrowings. For the year ended 31 December 2019, the group made a loss from continuing operations of £9,227k (2018: £3,680k). We identified a key audit matter relating to the assumptions and judgments within management's going concern modelling due to the uncertainty caused by the COVID-19 pandemic. Management's assessment of going concern is discussed in Note 1 to the financial statements. Whilst the group would be able to continue as a going concern for a period of least 12 months from the date of approval of the financial statements in each of management's modelled downside scenarios, this position is dependent on the expected mitigating actions management could take to respond to a fall in demand of some products and services resulting from social distancing measures, inability to travel and closure of academic institutions due to the COVID-19 pandemic, and the extent of that fall in demand. Management have adopted the going concern basis of accounting for the group and parent company and they have concluded that there are no material uncertainties that may cast significant doubt over the group's and parent company's ability to adopt this basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.
How the scope of our audit responded to the key audit matter	We have reviewed the directors' statement in Note 1 to the financial statements regarding their consideration of whether it is appropriate to adopt the going concern basis of accounting in preparing the financial statements and obtained an understanding of management's process for making this determination. We considered, as part of our risk assessment, the nature of the group, its business model and related risks including where relevant the impact of the COVID-19 pandemic, the requirements of the applicable financial reporting framework and the system of internal control. We reviewed management's modelling of reasonably possible downside scenarios taking into consideration current business and economic trends and significant developments during and subsequent to the year ended 31 December 2019 and their impact on the group's and the parent company's ability to continue to adopt the going concern basis of accounting. We challenged the judgements and assumptions adopted by management in their going concern modelling and the associated forecasts of financial performance and financial position. We considered the possibility of the downside scenarios and the reasonableness of management's assumptions regarding the planned mitigating actions in response to the modelled reductions in demand for goods and services. We considered management's conclusions regarding the likelihood of cash flow timings relating to assumptions driven by the ongoing COVID-19 pandemic. We reverse-stress tested management's modelling and assessed the plausibility of further mitigating actions available to management should revenue downside exceed that modelled.
Key observations	Based on our work performed, we concluded that management's conclusion to prepare the group and parent company financial statements on a going concern basis is appropriate.

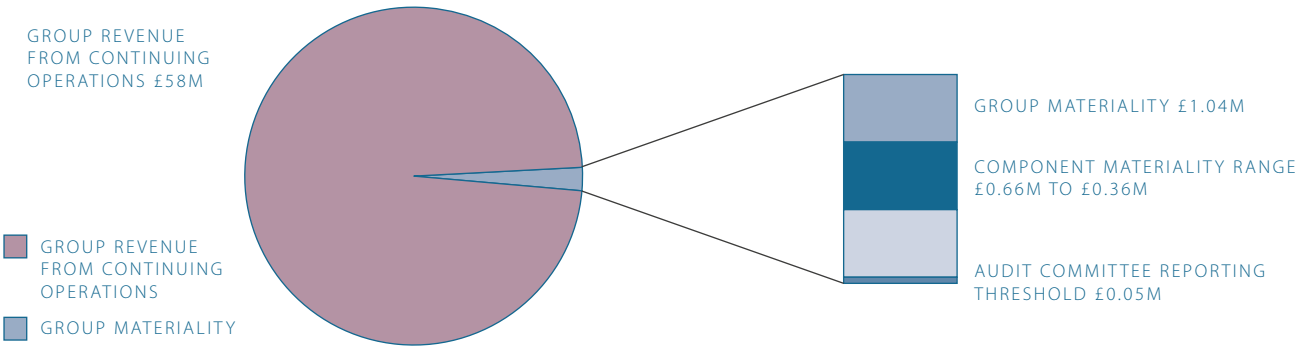
6. OUR APPLICATION OF MATERIALITY

6.1 MATERIALITY

We define materiality as the magnitude of misstatement in the financial statements that makes it probable that the economic decisions of a reasonably knowledgeable person would be changed or influenced. We use materiality both in planning the scope of our audit work and in evaluating the results of our work.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

	Group financial statements	Parent company financial statements
Materiality	£1,040,000 (2018: £1,050,000)	£1,029,600
Basis for determining materiality	1.8% of group revenue from continuing operations. (2018: 1.8% of group revenue)	Parent company materiality equates to 1.0% of net assets, which is then capped at 99% group materiality.
Rationale for the benchmark applied	Revenue been considered an appropriate benchmark as it reflects the growth of the group organically and through acquisitions in previous years. Revenue of continuing operations only has been considered in determining group materiality.	The company is a holding company for its investments. It also includes loans with its subsidiaries and incurs very limited expenses on behalf of the group. Net assets is therefore considered an appropriate benchmark.



6.2 PERFORMANCE MATERIALITY

We set performance materiality at a level lower than materiality to reduce the probability that, in aggregate, uncorrected and undetected misstatements exceed the materiality for the financial statements as a whole. Group performance materiality was set at 70% of group materiality for the 2019 audit (2018: 70%). In determining performance materiality, we considered the following factors:

a. Our risk assessment, including our assessment of the group's overall control environment; and

b. Our past experience of the audit, which has indicated a low number of corrected and uncorrected misstatements identified in prior periods.

6.3 ERROR REPORTING THRESHOLD

We agreed with the Audit Committee that we would report to the Committee all audit differences in excess of £52,000 (2018: £52,500), as well as differences below that threshold that, in our view, warranted reporting on qualitative grounds. We also report to the Audit Committee on disclosure matters that we identified when assessing the overall presentation of the financial statements.

INDEPENDENT AUDITOR'S REPORT CONTINUED

7. AN OVERVIEW OF THE SCOPE OF OUR AUDIT

7.1 IDENTIFICATION AND SCOPING OF COMPONENTS

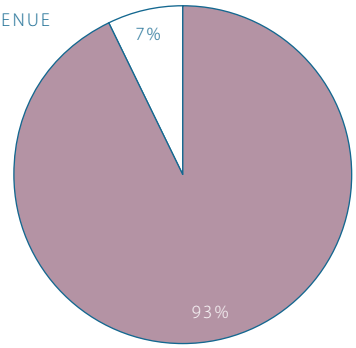
The parent company is based in the U.K. and audited directly by the group audit team. Our group audit was scoped by obtaining an understanding of the group and its environment, including group-wide controls, and assessing the risks of material misstatement at the group level.

Based on that assessment, we have scoped the components as subject to either (a) full scope audits, (b) audit of specified balances with the remaining balances reviewed, or (c) subject to a review at group level. This scoping exercise has been performed based on our assessment of the materiality of the group's operations at those components, and all components have been audited by the group audit team. A summary of the components we identified and the scoping is below.

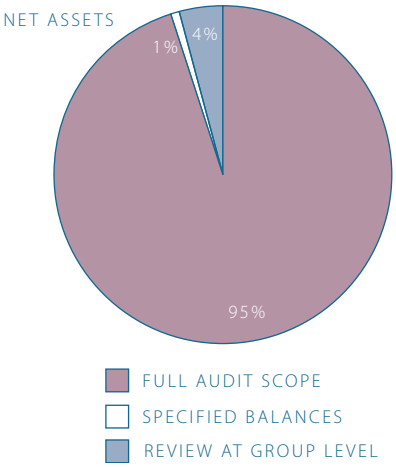
Full audit scope	Specified balances	Review at group level
Horizon Discovery Limited	Sage Laboratories Inc	Horizon Genomics GmbH
Dharmacon Inc	Horizon Discovery Group PLC (Company only)	Horizon Discovery Inc
		Horizon Sage Holdings Inc
		Horizon KK TA

The below charts summarise the coverage of the key benchmarks we have audited:

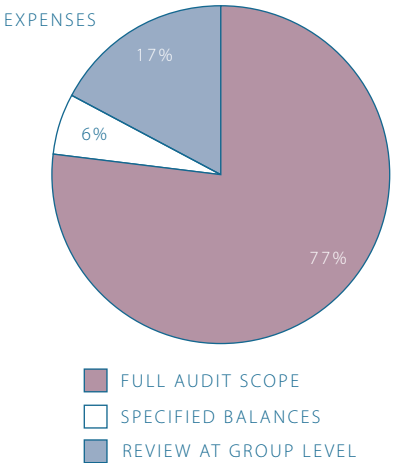
REVENUE



NET ASSETS



EXPENSES



Our audit work for each component was executed at levels of materiality applicable to each individual component which were lower than group materiality. The materiality set for components, including the parent company audit of specified balances, for the performance of work to support our opinion on the group's consolidated financial statements, ranged between £355,000 to £655,000 (2018: £420,000 to £735,000).

At the group level we also tested the consolidation process and carried out analytical procedures to confirm our conclusion that there were no significant risks of material misstatement of the aggregated financial information of the remaining components not subject to audit or audit of specified account balances. Audit work to respond to the risks of material misstatement was performed directly by the group audit engagement team.

7.2 OUR CONSIDERATION OF THE CONTROL ENVIRONMENT

We involved our IT specialist to obtain an understanding of the relevant general IT controls. We did not test the relevant general IT controls as we did not plan to take controls reliance.

We assessed the control environment as part of our 2019 audit, which resulted in no controls reliance being taken. Control deficiencies were identified in relation to the controls around the review of impairment of goodwill and revenue, these have been discussed above within the key audit matters. In addition, a number of other control deficiencies were noted through our assessment of the control environment. The audit we performed was fully substantive and therefore the deficiencies identified did not impact our planned approach. Refer to the Audit Committee report on page 49 of the Annual Report for discussion of the control environment.

8. OTHER INFORMATION

The directors are responsible for the other information. The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in respect of these matters.

9. RESPONSIBILITIES OF DIRECTORS

As explained more fully in the directors' responsibilities statement, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the group's and the parent company's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the group or the parent company or to cease operations, or have no realistic alternative but to do so.

INDEPENDENT AUDITOR'S REPORT CONTINUED

10. AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (U.K.) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

11. OPINIONS ON OTHER MATTERS PRESCRIBED BY THE COMPANIES ACT 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the strategic report and the directors' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the strategic report and the directors' report have been prepared in accordance with applicable legal requirements.

In the light of the knowledge and understanding of the group and the parent company and their environment obtained in the course of the audit, we have not identified any material misstatements in the strategic report or the directors' report.

12. MATTERS ON WHICH WE ARE REQUIRED TO REPORT BY EXCEPTION

12.1 ADEQUACY OF EXPLANATIONS RECEIVED AND ACCOUNTING RECORDS

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not received all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the parent company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent company financial statements are not in agreement with the accounting records and returns.

We have nothing to report in respect of these matters.

12.2 DIRECTORS' REMUNERATION

Under the Companies Act 2006 we are also required to report if in our opinion certain disclosures of directors' remuneration have not been made.

We have nothing to report in respect of these matters.

13. USE OF OUR REPORT

This report is made solely to the company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.

CHRISTOPHER AYLOTT FCA (SENIOR STATUTORY AUDITOR)
FOR AND ON BEHALF OF DELOITTE LLP
STATUTORY AUDITOR
CAMBRIDGE, UNITED KINGDOM
29 APRIL 2020

YEAR ENDED 31 DECEMBER 2019

Consolidated income statement

Continuing Operations	Note	2019 £'000	Restated[1] 2018 £'000
REVENUE	4	58,253	54,133
Cost of sales		(17,498)	(16,413)
GROSS PROFIT		40,755	37,720
Other operating income	7	2,085	2,171
Sales, marketing and distribution costs		(14,312)	(12,489)
Research, development and operations costs		(14,204)	(13,420)
Corporate and administrative expenses		(24,387)	(20,384)
Share of results of joint venture	17	(641)	(299)
OPERATING LOSS		(10,704)	(6,701)
Investment income	4	58	90
Finance costs		(866)	(7)
LOSS BEFORE TAX		(11,512)	(6,618)
Taxation	10	2,285	2,938
LOSS FOR THE YEAR ON CONTINUING OPERATIONS	6	(9,227)	(3,680)
DISCONTINUED OPERATIONS			
Profit/(loss) for the year from discontinued operations net of tax	11	4,622	(31,459)
LOSS FOR THE YEAR ATTRIBUTABLE TO OWNERS OF THE COMPANY		(4,605)	(35,139)
LOSS PER SHARE			
FROM CONTINUING OPERATIONS			
BASIC AND DILUTED (PENCE)	12	(6.1p)	(2.5p)
FROM CONTINUING AND DISCONTINUED OPERATIONS			
BASIC AND DILUTED (PENCE)	12	(3.1p)	(23.5p)

1 The 2018 income statement has been restated to include the impact of operations classified as discontinued in 2019 (see note 11), for a prior period adjustment relating to deferred tax (see Note 3) and for a reclassification of executive management exit costs and legal and advisory fees relating to the rejection of an unsolicited shareholder proposal that were reported as exceptional items within corporate and administrative expenses.

YEAR ENDED 31 DECEMBER 2019

Consolidated statement of comprehensive income

	Note	2019 £'000	Restated 2018 £'000
LOSS FOR THE YEAR		(4,605)	(35,139)
ITEMS THAT MAY BE RECLASSIFIED SUBSEQUENTLY TO PROFIT OR LOSS:			
Exchange differences on translation of foreign operations		(3,184)	6,936
Taxation on exchange difference on translation of intercompany loans on consolidation		202	314
Foreign exchange gains recycled to the income statement		(8,386)	–
OTHER COMPREHENSIVE (LOSS)/INCOME FOR THE YEAR NET OF TAX		(11,368)	7,250
TOTAL COMPREHENSIVE LOSS FOR THE YEAR ATTRIBUTABLE TO OWNERS OF THE COMPANY		(15,973)	(27,889)
TOTAL COMPREHENSIVE (LOSS)/PROFIT FOR THE YEAR ATTRIBUTABLE TO OWNERS OF THE COMPANY ARISES FROM:			
Continuing operations		(12,877)	1,808
Discontinued operations	11	(3,096)	(29,697)
		(15,973)	(27,889)

31 DECEMBER 2019

Consolidated balance sheet

	Note	2019 £'000	Restated[1] 2018 £'000
NON CURRENT ASSETS			
Goodwill	13	50,110	51,750
Other intangible assets	14	42,232	45,644
Property, plant and equipment	15	9,498	11,680
Right of use assets	16	9,988	–
Investments	17	–	2,960
Other receivables		433	433
		112,261	112,467
CURRENT ASSETS			
Inventories	18	2,166	2,541
Trade and other receivables	19	18,828	19,071
Corporation tax receivable		3,411	3,053
Cash and cash equivalents	20	18,779	26,740
		43,184	51,405
TOTAL ASSETS		155,445	163,872
CURRENT LIABILITIES			
Trade and other payables	21	(12,374)	(13,912)
Lease liabilities	22	(1,955)	–
TOTAL CURRENT LIABILITIES		(14,329)	(13,912)
NET CURRENT ASSETS		28,855	37,493
NON-CURRENT LIABILITIES			
Lease liabilities	22	(10,267)	–
Deferred tax	26	(3,142)	(5,273)
Long-term provisions	34	(673)	(692)
		(14,082)	(5,965)
TOTAL LIABILITIES		(28,411)	(19,877)
NET ASSETS		127,034	143,995
EQUITY			
Share capital	23	3,137	3,134
Share premium account		139,511	139,102
Share option reserve		3,737	3,100
Merger reserve		67,457	67,457
Currency reserve		(152)	11,216
Accumulated deficit		(86,656)	(80,014)
TOTAL EQUITY		127,034	143,995

1 The 2018 balance sheet has been restated for a prior period adjustment relating to deferred tax (see note 3) and for a classification restatement within equity that is explained in footnote 2 presented on the consolidated statement of changes in equity.

The financial statements of Horizon Discovery Group Plc, registered number 08921143, were approved by the Board of Directors and authorised for issue on 29 April 2020.

Signed on behalf of the Board of Directors

J Pankhania

MR J PANKHANIA
CHIEF FINANCIAL OFFICER
29 APRIL 2020

YEAR ENDED 31 DECEMBER 2019

Consolidated statement of changes in equity

	Share capital £'000	Share premium account £'000	Share option reserve £'000	Merger Reserve[1] £'000	Restated[2] Currency Reserve £'000	Restated[2] Accumulated deficit £'000	Restated[3] Total £'000
Balance at 1 January 2018	3,121	137,681	2,478	67,457	–	(40,909)	169,828
Restatement of reserves classification[2]	–	–	–	–	3,966	(3,966)	–
BALANCE AT 1 JANUARY 2018 (AS RESTATED)	3,121	137,681	2,478	67,457	3,966	(44,875)	169,828
Loss for the year	–	–	–	–	–	(35,139)	(35,139)
Other comprehensive income for the year	–	–	–	–	7,250	–	7,250
Total comprehensive loss	–	–	–	–	7,250	(35,139)	(27,889)
Issue of shares on exercise of options	13	1,421	–	–	–	–	1,434
Credit to equity for equity settled share based payments (note 24)	–	–	622	–	–	–	622
Balance at 31 December 2018	3,134	139,102	3,100	67,457	11,216	(80,014)	143,995

	Share capital £'000	**Share premium account £'000**	**Share option reserve £'000**	**Merger Reserve[1] £'000**	**Currency reserve £'000**	**Restated Accumulated deficit £'000**	**Total £'000**
BALANCE AT 1 JANUARY 2019	3,134	139,102	3,100	67,457	11,216	(80,014)	143,995
Restatement of opening retained earnings for IFRS16 (Note 1)	–	–	–	–	–	(2,037)	(2,037)
BALANCE AT 1 JANUARY 2019 (AS RESTATED)	3,134	139,102	3,100	67,457	11,216	(82,051)	141,958
Loss for the year	–	–	–	–	–	(4,605)	(4,605)
Other comprehensive income for the year	–	–	–	–	(2,982)	–	(2,982)
Foreign exchange gains recycled to income statement	–	–	–	–	(8,386)		(8,386)
TOTAL COMPREHENSIVE LOSS	–	–	–	–	(11,368)	(4,605)	(15,973)
Issue of shares on exercise of options	3	409	–	–	–	–	412
Credit to equity for equity settled share based payments (note 24)	–	–	637	–	–	–	637
BALANCE AT 31 DECEMBER 2019	3,137	139,511	3,737	67,457	(152)	(86,656)	127,034

1 The merger reserve relates to difference between consideration and nominal value of the shares issued during a merger and the fair value of the assets transferred.

2 The 2018 consolidated statement of changes in equity has been restated to correct an error in the classification of exchange differences on translation of foreign operations from accumulated deficit into the currency reserve. This restates the balance sheet and statement of changes in equity. The impact of the restatement at 1 January 2018 was to instate a currency reserve of £3,966k and increase the accumulated deficit reserve from £40,909k to £44,875k.

3 The 2018 loss for the year has been restated for a prior period adjustment relating to deferred tax (see note 3).

YEAR ENDED 31 DECEMBER 2019

Consolidated cash flow statement

	Note	2019 £'000	2018 £'000
NET CASH INFLOW FROM OPERATING ACTIVITIES	27	985	1,519
INVESTING ACTIVITIES			
Interest received		58	90
Acquisition of investment in joint venture	17	(700)	(1,400)
Purchases of property, plant and equipment	15	(1,973)	(2,708)
Purchase of intangible assets	14	(2,743)	(851)
Disposal of business unit	11	(287)	–
NET CASH USED IN INVESTING ACTIVITIES		(5,645)	(4,869)
FINANCING ACTIVITIES			
Interest paid		(1,248)	(11)
Principal elements of lease payments (2018: principal elements of finance lease payments)		(1,997)	–
Proceeds on issue of shares net of expenses		412	1,433
NET CASH (USED IN)/FROM FINANCING ACTIVITIES		(2,833)	1,422
NET DECREASE IN CASH AND CASH EQUIVALENTS		(7,493)	(1,928)
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR		26,740	28,084
Effect of exchange rate changes		(468)	584
CASH AND CASH EQUIVALENTS AT END OF YEAR		18,779	26,740

Cash flows relating to the discontinued operations are presented in note 11.

31 DECEMBER 2019

Company balance sheet

	Note	2019 £'000	2018 £'000
NON CURRENT ASSETS			
Intangible assets	14	899	970
Investments	17,32	65,692	55,272
		66,591	56,242
CURRENT ASSETS			
Trade and other receivables	19	94,464	95,810
Cash and cash equivalents	20	2,530	10,857
		96,994	106,667
TOTAL ASSETS		163,585	162,909
CURRENT LIABILITIES			
Trade and other payables	21	(1,371)	(369)
TOTAL CURRENT LIABILITIES		(1,371)	(369)
NET CURRENT ASSETS		95,623	106,298
NET ASSETS		162,214	162,540
EQUITY			
Share capital	23	3,137	3,134
Share premium account		139,511	139,102
Share option reserve		2,447	1,797
Merger reserve		55,478	55,478
Accumulated deficit		(38,359)	(36,971)
TOTAL EQUITY		162,214	162,540

As permitted by s408 of the Companies Act 2006, no separate income statement or statement of comprehensive income is presented for the Company. The Company reported a loss for the financial year ended 31 December 2019 of £1,388k (2018: loss of £31,472k) and other comprehensive income of £nil (2018: £nil).

In the prior year the unrealised translation loss on intercompany receivables was incorrectly recorded in other comprehensive income. To correct this error, the loss for the year previously reported of £34,681 has been restated to £31,472k and other comprehensive income previously reported of £3,209 has been restated to £nil. There is no change in the previously reported total comprehensive loss, accumulated losses and total equity.

The financial statements of Horizon Discovery Group plc, registered number 08921143, were approved by the Board of Directors and authorised for issue on 29 April 2020.

Signed on behalf of the Board of Directors

J Pankhania

MR J PANKHANIA
DIRECTOR
29 APRIL 2020

YEAR ENDED 31 DECEMBER 2019

Company statement of changes in equity

	Share capital £'000	Share premium account £'000	Share option reserve £'000	Merger Reserve £'000	Restated[1] Accumulated deficit £'000	Total £'000
Balance at 1 January 2018	3,121	137,681	1,176	55,478	(5,499)	191,957
Loss for the year[1]	–	–	–	–	(31,472)	(31,472)
TOTAL COMPREHENSIVE LOSS	–	–	–	–	(31,472)	(31,472)
Issue of shares on exercise of options	13	1,421	–	–	–	1,434
Credit to equity for equity settled share based payments (note 24)	–	–	621	–	–	621
Balance at 31 December 2018	3,134	139,102	1,797	55,478	(36,971)	162,540

	Share capital £'000	**Share premium account £'000**	**Share option reserve £'000**	**Merger Reserve £'000**	**Accumulated deficit £'000**	**Total £'000**
BALANCE AT 1 JANUARY 2019	3,134	139,102	1,797	55,478	(36,971)	162,540
Loss for the year	–	–	–	–	(1,388)	(1,388)
TOTAL COMPREHENSIVE LOSS	–	–	–	–	(1,388)	(1,388)
Issue of shares on exercise of options	3	409	–	–	–	412
Credit to equity for equity settled share based payments (note 24)	–	–	650	–	–	650
BALANCE AT 31 DECEMBER 2019	3,137	139,511	2,447	55,478	(38,359)	162,214

1 In the prior year the unrealised translation loss on intercompany receivables was incorrectly recorded in other comprehensive income. To correct this error:

- loss for the year previously reported of £34,681 has been restated to £31,472k; and
- other comprehensive income previously reported of £3,209 has been restated to £nil.

There is no change in the previously reported total comprehensive loss, accumulated losses and total equity.

YEAR ENDED 31 DECEMBER 2019

Company cash flow statement

	Note	2019 £'000	Restated[1] 2018 £'000
NET CASH INFLOW/(OUTFLOW) FROM OPERATING ACTIVITIES	27	(1,605)	4,084
INVESTING ACTIVITIES			
Interest received		49	1,621
Acquisition of investment in subsidiary		(12,782)	(33)
Acquisition of investments in joint venture		(700)	(1,400)
Purchase of intangible assets		–	(50)
Issue of intercompany borrowings		–	(19,304)
Disposal of business unit	11	(287)	–
NET CASH (USED IN)/FROM INVESTING ACTIVITIES		(13,720)	(19,166)
FINANCING ACTIVITIES			
Interest paid		(5)	(1)
Proceeds on issue of shares net of expenses		412	1,435
Receipt of intercompany borrowings		6,591	–
NET CASH FROM/(USED IN) FINANCING ACTIVITIES		6,998	1,434
NET DECREASE IN CASH AND CASH EQUIVALENTS		(8,327)	(13,648)
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR		10,857	24,505
CASH AND CASH EQUIVALENTS AT END OF YEAR		2,530	10,857

1 The 2018 loss for year as previously presented in this note has been restated for reasons set out in the company statement of changes in equity (see page 78).

In addition, the 2018 cash flow statement has been restated to correct an error in the treatment of unrealised currency translation losses on intercompany receivables. The unrealised currency translation losses had incorrectly been treated as an adjusting item in determining cash generated by operations and also incorrectly included in issue of intercompany borrowings which were classified as cash used in investment activities.

Accordingly, to correct these misstatements, the following restatements have been made.

- The cash generated from operations previously reported of £875k has been restated to £4,084k.
- Cash used in investing activities previously reported of £15,958k has been restated to £19,166k.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements

GENERAL INFORMATION

Horizon Discovery Group PLC (the Company) is a public limited company, registered in England and Wales which is listed on the Alternative Investment Market of the London Stock Exchange. The address of the Company's registered office is 8100 Cambridge Research Park, Waterbeach, Cambridge CB25 9TL.

The consolidated financial statements are presented in Pounds Sterling, being the functional currency of the Company and are rounded to the nearest £1,000.

Foreign operations are included in accordance with the policies set out in note 1 Accounting policies.

1. ACCOUNTING POLICIES

BASIS OF ACCOUNTING

The financial statements have been prepared in accordance with International Financial Reporting Standards (IFRSs). The financial statements have also been prepared in accordance with IFRSs adopted by the IASB and IFRSs adopted by the European Union and therefore the Group financial statements comply with Article 4 of the EU IAS regulation.

The financial statements have been prepared on the historical cost basis, as explained in the accounting policies below. Historical cost is generally based on the fair value of the consideration given in exchange for goods and services.

BUSINESS COMBINATIONS AND BASIS OF CONSOLIDATION

The Group financial statements include the financial statements of the Company (the legal entity) and all the subsidiaries (together, the "Group") during the periods reported for the periods during which they were members of the Group. Details of the Group's subsidiaries are disclosed in Note 32. The results of subsidiaries acquired or disposed of during the year are included in the consolidated income statement from the effective date of acquisition or effective date of disposal, as appropriate. All intra-Group transactions, balances, income and expenses are eliminated on consolidation with the exception of those relating to the joint venture.

Acquisitions of businesses are accounted for using the acquisition method using IFRS 3. The cost of the acquisition is measured at the aggregate of the fair values at the date of exchange of assets given liabilities incurred or assumed and equity instruments issued by the Group. Acquisition-related costs are either recognised in the income statement as incurred, or expensed proportionally to the underlying equity instruments issued by the Group. The acquiree's identifiable assets and liabilities are recognised at their fair values at the acquisition date.

Discontinued operations are recognised in line with IFRS 5. Assets are recognised as held for sale when the carrying amount is expected to be recovered principally through a sale rather than continuing use. Discontinued operations are disclosed in note 11.

GOING CONCERN

There are significant uncertainties around the impact of the COVID-19 pandemic including the extent and duration of social distancing measures, the inability to travel, the closure of academic institutions and the impact on the economy.

Management has considered the current economic uncertainty and market volatility caused be the COVID-19 outbreak. In assessing whether the going concern assumption is appropriate, management has reviewed the impact on the business to date and developed a range of downside scenarios that could impact the business together with mitigating actions.

In the downside scenarios a liquidity shortfall would result, due to a fall in demand for some products and services, if no action was taken. Accordingly, a series of cost saving and cashflow measures have been implemented. These actions include, temporary pay cuts, furloughing some U.K. employees, delaying non-essential capital expenditure and tightening of working capital. Management also plan to take advantage of the Payment Protection Program under the U.S. CARES Act. These changes do not impact upon major strategic projects such as the development of products for our BioProduction business unit, commercialising our Base Editing technology and continuing to invest in our Screening business unit. This is supplemented by additional funding in respect of a share placing, explained further in note 35. The net proceeds of the placing will be used to strengthen the Group's balance sheet, working capital and liquidity position.

The Group had cash and cash equivalents of £18.8m as at 31 December 2019, and net current assets of £28.9m at the same date. This combined with the measures above provides adequate headroom in terms of liquidity for a period of at least 12 months from the date of approval of these financial statements. Therefore, the financial statements are prepared on a going concern basis.

ADOPTION OF NEW AND REVISED STANDARDS

The following new and revised Standards and Interpretations have been adopted in the current year.

Amendments to IFRS 11 and IAS 28	Sale or Contribution of Assets between an Investor and its Associate or Joint Venture
IFRS 16	Leases
Amendments to IFRS 2	Classification and Measurement of Share-based Payment Transactions
IFRIC Interpretation 23	Uncertainty over Income Tax Treatments

Their adoption has not had any significant impact on the amounts reported in these financial statements, except as follows:

IFRS 16 'Leases' replaces IAS 17 'Leases' along with three Interpretations (IFRIC 4 'Determining whether an Arrangement contains a Lease', SIC 15 'Operating Leases-Incentives' and SIC 27 'Evaluating the Substance of Transactions Involving the Legal Form of a Lease').

The adoption of this new Standard has resulted in the Group recognising a right-of-use asset and related lease liability in connection with all former operating leases except for those identified as low-value or having a remaining lease term of less than 12 months from the date of initial application.

The new Standard has been applied using the modified retrospective approach, with the cumulative effect of adopting IFRS 16 being recognised in equity as an adjustment to the opening balance of retained earnings for the current period. Prior periods have not been restated, as permitted under the specific transitional provisions in the standard. In applying IFRS 16 for the first time, the Group has used the following practical expedients permitted by the standard:

- for contracts in place at the date of initial application, the Group has elected to apply the definition of a lease from IAS 17 and IFRIC 4 and has not applied IFRS 16 to arrangements that were previously not identified as a lease under IAS 17 and IFRIC 4;
- the Group has elected not to include initial direct costs in the measurement of the right-of-use asset for operating leases in existence at the date of initial application of IFRS 16, being 1 January 2019;
- reliance on historic assessment as to whether leases were onerous immediately before the date of initial application of IFRS 16;
- the use of hindsight for determining the lease term when considering options to extend and terminate leases; and
- for leases previously accounted for as operating leases with a remaining lease term of less than 12 months and for leases of low-value assets the Group has applied the optional exemptions to not recognise right-of-use assets but to account for the lease expense on a straight line basis over the remaining lease term.

On transition to IFRS 16 the weighted average lessee's incremental borrowing rate applied to the lease liabilities on 1 January 2019 was between 5.13% and 8.85%. The Group did not have any leases previously classified as finance leases prior to the adoption of IFRS 16.

The following is a reconciliation of total operating lease commitments at 31 December 2018 (as disclosed in the financial statements to 31 December 2018) to the lease liabilities recognised at 1 January 2019:

	£'000
OPERATING LEASE COMMITMENTS DISCLOSED AS AT 31 DECEMBER 2018	19,043
Discounted using the lessee's incremental borrowing rate of at the date of initial application	(3,936)
Add: Additional identified leases not included in 2018 operating lease disclosure, discounted at lessee's incremental borrowing rate of at the date of initial application	75
ADDITIONAL LEASE LIABILITIES AS A RESULT OF THE INITIAL APPLICATION OF IFRS 16 AS AT 1 JANUARY 2019	15,182
Of which are:	
Current lease liabilities	2,967
Non-current lease liabilities	12,215
	15,182

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

1. ACCOUNTING POLICIES CONTINUED

The associated right-of-use assets for all leases were measured on the modified retrospective basis as if the new rules had always been applied but has not restated comparatives for the 2018 reporting period, as permitted under the specific transitional provisions in the standard. There were no onerous lease contracts that would have required an adjustment to the right-of-use assets at the date of initial application. The Group classifies its right-of-use assets in a consistent manner to its property, plant and equipment (see note 16).

At 31 December 2018, the In Vivo cash generating unit was reduced to its recoverable amount through recognition of an impairment loss against goodwill, intangible assets and property, plant and equipment. One lease identified related to this unit, so the value of the right of use asset has been impaired to £nil at 1 January 2019. The effect of this additional impairment above the expected amortisation over the useful life of the asset was £687,000. This has been included as part of the restatement of opening reserves on transition to IFRS 16. The recognised right-of-use assets relate to the following types of assets:

	1 January 2019 £'000
Properties	12,150
Equipment	50
TOTAL RIGHT OF USE ASSETS	12,200

The change in accounting policy affected the following items in the balance sheet on 1 January 2019:

	As previously reported £'000	IFRS 16 Adjustment £'000	As Restated £'000
Right of use assets	–	12,200	12,200
NET IMPACT ON TOTAL ASSETS	–	12,200	12,200
Trade creditors and accruals	11,149	(207)	10,942
Lease liabilities	–	15,182	15,182
Long term provisions	692	(495)	197
Deferred tax	5,273	(243)	5,030
NET IMPACT ON TOTAL LIABILITIES	17,114	14,237	31,351
ACCUMULATED DEFICIT	(80,014)	(2,037)	(82,051)

At the date of authorisation of these financial statements, the following Standards and Interpretations which have not been applied in these financial statements were in issue but not yet effective (and in some cases had not yet been adopted by the EU):

Effective on 1 January 2020:

Amendments to IFRS 3	Business Combinations
IASB issued 'Definition of Material (Amendments to IAS 1 and IAS 8)'	Clarify the definition of 'material' and to align the definition used in the Conceptual Framework and the standards

The directors do not expect that the adoption of the standards listed above will have a material impact on the financial statements of the Group in future periods.

PROPERTY, PLANT AND EQUIPMENT AND DEPRECIATION

Property, plant and equipment are stated at cost less depreciation less any provision for impairment. On completion of production of master cell lines, the associated costs are capitalised and presented as a separate category, master cell bank, within property, plant and equipment. The master cell lines within the master cell bank are maintained in order to replicate cell lines. The master cell bank meets the criteria for capitalisation under IAS 16 as it is held for use in the production of good and is expected to generate future economic benefit for the Group via the sale of gene edited cell lines over more than one period. The master cell lines within the master cell bank are depreciated over their useful economic life, being ten years as this period approximates the useful shelf life of the cell lines.

No depreciation is provided on assets under construction. Depreciation on other items of property, plant and equipment is provided on assets at rates calculated to write off the cost, less their estimated residual value, over their expected useful lives on the following bases:

Leasehold improvements	Over the lifetime of the lease
Buildings	Over 40 years on a straight line basis
Lab and computer equipment	3 to 8 years on a straight line basis
Fixtures and fittings	4 to 10 years on a straight line basis

Right of use assets under IFRS 16 are depreciated over the shorter of the expected useful life of the asset and the lease period, see Leases policy for further details.

GOODWILL

Goodwill arising in a business combination is recognised as an asset at the date that control is acquired (the acquisition date). Goodwill is measured as the excess of the fair value of the sum of the consideration transferred, the amount of any non-controlling interest in the acquiree and the fair value of the acquirer's previously held equity interest (if any) in the entity over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed.

Goodwill is not amortised but is reviewed for impairment at least annually. For the purpose of impairment testing, goodwill is allocated to each of the Group's cash-generating units expected to benefit from the synergies of the combination. If the recoverable amount of the cash-generating unit is less than the carrying amount of the unit, the impairment loss is allocated to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit pro-rata on the basis of the carrying amount of each asset in the unit. An impairment loss recognised for goodwill is not reversed in a subsequent period.

INVESTMENTS

Investments in joint ventures

The Group's joint venture is Avvinity Therapeutics Limited over which the Group has a contractual arrangement to jointly share the control over the economic activity of the company with another party. The Group's interest in joint ventures is accounted for in the consolidated financial statements using the equity method of accounting. The interest in the joint venture is structured in a separate vehicle, with all activities performed within this legal entity, Avvinity Therapeutics Limited, in which the Group has subscribed shares. The assets and liabilities of operations belong to Avvinity and are separate from its owners. Accordingly, we have classified our interest in Avvinity as a joint venture. The Group's interest in joint ventures is accounted for in the consolidated financial statements using the equity method of accounting.

Investments in joint ventures are initially recognised at cost. The cost is measured at the cost of equity plus costs directly attributable to the investment. In applying the equity method of accounting, the Group's share of the joint venture's profits or losses are recognised in profit or loss, which is adjusted against the carrying value of the investment.

Services performed under R&D services agreements with equity method investees are recognised as revenue in these financial statements to the extent that they represent services which are consistent with other contracts for R&D services with non-equity method investees. They are not eliminated against the Group's share of profit or loss in these circumstances.

Investments in subsidiary companies

The Company's investment in subsidiary companies are accounted for at cost less provision for impairment. Impairment losses against investment in joint ventures or investment in subsidiary companies are recognised in corporate and administrative expenses.

The requirements of IAS 36 are applied to determine whether it is necessary to recognise any impairment loss with respect to the Group's investment in joint ventures. When necessary, the entire carrying amount of the investment is tested for impairment in accordance with IAS 36 as a single asset by comparing its recoverable amount (higher of value in use and fair value less costs of disposal) with its carrying amount. Any reversal of that impairment loss is recognised in accordance with IAS 36 to the extent that the recoverable amount of the investment subsequently increases. During 2019, the Group impaired its investment in Avvinity. See Note 17 for further details.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

1. ACCOUNTING POLICIES CONTINUED

INTANGIBLE ASSETS

Development costs include license payments and internal costs relating to new product development. The capitalisation of license payments is over the term of the license. The capitalization of the internal development costs occurs when they meet the internally generated intangible assets criteria under IAS 38. Development costs which meet the capitalization criteria are initially recorded as assets under construction and transferred to Development assets on completion of all development work and the product is available for sale.

Acquired customer relationships, trademarks and contracts reflect the value placed on obtaining customer relationships, trademarks or contracts already established by entities which are subsequently acquired by the Group.

Intangible assets are assessed for indicators of impairment on an annual basis, and an impairment review undertaken where such indicators are present. Amortisation is provided at the following rates, with the exception of intangible assets under construction, which are not amortised:

Patent costs	Over the term of the license on a straight line basis
Development costs	Over 10 years on a straight line basis
Acquired customer relationships	Over 5 to 15 years on a straight line basis
Acquired trademarks	Over 5 to 16 years on a straight line basis
Acquired contracts	Over the term of the contract
Acquired technology	Over 15 to 20 years on a straight line basis
Acquired brand	Over 3 years on a straight line basis
Acquired e-commerce platform	Over 3 years on a straight line basis
Software	Shorter of 3 to 10 years and the term of the license on a straight line basis
Other intangibles	Over 5 to 10 years on a straight line basis

Amortisation of intangibles is charged to the income statement on a basis which is consistent with the usage of the asset by the group as follows:

Patent costs	Cost of sales or research, development and operations costs
Development costs	Research, development and operations costs
Acquired intangibles	Research, development and operations costs
Software	Corporate and administrative costs

IMPAIRMENT OF TANGIBLE AND INTANGIBLE ASSETS EXCLUDING GOODWILL

At each balance sheet date, the Group reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated to determine the extent of the impairment loss (if any). Where the asset does not generate cash flows that are independent from other assets, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs.

Recoverable amount is the higher of fair value less costs of disposal and value in use.

FINANCIAL ASSETS

Financial assets are recognised on the Group's balance sheet when the Group becomes a party to the contractual provisions of the instrument. The Group's financial assets comprise cash and cash equivalents, receivables which involve a contractual right to receive cash from external parties, and investments classified as available for sale.

The classification depends on the purpose for which the financial assets were acquired. Management determines the classification of its financial assets at initial recognition and re-evaluates this designation at every reporting date.

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for maturities greater than 12 months after the balance sheet date. These are classified as non -current assets. Loans and receivables comprise of "trade and other receivables" and "cash and cash equivalents" in the balance sheet. These assets are measured at cost less allowances for estimated irrecoverable amounts to align their cost to fair value. The provision is based on the Group's expected credit loss.

The measurement of expected credit losses is a function of the probability of default, loss given default (i.e. the magnitude of the loss if there is a default) and the exposure at default. The assessment of the probability of default and loss given default is based on historical data adjusted by forward-looking information.

FINANCIAL LIABILITIES

The company classifies its financial liabilities in the following categories:

- at fair value through profit or loss
- other financial liabilities

Financial liabilities are classified according to the substance of the contractual arrangements entered into.

EQUITY INSTRUMENTS

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Group are recorded at the proceeds received, net of direct issue costs.

FOREIGN CURRENCIES

The functional currency of the company is U.K. sterling. Transactions in foreign currencies are initially recorded at the rates of exchange prevailing on the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated into the Company's functional currency at the rates prevailing on the balance sheet date. Non-monetary items measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences arising on the settlement of monetary items and on the retranslation of monetary items, are included in the income statement for the period. Exchange differences arising on the retranslation of non-monetary items carried at fair value are included in the income statement for the period.

For the purpose of presenting consolidated financial statements, the assets and liabilities of the Group's foreign operations are translated at exchange rates prevailing on the balance sheet date. Income and expense items are translated at the average exchange rates for the period, unless exchange rates fluctuate significantly during that period, in which case the exchange rates at the date of transactions are used. Exchange differences arising, if any, are recognised in other comprehensive income and accumulated in the currency reserve.

For the purpose of presenting consolidated financial statements, exchange differences on monetary items receivable from or payable to a foreign operation for which settlement is neither planned nor likely to occur in the foreseeable future (therefore forming part of the net investment in the foreign operation), which are recognised initially in other comprehensive income and reclassified from equity to profit or loss on disposal or partial disposal of the net investment. In the company financial statements, these exchange gains or losses are presented in the income statement.

INVENTORIES

Inventories are stated at the lower of cost and net realisable value. Cost represents the cost of consumables, production overheads and staff costs that are directly apportionable to the production of inventories. Cost is calculated using the weighted average method. Net realisable value represents the estimated selling price less all estimated costs of disposal.

CASH AND CASH EQUIVALENTS

Cash and cash equivalents comprise cash on hand and demand deposits and other short term highly liquid investments that are readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

1. ACCOUNTING POLICIES CONTINUED

REVENUE RECOGNITION

The Group has applied IFRS 15, specifically the five-step approach, to revenue recognition:

1. Identify the contract(s) with a customer.
2. Identify the performance obligations in the contract.
3. Determine the transaction price.
4. Allocate the transaction price to the performance obligations in the contract.
5. Recognize revenue when (or as) each performance obligation is satisfied.

Details of the revenues and the revenue recognition policy for each material revenue stream are provided below.

Screening business unit
The Screening business unit generates revenues through the provision of CRISPR and high throughput compound screening services and the sale of goods.

Research Reagents business unit
The Research Reagents business unit generates revenues through the provision of bespoke cell engineering services and the sale of goods.

Diagnostics business unit
The Diagnostics business unit generates revenues through the sale of goods, being cell line-derived reference standards.

The Group's application of IFRS 15 to the revenues generated from the sale of services and goods within the above three business units is detailed below:

Revenue in respect of the sale of services
Typically, the Group's contracts for CRISPR, high throughput compound screening and bespoke cell engineering services are fixed price and revenues are recognized by reference to the satisfaction of each performance obligation within the contract. The transaction price, representing the fair value of consideration receivable net of discounts and any estimates for credit notes and returns, is allocated to each performance obligation in an amount that depicts the amount of consideration to which the Group expects to be entitled in exchange for transferring the services to the customer. These amounts are generally established by the customer contract and are based on the relative stand-alone selling prices. Performance obligations are satisfied over time as services are rendered. Revenue recognized over time is based on the proportion of the level of service performed. Either an input method or an output method, depending on the particular arrangement, is used to measure progress for each performance obligation. Revenue is typically recognised on the basis of time spent on delivering the services as there is normally a direct relationship between time spent and the proportion of the performance obligation performed to date and this method therefore provides a faithful depiction of the transfer of services to the customer. Where invoices are issued that exceed the value of work undertaken, deferred income is recognized. Where work performed exceeds the value of work billed, accrued income is recognised.

Revenue in respect of the sale of goods
The Group recognises revenue in respect of the sales of goods, including libraries, cell models, reagents and cell lines, when a purchase order exists and at the point, under the terms of the contract, at which control of the good passes to the customer and the performance obligation is satisfied. The revenue is measured at the fair value of the consideration receivable net of discounts and any estimates for credit notes and returns. Deferred income is recognized where invoices are issued before the despatch of the goods.

BioProduction business unit
The Group recognizes revenue in respect of BioProduction license fee income when the agreement is signed, is non-cancellable and the performance obligation of transferring to the customer the license to use the Group's intellectual property has been satisfied.

Investment income
Investment income comprises interest receivable. Interest income is accrued on a time basis, by reference to principal outstanding and the effective interest rate applicable.

GOVERNMENT GRANTS

The Group applies for grants where the Group's research projects align with the requirements of grants available.

Government grants are recognised in profit or loss on a systematic basis over the periods in which the Group recognises as expenses the related costs for which the grants are intended to compensate.

£218k (2018: £381k) has been recognised in other operating income (note 7) and £18k (2018: £192k) is included in other receivables as at 31 December 2019.

TAXATION

Current tax

Current tax payable is based on taxable profit for the year using tax rates that have been enacted or substantively enacted by the balance sheet date. Taxable profit differs from net profit as reported in the income statement because it excludes certain items of income or expense that are taxable or deductible in other years and further excludes items that are never taxable or deductible.

The benefit of U.K. research and development ("R&D") is recognised under both the U.K.'s SME R&D scheme (for small and medium sized enterprises) and under the U.K.'s R&D Expenditure Credit (RDEC) scheme.

Where R&D is internally funded it is a claimed under the SME R&D scheme which provides additional book-to-tax permanent debits (over and above the underlying R&D expenses incurred).

Where R&D is subsidised, it is claimed under the RDEC scheme, whereby a benefit is recorded as income included in profit before tax, netted against R&D expenses, as the RDEC is of the nature of a government grant.

Deferred tax

Deferred tax is the tax expected to be payable or recoverable on differences between the carrying amount of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit and is accounted for using the balance sheet liability method.

Deferred tax liabilities are generally recognised for all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that taxable profits will be available against which deductible temporary differences can be utilised. Such assets and liabilities are not recognised if the temporary difference arises from the initial recognition of goodwill or from the initial recognition of other assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit.

Deferred tax liabilities are recognised for taxable temporary differences arising on investments in subsidiaries except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. The Group's liability for deferred tax is calculated using tax rates that have been enacted or substantively enacted by the balance sheet date that are expected to apply in the period when the liability is settled or the asset is realised. Deferred tax is charged or credited in the income statement, except where it relates to items charged or credited directly to other comprehensive income or reserves, in which case the deferred tax is also dealt with in other comprehensive income or reserves respectively.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities, they relate to income taxes levied by the same taxation authority and the Group intends to settle on a net basis.

RESEARCH AND DEVELOPMENT

Research expenditure is written off to the income statement in the year in which it is incurred.

Development expenditure is written off in the same way unless the directors are satisfied that the following criteria have been met:

- the technical feasibility of completing the asset and use or sell it;
- the intention to complete the asset and use or sell it;
- the ability to use or sell the asset;
- how the asset will generate probable future economic benefits;
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the asset; and
- the ability to measure reliably the expenditure attributable to the asset during its development.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

1. ACCOUNTING POLICIES CONTINUED

Capitalised development expenditure is reviewed annually and where future benefits are deemed to have ceased or to be in doubt, the balance of any related development is written off to the income statement.

Full provision is made for Research and Development tax credit calculated at the tax rates effective for the current year. It is included as an income tax credit under current assets.

PENSIONS

The Group contributes to a number of defined contribution pension plans in respect of its employees. The contributions are charged as expenses as they fall due. Any contributions unpaid at the balance sheet date are included as accruals at that date. The Group has no further obligations once the contributions have been paid.

LEASES

For any new contracts entered into on or after 1 January 2019, the Group considers whether a contract is, or contains a lease. A lease is defined as 'a contract, or part of a contract, that conveys the right to use an asset (the underlying asset) for a period of time in exchange for consideration'.

To apply this definition the Group assesses whether the contract meets three key evaluations which are whether:

- the contract contains an identified asset, which is either explicitly identified in the contract or implicitly specified by being identified at the time the asset is made available to the Group;
- the Group has the right to obtain substantially all of the economic benefits from use of the identified asset throughout the period of use, considering its rights within the defined scope of the contract;
- the Group has the right to direct the use of the identified asset throughout the period of use. The Group assess whether it has the right to direct 'how and for what purpose' the asset is used throughout the period of use.

a) Measurement and recognition of leases as a lessee

At lease commencement date, the Group recognises a right-of-use asset and a lease liability on the balance sheet. The right-of-use asset is measured at cost, which is made up of the initial measurement of the lease liability, any initial direct costs incurred by the Group, an estimate of any costs to dismantle and remove the asset at the end of the lease, and any lease payments made in advance of the lease commencement date (net of any incentives received).

The Group depreciates the right-of-use assets on a straight-line basis from the lease commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. The Group also assesses the right-of-use asset for impairment when such indicators exist.

At the commencement date, the Group measures the lease liability at the present value of the lease payments unpaid at that date, discounted using the interest rate implicit in the lease if that rate is readily available or, if not, the Group's incremental borrowing rate.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payment that are based on an index or a rate;
- amounts expected to be payable by the lessee under residual value guarantees;
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

Subsequent to initial measurement, the liability will be reduced for payments made and increased for interest. It is remeasured to reflect any reassessment or modification, or if there are changes in in-substance fixed payments.

When the lease liability is remeasured, the corresponding adjustment is reflected in the right-of-use asset, or profit and loss if the right-of-use asset is already reduced to zero.

The Group has elected to account for short-term leases and leases of low-value assets using the practical expedients available under IFRS 16. Instead of recognising a right-of-use asset and lease liability, the payments in relation to these are recognised as an expense in profit or loss on a straight-line basis over the lease term. The expense relating to leases falling within this exemption in the year ended 31 December 2019 was £12k

b) Measurement and recognition of leases as a lessor

Lease payments received under operating leases are recognised as income on a straight-line basis over the lease term as part of 'other income'.

SHARE BASED PAYMENTS

The company operates an equity settled share based option scheme under which the Group entities receive services from employees in consideration for equity instruments (options) of the company. The fair value of the employees' services received in exchange for the grant of options is recognised as an expense. The total amount to be expensed is determined by reference to the fair value of the options granted, excluding the impact of any non-market service and performance vesting conditions. The total amount expensed is recognised over the vesting period, which is the period over which all the specified conditions are satisfied. At each balance sheet date, the entity revises its estimates of the number of options that are expected to vest based on the vesting conditions. The fair value of equity instruments granted to employees of subsidiary companies is treated as a capital contribution by the Company.

2. CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS

In the application of the Group's accounting policies, which are described in note 1, the directors are required to make judgements, estimates and assumptions about the carrying values of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

KEY SOURCES OF ESTIMATION UNCERTAINTY

The following are the critical estimates that the directors have made in the process of applying the Group's accounting policies and that have the most significant effect on the amounts recognised in the financial statements.

Deferred tax assets

Deferred tax assets are recognised to the extent that it is probable that taxable profit will be available against which the asset can be utilised. This requires an estimate to be made in respect of the availability of future taxable income.

Following a restructure of the Group in 2018, a tax Group has formed between subsidiary companies in the United States which allows utilisation of accumulated tax losses in Sage Labs Inc to offset taxable income in Dharmacon Inc. Management's best estimate of the level of tax losses accumulated which are able to be offset within the Group is $22.1 million (2018: $17.3 million). The key sensitivities in the calculation include the expected tax rate tax losses are expected to be reversed and forecasts of future taxable profits within the Group. See note 26 for details of taxable losses which have not been considered appropriate to recognise a deferred tax asset as it is not probable that future taxable profits will be generated to carry forwards.

Forecasts and discount rates

Determining whether goodwill is impaired requires an estimation of the value in use of the cash-generating units to which goodwill has been allocated. The value in use calculation requires the entity to estimate the future cash flows expected to arise from the cash-generating unit and a suitable discount rate in order to calculate present value. The model used by management in performing this assessment contains estimates in regard to the inputs into the discount rates and the inherent assumptions in forecasting which includes estimates of the growth in future sales, projected production costs and operating expenditure. Discount rates are based on management's assessment of risk inherent in the current business model. Management considers the assumptions and estimates used to be supportable and reasonable but because of the inherent uncertainty in the valuation process it is reasonably possible that actual outcomes may differ from each of the areas in which estimates and assumptions are required. Reasonably possible changes in assumptions which could cause an impairment are disclosed in note 13.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

2. CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS CONTINUED

We perform our assessment of impairment annually or more frequently if impairment indicators are identified.

Incremental Borrowing rates on lease liabilities

The reference rate has been derived from government bonds of the country with the leased asset with a term corresponding to the weighted average lease length and currency. No country risk premium was required for any of the leases as the country of the leased asset matched the country in whose currency the lease was denominated in, so there is no foreign currency risk. The entity credit risk premium was determined by reference to each entity within the Group holding finance leases financial performance to 1 January 2019 (the date of transition to IFRS 16) compared to similar companies with external credit ratings. Using these credit ratings, the credit risk premium for each lease and entity has been estimated using corporate bond curves for companies in the Healthcare sector with a matching credit rating and term.
For property leases, asset risk adjustments were made based on operational risk of each asset, which includes whether security has been provided for the lease by the Group. The only asset which required an asset specific adjustment was the U.K. property, as it had a remaining term of more than ten years on transition to IFRS 16.

Assessment of lease terms for leases falling under IFRS 16

In determining the lease term, management considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated). The assessment is reviewed if a significant event or a significant change in circumstances occurs which affects this assessment and that is within the control of the lessee.

Potential future cash outflows of $5,108,000 have not been included in the lease liability because it is not reasonably certain that the leases will be extended.

CRITICAL ACCOUNTING JUDGEMENTS

In the opinion of the directors, There are no critical accounting judgements

The critical accounting estimates and judgements reported in the prior year annual report that are omitted from this note are no longer relevant to the Group. Risks relating to revenue recognition are no longer deemed a critical estimate due to the change in the nature of typical contractual agreements. The valuation of acquisition-related assets and liabilities is no longer considered a critical accounting judgement as no acquisitions were made during the period. Valuation of other intangible assets is no longer considered a critical accounting judgement as judgements in applying the accounting policy is not considered to have a material impact on the financial statements. Capitalisation of intangible assets is no longer a critical accounting judgement as a result of the established nature of the development process.

3. PRIOR YEAR RESTATEMENT AND RECLASSIFICATIONS

a) Discontinued operations

The 2018 consolidated income statement has been restated to include the impact of operations classified as discontinued in 2019 (see Note 11).

b) Deferred tax

In 2019, the Group became aware of an additional deferred tax asset arising in 2018 as a result of the reorganisation of the U.S. group. This has led to a prior year adjustment to the taxation credit on continuing operations and the taxation credit relating to discontinued operations for the year ended 31 December 2018, and the deferred tax balance for the group as at 31 December 2018.

This has been corrected by restating each of the affected financial statement line items in the prior period as follows:

	2018 £'000	Adjustment £'000	2018 Restated £'000
CONSOLIDATED INCOME STATEMENT[1]			
Loss for the year attributable to owners of the company	(35,821)	682	(35,139)
CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME			
Total comprehensive loss for the year attributable to owners of the company	(28,571)	682	(27,889)
CONSOLIDATED BALANCE SHEET			
Deferred tax liability	(5,955)	682	(5,273)
Total liabilities	(20,559)	682	(19,877)
Net Assets	143,313	682	143,995
Accumulated deficit	(80,696)	682	(80,014)

1 The £682k adjustment to taxation comprises of £125k related to continuing operations, which is presented as the taxation financial statement line item in the consolidated income statement, and £557k related to discontinued operations, which is presented in Note 11. As taxation for the year ended 31 December 2018 was not presented separately on continuing and discontinued operations prior to the restatement described in Note 3a, it has not been presented in the table above.

As this was an issue arising in 2018, there is no impact on the opening accumulated deficit on 1 January 2018.

Basic and diluted loss per share for the prior year has also been restated. The amount of the correction for both basic and diluted loss per share was an increase of 0.4p per share for continuing and discontinued operations, 0.3p per share for continuing operations and 0.1p for discontinued operations.

The correction further affected some of the amounts disclosed in notes 5, 10, 11, 12, 26 and 27.

c) Currency reserve

The 2018 consolidated balance sheet and statement of changes in equity have been restated to correct an error in the classification of exchange differences on the translation of foreign operations from accumulated deficit into the currency reserve. The impact of the restatement at 1 January 2018 was to instate a currency reserve of £3,966k and increase accumulated deficit from (£40,909k) to (£44,875k). The impact of the restatement at 31 December 2018 was to reclassify £7,250k from accumulated deficit to currency reserve.

4. REVENUE

An analysis of the Group's revenue is as follows:

	2019 £'000	2018 £'000
Screening	11,409	8,931
Research Reagents	33,464	30,871
Diagnostics	4,815	5,614
BioProduction	8,565	8,717
	58,253	54,133
Other operating income (note 7)	2,085	2,171
Investment income	58	90
Total from continuing operations	60,396	56,394
Total revenue from discontinued operations (Note 11)	4,607	4,600

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

4. REVENUE CONTINUED

	2019 £'000	2018 £'000
Timing of revenue recognition from continuing operations		
– At a point in time	43,574	42,589
– Over time	14,679	11,544
	58,253	54,133

	2019 £'000	2018 £'000
Revenue derived from		
Products	45,040	45,182
Services	13,213	7,371
Leveraged	–	1,580
	58,253	54,133

The transaction price allocated to (partially) unsatisfied performance obligations at 31 December 2019 is £13,493k (2018: £5,232k) which are expected to be fully satisfied by April 2021 for all performance obligations.

INFORMATION ABOUT MAJOR CUSTOMERS

In 2019 and 2018, the top five customers of the Group collectively contributed less than 10% of the Group's revenue, with no individual customer contributing more than 3%.

5. OPERATING SEGMENTS

The Directors consider that the Group's business units are separately identifiable business segments for the purpose of revenue generation. Prior to 2019, the operating segments reported by the Group were Products, Services and Leveraged R&D. The operating segments have been changed to Screening, Research Reagents, Diagnostics, BioProduction and In Vivo in 2019 to better represent how the business analyses and reports performance. 2018 amounts have been restated under the new segment headings.

The information reported to the Chief Executive Officer, who is considered the chief operating decision maker ("CODM"), for the purpose of resource allocation and assessment of segment performance is focussed on the revenues and gross margins in respect of the Group's business units; Screening, Research Reagents, Diagnostics, BioProduction and In Vivo. The In Vivo business was sold during the 2019 year and results for the current and previous year are reported within discontinued operations in Note 11. The Group's reportable segments under IFRS 8 are therefore as follows:

Screening – Revenues arise from the sales of CRISPR and high throughput compound screening and CRISPR and RNAi libraries.

Research Reagents – Revenues arise from the sales of off-the-shelf cell models, bespoke cell engineering services and custom-made and off-the-shelf gene modification and gene editing reagents.

Diagnostics – Revenues arise from the sales of molecular reference standards derived from gene-edited cell lines.

BioProduction – Revenues arise from the sales of engineered cell lines under a license.

Base Editing – In 2020 we created a new business unit which will be an operating segment reportable in our 2020 financial results

Operating segments have not been aggregated to form these reporting segments. Assets and liabilities are not reported or provided to the CODM by business unit. There are no transactions between reportable segments.

The following is an analysis of the Group's revenue and results by reportable segment in 2019 from continuing operations:

	Screening £'000	Research Reagents £'000	Diagnostics £'000	Bio-Production £'000	Consolidated £'000
REVENUE	11,409	33,464	4,815	8,565	58,253
Cost of sales	(3,536)	(11,703)	(1,091)	(1,168)	(17,498)
Gross profit	7,873	21,761	3,724	7,397	40,755
Other operating income					2,085
Sales, marketing and distribution costs					(14,312)
Research, development and operations costs					(14,204)
Corporate and administrative expenses					(24,387)
Share of results of joint venture					(641)
Operating loss					(10,704)
Investment income					58
Finance costs					(866)
Loss before tax					(11,512)
Taxation					2,285
Loss for the year					(9,227)

The following is an analysis of the Group's revenue and results by reportable segment in 2018 from continuing operations:

	Screening £'000	Research Reagents £'000	Diagnostics £'000	Bio-Production £'000	Restated Consolidated £'000
REVENUE	8,931	30,871	5,614	8,717	54,133
Cost of sales	(2,529)	(11,203)	(1,206)	(1,475)	(16,413)
Gross profit	6,402	19,668	4,408	7,242	37,720
Other operating income					2,171
Sales, marketing and distribution costs					(12,489)
Research, development and operations costs					(13,420)
Corporate and administrative expenses					(20,384)
Share of results of joint venture					(299)
Operating loss					(6,701)
Investment income					90
Finance costs					(7)
Loss before tax					(6,618)
Taxation					2,938
Loss for the year					(3,680)

The accounting policies of the reportable segments are the same as the Group's accounting policies described in note 1. Segment performance is monitored at a gross margin level and operational costs are not allocated between operating segments.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

5. OPERATING SEGMENTS CONTINUED

Revenues are attributed to regions based on customers' location. The Group's revenue from external customers and information about its non-current segment assets (excluding deferred tax and non-current assets relating to discontinued operations) is set out below:

	Revenue from external customers		Non-current assets	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
United States of Americas	29,840	28,476	81,545	82,855
Other Americas	784	949	–	–
United Kingdom	5,520	7,012	22,467	20,566
Europe, Middle East and Africa	12,261	10,860	8,242	9,046
Asia Pacific	9,848	6,836	7	–
	58,253	54,133	112,261	112,467

6. LOSS FOR THE YEAR

	2019 £'000	2018 £'000
LOSS FOR THE YEAR ON CONTINUING OPERATIONS IS STATED AFTER CHARGING/(CREDITING):		
Amortisation of other intangible assets	4,895	5,348
Depreciation of property, plant and equipment	2,673	2,352
Amortisation of right of use assets	2,040	–
Loss on disposal of property, plant and equipment	73	–
Impairment of investment in joint venture	3,019	–
Research and development costs	938	2,061
Staff costs (Note 9)	33,476	29,680
Staff costs – share based payments	601	516
Cost of inventories recognised as an expense	9,641	13,087
Net foreign exchange losses/(gains)	384	(265)

The auditor's remuneration included within corporate and administrative expenses is as follows:

	2019 £'000	2018 £'000
Fees payable to the company's auditor and their associates for the audit of the company's annual accounts	557	210
TOTAL AUDIT FEES	557	210
– Audit-related assurance services	202	25
– Taxation compliance services	–	13
– Other taxation advisory services	–	25
– Other non-audit fees	119	–
TOTAL NON-AUDIT FEES	321	63

Other items of expenditure which the group consider to be material due to their size, nature or the expected infrequency of the events giving rise to them and are therefore disclosed separately. Management believes this presentation helps shareholders understand the elements of financial performance in the year, so as to facilitate comparison with prior years and to better assess trends in future financial performance. These items are as follows:

	2019 £'000	2018 £'000
Non recurring legal and advisory fees	–	585
Costs associated with NASDAQ listing	1,682	–
Executive management exit costs	281	476

7. OTHER OPERATING INCOME

	2019 £'000	2018 £'000
Grant income	218	381
R&D expenditure credit	519	505
Sublease income	1,291	1,233
Insurance	57	52
	2,085	2,171

8. REMUNERATION OF KEY MANAGEMENT PERSONNEL

The remuneration of the executive directors and executive leadership team, who are the key management personnel of the Group, is set out below in aggregate for each of the categories specified in IAS 24.

	2019 £'000	2018 £'000
KEY MANAGEMENT (INCLUDING DIRECTORS)		
Aggregate emoluments	2,274	2,594
Pension contributions	133	107
Share-based payment benefit	256	154
	2,663	2,855

	2019 £'000	2018 £'000
HIGHEST PAID DIRECTOR		
Aggregate emoluments	643	484
Pension contributions	45	29
	688	513

9. STAFF COSTS

The average monthly number of employees (including executive directors) of the Group from continuing and discontinued operations was:

	2019 Number	2018 Number
Research, development and operations	204	197
Sales and marketing	102	93
Administration	126	98
	432	388

	£'000	£'000
THEIR AGGREGATE REMUNERATION COMPRISED:		
Wages and salaries	28,970	25,510
Severance payments	37	381
Social security costs	2,460	2,105
Staff pension costs	2,009	1,684
	33,476	29,680

For continuing operations, research, development and operations employees averaged 169 (2018: 155), sales and marketing employees averaged 99 (2018: 89) and administration employees averaged 124 (2018: 95).

For continuing operations, wages and salaries were £26,218k (2018: £22,975k), severance payments were £37k (2018: £381k), social security costs were £2,308k (2018: £1,927k) and pension costs were £1,918k (2018: £1,601k).

The Company had no employees and staff costs of £nil in 2019 and 2018.

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Notes to the financial statements continued

10. TAXATION

	2019 Continuing £'000	2019 Discontinued £'000	Restated 2018 Continuing £'000	Restated 2018 Discontinued £'000
CORPORATION TAX				
Current year on ordinary activities	(691)	–	(514)	–
Adjustment in respect of prior years	(517)	–	(615)	–
DEFERRED TAX (NOTE 26)	(1,077)	(653)	(1,809)	(2,577)
	(2,285)	(653)	(2,938)	(2,577)

The prior year adjustment of £517k (2018: £615k) relates to increases on the U.K. Research & Development tax credit claims.

The standard rate of tax for the year, based on the U.K. rate of corporation tax, is 19% (2018: 19%).

Taxation for other jurisdictions is calculated at the rates prevailing in the respective jurisdictions.

The credit for the year can be reconciled to the loss per the income statement as follows:

	2019 £'000	Restated 2018 £'000
Loss before tax	(11,512)	(6,618)
Tax at the U.K. corporation tax rate of 19% (2018: 19%)	(2,187)	(1,257)
FACTORS AFFECTING THE CREDIT:		
Tax effect of expenses not deductible in determining taxable profit	1,301	88
Tax effect of R&D tax uplift	(875)	(661)
Tax effect of losses surrendered for R&D tax credit	363	252
Change in unrecognised deferred tax assets	54	(618)
Effect of overseas tax rates	(77)	(144)
Effect of change in deferred tax rate	(181)	–
Deferred tax not recognised on R&D expenditure credit	(39)	48
Adjustment in respect of prior years – current tax	(517)	(615)
Adjustment in respect of prior years – deferred tax	(127)	(31)
TAX BENEFIT FOR THE YEAR	(2,285)	(2,938)

As announced in the Finance (No 2) Act 2017, which was substantially enacted on 6 September 2017, the rate of U.K. corporation tax will change from 19% to 17% on 1 April 2020. As deferred tax assets and liabilities are measured at the rates that are expected to apply in the periods of the reversal, deferred tax balances at 31 December 2019 have been calculated at the rate at which the relevant balance is expected to be recovered or settled.

Following the March 2020 budget it was announced that the U.K. corporate tax rates will now no longer reduce to 17%. However, as this reversal has not been substantively enacted at the balance sheet date this effect has not been included in these financial statements. In any case there would be no overall effect of the reversal to 19% to the deferred tax balance at the balance sheet date on the basis that all U.K. balances are not currently recognized for deferred tax due to uncertainty about future utilisation.

The Tax Cuts and Jobs Act, which was signed into law on 22 December 2017, reduced the U.S. corporate income tax rate from 35% to 21%. The closing U.S. deferred tax balance at 31 December 2019 has been calculated at 24% reflecting the tax rate at which the U.S. deferred tax balance is expected to be reversed in future periods.

The disposal of the In Vivo CGU was completed via a trade and asset sale. Horizon Discovery Group PLC still owns the legal entity Sage Laboratories Inc and therefore retains the tax losses. See Discontinued Operations (Note 11) for additional information on the sale.

The asset disposal in December 2019 in the U.S. has not created any unexpected changes in the tax charge.

11. DISCONTINUED OPERATIONS

11(A) DESCRIPTION

On 7 November 2019, the Group entered into a sale agreement to dispose of the trade and assets of Sage Labs Inc, which carried out the Group's In Vivo operating segment activity. The disposal was effective from 2 December 2019 and is reported in the current period as a discontinued operation. Financial information relating to the discontinued operation for the period to the date of the disposal is set out below.

11(B) FINANCIAL PERFORMANCE AND CASH FLOW INFORMATION

The financial performance of the discontinued operation for the 11 months ended 2 December 2019 (2019 column) and the year ended 31 December 2018 which have been included in loss for the year attributable to owners of the company and total comprehensive loss for the year attributable to owners of the company were as follows:

	Note	**2019 £'000**	Restated 2018 £'000
REVENUE	4	4,607	4,600
Cost of sales		(2,747)	(2,792)
GROSS PROFIT		1,860	1,808
Other operating income		(6)	33
Sales, marketing and distribution costs		(712)	(514)
Research, development and operations costs		(1,734)	(1,821)
Corporate and administrative expenses		(2,553)	(33,538)
OPERATING LOSS		(3,145)	(34,032)
Finance costs		(67)	(4)
LOSS BEFORE TAX		(3,212)	(34,036)
Taxation	10	571	2,577
LOSS FOR THE YEAR FROM DISCONTINUED OPERATIONS BEFORE DISPOSALS		(2,641)	(31,459)
Profit on disposal of discontinued operations	11(C)	7,263	–
PROFIT/(LOSS) FOR THE YEAR FROM DISCONTINUED OPERATIONS NET OF TAX		4,622	(31,459)
Exchange differences on translation of discontinued operations		668	1,762
Foreign exchange gains recycled to the income statement		(8,386)	–
TOTAL COMPREHENSIVE LOSS FOR THE YEAR ON DISCONTINUED OPERATIONS		(3,096)	(29,697)

The calculation of basic and diluted earnings/(loss) per share from discontinuing operations is based on the following data:

EARNINGS/(LOSS) PER SHARE ON DISCONTINUED OPERATIONS

	2019 £'000	Restated 2018 £'000
Profit/(loss) from discontinued operations for the purposes of basic and diluted earnings/(loss) per share being net profit/(loss) attributable to owners of the Company	4,622	(31,459)
NUMBER OF SHARES		
Weighted average number of ordinary shares for the purposes of basic and diluted loss per share	150,470,207	149,597,584
EARNING/(LOSS) PER SHARE		
Earnings/(loss) per share from discontinued operations, Basic and Diluted	3.0p	(21.0p)

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Notes to the financial statements continued

11. DISCONTINUED OPERATIONS CONTINUED

The following items of expenditure which the group consider to be material due to their size, nature or the expected infrequency of the events giving rise to them and are therefore separately disclosed relate to activities in discontinued operations:

	2019 £'000	2018 £'000
Impairment of intangible assets (note 14)	–	4,775
Impairment of goodwill (note 13)	–	25,892
Impairment of property, plant and equipment (note 15)	–	1,457

The contribution of the Group's statement of cash flows in respect of discontinued operations was as follows:

	2019 £'000	2018 £'000
Net cash outflow from operating activities	(3,320)	(833)
Net cash outflow from investing activities (2019 includes an inflow of £1 from sale of the CGU)	(358)	(242)
Net cash outflow from financing activity	(89)	–
Effect of changes in exchange rate	–	(9)
NET CASH OUTFLOW FROM DISCONTINUED OPERATIONS	(3,767)	(1,084)

11(C) DETAILS OF THE SALE OF BUSINESS UNIT

The profit on the disposal of the discontinued operations at the date of disposal on 2 December 2019 was as follows:

	2019 £'000
Property, plant and equipment	1,316
Inventories	354
Trade and other receivables	345
Trade and other payables	(352)
Lease liabilities	(745)
NET ASSETS	918
CONSIDERATION RECEIVED OR RECEIVABLE	
Cash[1]	–
TOTAL DISPOSAL CONSIDERATION	–
Legal fees attributable to disposal	(287)
LOSS ON SALE BEFORE INCOME TAX AND RECLASSIFICATION OF FOREIGN CURRENCY RESERVE	(1,205)
Tax credit on disposal	82
Reclassification of foreign currency reserve	8,386
PROFIT ON DISPOSAL AFTER INCOME TAX	7,263

1 The nominal consideration of £1 for the trade and assets of Sage Labs, Inc was satisfied in cash.

There were no disposals during the year ended 31 December 2018.

12. LOSS PER SHARE

FROM CONTINUING AND DISCONTINUED OPERATIONS

The calculation of the basic and diluted earnings per share is based on the following data:

	2019 £'000	Restated 2018 £'000
Loss for the purposes of basic and diluted loss per share being net loss attributable to owners of the Company	(4,605)	(35,139)

	2019	2018
NUMBER OF SHARES		
Weighted average number of ordinary shares for the purposes of basic and diluted loss per share	150,470,207	149,597,584
LOSS PER SHARE	(3.1p)	(23.5p)

FROM CONTINUING OPERATIONS

The calculation of the basic and diluted earnings per share is based on the following data:

	2019 £'000	Restated 2018 £'000
Loss for the purposes of basic and diluted loss per share being net loss attributable to owners of the Company	(9,227)	(3,680)

	2019	2018
NUMBER OF SHARES		
Weighted average number of ordinary shares for the purposes of basic and diluted loss per share	150,470,207	149,597,584
LOSS PER SHARE	(6.1p)	(2.5p)

Basic EPS is calculated by dividing the earnings attributable to ordinary owners of the parent by the weighted average number of shares outstanding during the period.

Diluted EPS is calculated on the same basis as basic EPS but with a further adjustment to the weighted average shares in issue to reflect the effect of all potentially dilutive share options. The number of potentially dilutive share options is derived from the number of share options and awards granted to employees where the exercise price is less than the average market price of the Company's ordinary shares during the period.

IAS 33 – Earnings per Share, requires presentation of diluted earnings per share where a company could be called upon to issue shares that would decrease net profit or increase net loss per share. No adjustment has been made to the basic loss per share as at 31 December 2019 or 31 December 2018, as the exercise of share options would have the effect of reducing the loss per ordinary share, and therefore is not dilutive.

13. GOODWILL

Group	Total £'000
COST	
At 1 January 2018	73,831
Effects of movements in foreign exchange	3,811
AT 31 DECEMBER 2018	77,642
Effects of movements in foreign exchange	(2,474)
Disposals	(25,058)
AT 31 DECEMBER 2019	50,110
ACCUMULATED IMPAIRMENT LOSSES	
AT 1 JANUARY 2018	–
Impairment losses for the year	(25,892)
AT 31 DECEMBER 2018	(25,892)
Effects of movements in foreign exchange	834
Disposals	(25,058)
AT 31 DECEMBER 2019	–
NET BOOK VALUE	
AT 31 DECEMBER 2019	50,110
At 31 December 2018	51,750

Goodwill arising from business combinations has been allocated to the following cash generating units, which represent business lines within the Group. For each cash generating unit, the carrying amount of goodwill has been assessed for impairment by comparing the carrying amount to the recoverable amount based on value in use. The value in use calculation for each cash generating unit uses estimated future cash flows, for which the key assumptions are the revenue growth rates over the next five years, which are based on management's estimates of the growth in future sales; the terminal growth rate for revenues beyond that period, which reflects a higher expected growth in the personalized medicine market than the expected average growth rate or the economy; and the pre-tax discount rate, which is based on management's assessment of risk inherent in the current business model.

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Notes to the financial statements continued

13. GOODWILL CONTINUED

Combination screening services – As of 31 December 2019, the value in use of this cash generating unit was greater than the goodwill carrying amount of £2,165k (2018: £2,165k). The key assumptions used were the revenue growth rates, the terminal growth rate of 5% (2018: 5%), and the pre-tax discount rate of 12.9% (2018: 11.6%). There are no reasonably possible changes in key assumptions that would give rise to a material impairment loss. This cash generating unit sits within the Screening operating segment as disclosed in these notes.

Genomic Products – As of 31 December 2019, the value in use of this cash generating unit was greater than the goodwill carrying amount of £6,903k (2018: £7,177k). The key assumptions used were the revenue growth rates at an average CAGR of 27.9% over the next five years, the terminal growth rate of 5% (2018: 5%), and the pre-tax discount rate of 13.4% (2018: 11.7%). This cash generating unit sits within the Research Reagents operating segment as disclosed in these notes.

The achievement of the revenue growth is dependent on successful execution of a plan to fill the increased operational capacity gained in 2019, implementation of a customer segment matched pricing strategy and streamlining commercial services contracts. If this plan is not executed successfully, market share will not be increased. It is reasonably possible that changes to the revenue growth rates within the next financial year could materially affect the outcome of the impairment assessment for the Genomic Products cash generating unit.

Reducing the revenue growth rates to an average CAGR of 14%, which is the overall expected growth rate of the gene editing market, and incorporating consequential effects of that change on the other variables used to measure the recoverable amount, including the terminal growth rate, would result in a recoverable amount for the cash generating unit equal to its carrying amount. The table below summarizes the revenue growth in the base model and the headroom if the CAGR decreased to the amount indicated.

	2020 Revenue £m	2021 Revenue £m	2022 Revenue £m	2023 Revenue £m	2024 Revenue £m	Headroom/ (Impairment)* £m
Base case	5.7	7.0	8.5	10.0	11.6	42.4
Break-even scenario	3.9	4.5	5.2	5.9	6.6	–

* The headroom is calculated by comparing the carrying value of the Goodwill, acquisition intangible assets and property, plant and equipment assigned to the Genomic Products CGU against the discounted future cash flows of the CGU.

Research Reagents –As of 31 December 2019, the value in use of this cash generating unit was greater than the goodwill carrying amount of £41,042k (2018: £42,408k). The key assumptions used were the revenue growth rates, the terminal growth rate of 5% (2018: 5%), and the pre-tax discount rate of 15.5% (2018: 16.7%). There are no reasonably possible changes in key assumptions that would give rise to a material impairment loss. This cash generating unit sits within the Research Reagents operating segment as disclosed in these notes.

In Vivo – In 2018 the cash generating unit was reduced to its recoverable amount through recognition of a full impairment loss totalling £25,892k against goodwill, £4,775k against intangible assets (note 14) and £1,457k against property, plant and equipment (note 15). This cash generating unit was subsequently sold on 2 December 2019 and details of the disposal can be found within Note 11. The cash generating unit sat within the In Vivo business unit as disclosed in these notes.

The potential impact to the carrying value of goodwill as a result of the COVID-19 outbreak is considered in note 35.

The Group has considered the impact of the potential exit of the United Kingdom from the European Union and currently does not expect this to have a material impact on the value in use calculations of the Group at 31 December 2019. Further discussion on Brexit is provided in the Risk section on page 34.

14. OTHER INTANGIBLE ASSETS

Group	Acquired customer relationships £'000	Other intangible assets £'000	Intangible assets under construction £'000	Patents £'000	Software £'000	Development £'000	Total £'000
COST							
At 1 January 2018	13,775	38,495	190	2,437	3,479	2,581	60,957
Additions	–	50	197	–	210	394	851
Exchange differences	787	1,972	2	–	25	34	2,820
Transfers	–	–	(258)	–	258	–	–
Disposals	–	(86)	(72)	–	–	–	(158)
AT 31 DECEMBER 2018	14,562	40,431	59	2,437	3,972	3,009	64,470
Additions	–	–	1,699	189	672	183	2,743
Exchange differences	(370)	(1,254)	(2)	–	(47)	(25)	(1,698)
Transfers	–	–	(1,442)	–	1,427	15	–
Disposals	(5,498)	(2,456)	–	(76)	(291)	(28)	(8,349)
AT 31 DECEMBER 2019	8,694	36,721	314	2,550	5.733	3,154	57,166
AMORTISATION & IMPAIRMENT LOSSES							
AT 1 JANUARY 2018	2,051	4,103	–	549	935	577	8,215
Charge for the year	1,095	3,066	–	137	714	342	5,354
Disposals	–	(13)	–	–	–	–	(13)
Impairment losses[1]	3,203	1,431	–	–	141	–	4,775
Exchange differences	224	210	–	–	32	29	495
AT 31 DECEMBER 2018	6,573	8,797	–	686	1,822	948	18,826
Charge for the year	593	2,970	–	140	805	387	4,895
Disposals	(5,498)	(2,456)	–	(30)	(291)	(3)	(8,278)
Exchange differences	(127)	(301)	–	–	(25)	(56)	(509)
AT 31 DECEMBER 2019	1,541	9,010	–	796	2,311	1,276	14,934
NET BOOK VALUE							
AT 31 DECEMBER 2019	7,153	27,711	314	1,754	3,422	1,878	42,232
At 31 December 2018	7,989	31,634	59	1,751	2,150	2,061	45,644

1 The carrying amount of the In Vivo cash generating unit was impaired in the year ended 31 December 2018 through recognition of an impairment loss against intangible assets, property, plant and equipment and goodwill.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

14. OTHER INTANGIBLE ASSETS CONTINUED

INDIVIDUALLY MATERIAL INTANGIBLE ASSETS

	Asset classification	**Carrying value 2019 £'000**	Carrying value 2018 £'000	**Remaining amortisation period at 31 December 2019**
Technology arising from the acquisition of Dharmacon Inc	Other intangible assets	24,321	27,114	13 years
Customer relationships arising from the acquisition of Dharmacon Inc	Acquired customer relationships	6,855	7,642	13 years
Intellectual property arising from the acquisition of Horizon Genomics GmbH	Other intangible assets	2,290	2,578	15 years

Company	Development costs £'000	Patents £'000	Other intangible Assets £'000	Total £'000
COST				
At 1 January 2018	47	1,007	–	1,054
Additions	–	–	50	50
AT 31 DECEMBER 2018	47	1,007	50	1,104
Additions	–	–	–	–
AT 31 DECEMBER 2019	47	1,007	50	1,104
AMORTISATION				
At 1 January 2018	9	54	–	63
Charge for the year	2	64	5	71
AT 31 DECEMBER 2018	11	118	5	134
Charge for the year	2	64	5	71
AT 31 DECEMBER 2019	13	182	10	205
NET BOOK VALUE				
AT 31 DECEMBER 2019	34	825	40	899
At 31 December 2018	36	889	45	970

15. PROPERTY, PLANT AND EQUIPMENT

Group	Assets under construction £'000	Leasehold improvements £'000	Master cell bank £'000	Land and buildings £'000	Fixtures and fittings £'000	Lab and computer equipment £'000	Total £'000
COST							
At 1 January 2018	667	4,548	5,127	803	485	9,598	21,228
Additions	1,149	43	153	51	18	1,294	2,708
Exchange differences	47	67	32	47	2	248	443
Transfers	(1,264)	28	–	–	–	1,236	–
Disposals	–	–	–	–	–	(69)	(69)
AT 31 DECEMBER 2018	599	4,686	5,312	901	505	12,307	24,310
Additions	7	157	87	3	233	1,486	1,973
Exchange differences	(14)	(20)	(49)	(11)	(1)	(138)	(233)
Transfers	106	42	–	–	–	(148)	–
Disposals	(566)	(1,090)	(426)	(893)	(12)	(2,511)	(5,498)
AT 31 DECEMBER 2019	132	3,775	4,924	–	725	10,996	20,552
DEPRECIATION							
AT 1 JANUARY 2018	–	724	2,189	46	279	4,931	8,169
Charge for the year	–	380	518	18	79	1,881	2,876
Exchange differences	–	30	11	3	3	142	189
Disposals	–	–	–	–	–	(61)	(61)
Impairment losses[1]	16	680	235	198	–	328	1,457
AT 31 DECEMBER 2018	16	1,814	2,953	265	361	7,221	12,630
Charge for the year[2]	–	335	476	10	93	1,790	2,704
Exchange differences	–	(16)	(19)	(4)	–	(133)	(172)
Disposals	(16)	(1,083)	(425)	(271)	(12)	(2,301)	(4,108)
AT 31 DECEMBER 2019	–	1,050	2,985	–	442	6,577	11,054
NET BOOK VALUE							
AT 31 DECEMBER 2019	132	2,725	1,939	–	283	4,419	9,498
At 31 December 2018	583	2,872	2,359	636	144	5,086	11,680

1 The carrying amount of the In Vivo cash generating unit was impaired in the year ended 31 December 2018 through recognition of an impairment loss against intangible assets, property, plant and equipment and goodwill.

2 The depreciation charge for the year comprises of £2,666k relating to continued operations and £38k for discontinued operations.

COMPANY

At 31 December 2018 and 31 December 2019, the Company does not hold any property, plant and equipment.

16. RIGHT OF USE ASSETS

The Group has leases for its office and production building, and some lab and IT equipment. With the exception of short-term leases and leases of low-value underlying assets, each lease is reflected on the balance sheet as a right of use asset and a lease liability (see note 1).

Leases of plant and machinery and IT equipment are generally limited to a lease term of 2 to 5 years. Leases of property generally have a lease term ranging from 5 years to 15 years. All lease payments in the Group are fixed, with no leases subject to variable lease payments.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

16. RIGHT OF USE ASSETS CONTINUED

The right of use assets carried as non-current assets resulting from leases are presented as follows:

Group	Land and buildings £'000	Lab and computer equipment £'000	Total £'000
COST			
AT 31 DECEMBER 2018	–	–	–
Adjustment on transition to IFRS 16	18,227	89	18,316
AT 1 JANUARY 2019, ADJUSTED	18,227	89	18,316
Additions	–	18	18
Exchange differences	(367)	(2)	(369)
Disposals	(1,419)	(22)	(1,441)
AT 31 DECEMBER 2019	16,441	83	16,524
DEPRECIATION//IMPAIRMENTS			
AT 31 DECEMBER 2018	–	–	–
Adjustment on transition to IFRS 16	6,077	39	6,116
AT 1 JANUARY 2019, ADJUSTED	6,077	39	6,116
Charge for the year	2,021	19	2,040
Exchange differences	(178)	(1)	(179)
Disposals	(1,419)	(22)	(1,441)
AT 31 DECEMBER 2019	6,501	35	6,536
NET BOOK VALUE			
AT 31 DECEMBER 2019	9,940	48	9,988
At 31 December 2018	–	–	–

Leases are presented as follows in the income statement:

	2019 £'000
REVENUE/OTHER OPERATING INCOME	
Sub-lease income	1,291
OPERATING EXPENSES	
Expense relating to short-term leases	9
Expense relating to leases of low value assets	3
DEPRECIATION AND IMPAIRMENT LOSSES	
Depreciation of right-of-use assets	2,040
NET FINANCE COSTS	
Interest expenses on lease liabilities	938
Currency transaction losses on lease liabilities	(231)

The Group held no leases recognised as finance leases under IAS 17 in the year ended 31 December 2018.

COMPANY

The Company does not have any lease agreements, and therefore no right-of-use assets are included within the Company at 1 January 2019 or 31 December 2019.

17. INVESTMENTS HELD IN JOINT VENTURES

Group	Investments in joint ventures £'000
COST OR VALUATION	
At 1 January 2018[1]	1,859
Additional investment in Avvinity Therapeutics Limited[2]	1,400
The Group's share of Avvinity Therapeutics Limited's loss	(299)
At 31 December 2018	2,960
Additional investment in Avvinity Therapeutics Limited[3]	700
The Group's share of Avvinity Therapeutics Limited's loss	(641)
Impairment losses[4]	(3,019)
AT 31 DECEMBER 2019	–

1 On 2 March 2016, Horizon formed a joint venture with Centauri Therapeutics Limited, that combines Horizon's gene editing, immunology, oncology and drug discovery capabilities with Centauri's innovative Alphamer technology. Avvinity's registered office is 1st Floor, Thavies Inn House, 3-4 Holborn Circus, London C1N 2HA. The Group owns 47% (2018: 43%) of the equity shares of Avvinity Therapeutics Limited which represents 50% of the most-preferred class of voting shares. The Group's accounting policy for investments in joint ventures is disclosed in note 1. Avvinity's revenue and loss for the period were £nil and £1,272k (2018: £nil and £695k) respectively and as at 31 December 2019 had cash balances of £476k (2018: £1,452k).

2 During 2018, the Group acquired a further 10% holding in Avvinity, increasing its stake from 33% to 43%.

3 On 6 August 2019, Horizon Discovery Group plc acquired a further 4% holding in Avvinity by subscribing for an additional 62,500 ordinary shares of £0.001 each in Avvinity Therapeutics as required under the shareholder agreement. Total consideration was £700,000.

4 Before the impairment assessment, the investment in the joint venture, Avvinity Therapeutics Limited, totalled £3,019k, compared to £2,960k at 1 January 2018. During 2019, it became apparent that the joint venture does not align to the Group's current strategy and the Group no longer intends to make future contributions to the joint venture. At 31 December 2019, the Group assessed the recoverability of its investment in Avvinity Therapeutics Limited. The recoverability of the asset was based on a value in use calculation using cash flow projections based on the business plans approved by management and was assessed as £nil. As a result, in 2019 the Company recognized an impairment loss of £3,019k which was included in the corporate and administrative expense line of the consolidated income statement.

18. INVENTORIES

	Group		Company	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
Raw materials	348	291	–	–
Work in progress	239	647	–	–
Finished goods	1,579	1,603	–	–
	2,166	2,541	–	–

AMOUNTS RECOGNISED IN PROFIT OR LOSS

Inventories recognised as an expense in continuing operations during the year ended 31 December 2019 amounted to £9,641k (2018: £13,087k) and write-downs of inventories to net realisable value amounted to £158k (2018: £148k). These were included in cost of sales in the income statement.

19. TRADE AND OTHER RECEIVABLES

	Group		Company	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
Trade receivables	12,579	12,818	–	–
Accrued income	2,379	3,222	–	–
Prepayments	2,773	1,563	230	78
Other receivables	1,097	1,468	158	102
Intercompany receivables	–	–	94,076	95,630
	18,828	19,071	94,464	95,810

Amounts relating to contract assets, shown above as accrued income are balances due from customers under contracts that arise when the Group receives payments from customers in line with a series of performance related milestones. Any amount previously recognised as a contract asset is reclassified to trade receivables at the point at which it is invoiced to the customer. Typically, the accrued income per contract will be realised within one year.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

19. TRADE AND OTHER RECEIVABLES CONTINUED

The carrying values of trade receivables approximate to their fair value at the balance sheet date. Trade receivables are recognised at cost less allowances for estimated irrecoverable amounts to align their cost to fair value. Estimated irrecoverable amounts are determined either by specific circumstances or by reference to historic credit losses. Trade receivables are denominated in the following currencies:

	Group		Company	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
U.K. sterling	3,559	2,926	–	–
Euro	1,126	639	–	–
U.S. Dollars	7,588	9,043	–	–
Canadian Dollars	135	97	–	–
Japanese Yen	37	–		
Danish Krone	7	16	–	–
Swedish Krone	27	11	–	–
Norwegian Krone	5	4	–	–
Swiss Franc	95	82	–	–
	12,579	12,818	–	–

Movement in loss allowance against trade receivables is:

	2019 £'000	2018 £'000
Balance at beginning of the year	990	603
Impairment losses recognised	864	791
Amounts written off during the year	(318)	(182)
Amounts recovered during the year	(431)	(234)
Foreign exchange	(21)	12
Balance at end of the year	1,084	990

The group has not pledged as security any of the amounts included in receivables.

20. CASH AND CASH EQUIVALENTS

	Group		Company	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
Restricted cash	1,873	1,597	–	–
Cash at bank[1]	16,906	25,143	2,530	10,857
	18,779	26,740	2,530	10,857

1 Cash at bank at 31 December 2018 includes £1.7m of cash received in error which was returned in 2019.

The restricted cash relates to a balance of £425k (2018: £439k) held as collateral for corporate credit cards in the U.S., a balance of £1,445k (2018: £1,155k) held as a financial guarantee for HMRC's Duty Deferment Scheme and a balance of £3k (2018: £3k) held by an outsourced payroll provider in Japan.

The effective interest rate at the balance sheet date on cash at bank was 0.25% (2018: 0.25%).

The carrying amounts of cash and cash equivalents approximate their fair values at the balance sheet date and are denominated in the following currencies:

	Group		Company	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
U.K. sterling	4,294	11,332	2,202	8,589
Euro	1,692	4,100	–	–
U.S. Dollars	11,321	10,755	328	2,268
Danish Krone	133	48	–	–
Norwegian Krone	151	81	–	–
Swedish Krone	403	163	–	–
Swiss Franc	728	243	–	–
Japanese Yen	57	18	–	–
	18,779	26,740	2,530	10,857

21. TRADE AND OTHER PAYABLES

	Group		Company	
Current liabilities	**2019 £'000**	2018 £'000	**2019 £'000**	2018 £'000
Trade creditors and accruals	9,533	11,149	1,371	369
Other creditors[1]	1,148	862	–	–
Deferred income[2]	1,693	1,901	–	–
	12,374	13,912	1,371	369

1 Other creditors includes current provisions totalling £94k, See note 34.

2 Revenue recognised over time in accordance with the performance obligations, although the customer can pay up-front partially or in full for these services. A contract liability is recognised for revenue relating to the services at the time of the up-front payment and is released over the service period in line with the performance milestones.

Of the £1,091k deferred income balance at the 2018 year end, £1,558k was recognised as revenue in 2019.

The carrying values of the group's and company's trade and other payables approximates to their fair value at the balance sheet date. Due to the short term nature of payables, their carrying amount is considered the same as their fair value. Trade payables and other payables are denominated in the following currencies:

	Group		Company	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
U.K. sterling	9,796	6,891	1,245	369
Euro	711	200	–	–
U.S. Dollars	1,827	6,747	126	–
Danish Krone	2	2	–	–
Japanese Yen	38	72	–	–
	12,374	13,912	1,371	369

22. LEASE LIABILITIES

Lease liabilities are presented in the balance sheet as follows:

Group	**2019 £'000**
Amounts due for settlement within 12 months	1,955
Amounts due for settlement after 12 months	10,267
TOTAL LEASE LIABILITIES	12,222

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Notes to the financial statements continued

22. LEASE LIABILITIES CONTINUED

Maturity analysis	2019 £'000
Not later than 1 year	1,955
Later than 1 and not later than 5 years	6,905
Later than 5 years	3,362
	12,222

No finance lease liabilities were recognised under IAS 17 in the previous year. Lease assets with a carrying value of £9,988k (2018: £nil) are recognised in property, plant and equipment.

The Group does not face a significant liquidity risk with regard to its lease liabilities. Lease liabilities are monitored within the Group's treasury function.

Total cash outflow relating to leases (including those within the scope of IFRS 16 and short term & low value leases outside the scope of IFRS 16) for the year ended 31 December 2019 was £2,950k (2018: £2,892k).

COMPANY

The Company has no liabilities under lease arrangements at 31 December 2019 or 31 December 2018.

23. SHARE CAPITAL

	Group		Company	
	2019 £'000	2018 £'000	**2019 £'000**	2018 £'000
AUTHORISED, ISSUED AND FULLY PAID				
150,667,096 (2018: 150,354,304) ordinary shares of £0.01 each	3,137	3,134	3,137	3,134

During the year, the Company issued 312,792 (2018: 1,267,703) ordinary shares as a result of employee option exercises.

24. SHARE BASED PAYMENTS

During the year, the Company operated four equity settled share option schemes for the benefit of its employees.

HORIZON DISCOVERY LIMITED SCHEME

In the existing Horizon Discovery Limited scheme, options are forfeited 40 days following the employee ceasing employment with the company and can only be exercised to the extent they have vested on the earliest of the third anniversary of the date of grant or upon a sale of the shares in the company. The company may decide that the employee may retain the portion of the option vested at the time of the cessation of the employee's employment.

LONG TERM INCENTIVE PLAN

In March 2014, the Company adopted the Long Term Incentive Plan (LTIP) which allows the grant of tax efficient EMI share options and unapproved options.

Under the LTIP, options can be exercised as soon as they have vested; which is typically after a three year period and options are forfeited on the employee ceasing employment with the company.

During 2019 the Company granted share options over 862,699 (2018: 1,255,833) Ordinary Shares of £0.01 to certain employees under the Long Term Incentive Plan. These options were granted at a price equal to the market price of the Company's shares on the date of grant.

SHARESAVE SHARE OPTION SCHEME

In March 2014, the Company adopted the Sharesave Scheme which enables eligible employees of the Group to be granted options to acquire Ordinary Shares.

U.S. EMPLOYEE STOCK PURCHASE PLAN

In July 2017, the Company adopted a U.S. Employee Stock Purchase plan enabling employees of the Group's U.S. subsidiaries to be granted options to acquire Ordinary Shares.

The movement on options in issue under these schemes is set out below:

	2019		2018	
	Number of share options	**Weighted average exercise price**	Number of share options	Weighted average exercise price
Outstanding at the beginning of the year	5,292,110	1.58	5,546,539	1.40
Granted during the year	1,344,869	1.28	1,595,234	1.80
Exercised during the year	(312,792)	1.40	(1,268,912)	1.13
Forfeited or lapsed during the year	(596,210)	1.75	(580,751)	1.50
Outstanding at the end of the year	5,727,977	1.50	5,292,110	1.58
Exercisable at the end of the year	2,635,822	1.33	2,266,403	1.21

During the year ended 31 December 2019, 1,344,869 (2018: 1,595,234) options were granted to employees at fair value of £937k (2018: £1,075k). The options outstanding at 31 December 2019 had a weighted average remaining contractual life of 8 years (2018: 9 years). Options outstanding as at 31 December 2019 had an exercise price of between £0.01 and £2.56 (2018: £0.01 and £2.56).

Based on the calculation of the total fair value of the options granted, the Group recognised a total charge through the income statement of £601k related to equity-settled share-based payment transactions in the year ended 31 December 2019 relating to continuing operations plus £52k charge relating to discontinued operations (2018: £516k relating to continuing operations plus £106k relating to discontinued operations).

The Company recognised a charge for the period of £nil (2018: £nil) related to equity-settled share-based payment transactions.

The inputs into the Black-Scholes option pricing model are as follows:

	2019	2018
Weighted average share price	£1.57	£1.91
Weighted average exercise price	£1.27	£1.80
Expected volatility	42% – 43%	41% – 43%
Expected life	4 years	4 years
Risk free rate	0.67%	1.06%
Expected dividend yield	0%	0%

Expected volatility and the expected life used in the model are based on management's best estimate and are adjusted for the effects of non-transferability, exercise restrictions and behavioural considerations. The risk free rate is based on that of the gross redemption yield of 5 year U.K. government bond.

On 27 December 2019, the Company issued warrants to Mammoth Biosciences, Inc. as partial consideration on entering into a collaboration agreement. The warrants give Mammoth Biosciences the right to subscribe for 753,335 ordinary shares in the Company, equivalent to 0.5% of the issued share capital of the Company, with an exercise price of 1.46. These warrants are capable of exercise from the date of grant to 12 December 2029.

25. FINANCIAL INSTRUMENTS

CAPITAL RISK MANAGEMENT

The capital structure of the Group consists of shareholders' equity (note 23) and cash (note 20).

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

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Notes to the financial statements continued

25. FINANCIAL INSTRUMENTS CONTINUED

As part of achieving these objectives, the Group identifies the principal financial risk exposures that are created by the Group's financial instruments and monitors them on a regular basis. These are considered to be foreign currency risk (a component of market risk), credit risk and liquidity risk. The Group's approach to these risks is outlined below:

CATEGORIES OF FINANCIAL INSTRUMENTS

	2019 £'000	2018 £'000
FINANCIAL ASSETS HELD AT AMORTISED COST		
Cash and cash equivalents	18,779	26,740
Trade and other receivables	12,674	16,375
	31,453	43,115
CURRENT FINANCIAL LIABILITIES HELD AT AMORTISED COST		
Trade creditors and accruals	(9,533)	(11,149)
Other creditors	(1,109)	(814)
Lease liabilities	(1,955)	–
	(12,597)	(11,963)
NON-CURRENT FINANCIAL LIABILITIES HELD AT AMORTISED COST		
Lease liabilities	(10,267)	–
	(22,864)	(11,963)

FINANCIAL RISK MANAGEMENT OBJECTIVES

The Group's Finance function provides services to the business, monitors and manages the financial risks relating to the operations of the Group. These risks include market risk (including currency risk), credit risk, liquidity risk and cash flow interest rate risk.

MARKET RISK

The Group's activities expose it primarily to the financial risks of changes in foreign currency exchange rates and interest rates (see below).

FOREIGN CURRENCY RISK MANAGEMENT

The Group undertakes transactions denominated in foreign currencies; consequently exposures to exchange rate fluctuations arise. Exchange rate exposures are managed by natural hedging in currency accounts.

	Liabilities		Assets	
Current liabilities	**2019 £'000**	2018 £'000	**2019 £'000**	2018 £'000
Euro	(711)	(200)	2,816	4,766
U.S.D.	(8,427)	(6,747)	20,720	22,170
	(9,138)	(6,947)	23,536	26,936

FOREIGN CURRENCY SENSITIVITY ANALYSIS

The Group is mainly exposed to the currency of the United States of America (U.S. dollar currency) and the currency of Europe (Euro currency).

The following table details the Group's sensitivity to a 10 percent increase and decrease in Sterling against the relevant foreign currencies. 10 percent is the sensitivity rate used when reporting foreign currency risk internally to key management personnel and represents management's assessment of the reasonably possible change in foreign exchange rates. The sensitivity analysis includes only outstanding foreign currency denominated monetary items and adjusts their translation at the period end for a 10 percent change in foreign currency rates. A positive number below indicates an increase in profit and other equity.

	U.S.D. impact		Euro impact	
Current liabilities	**2019 £'000**	2018 £'000	**2019 £'000**	2018 £'000
Profit +10%	1,366	3,213	234	552
Loss -10%	(1,117)	(2,629)	(191)	(452)

The variance in U.S. dollar impact is mainly attributable to the exposure outstanding on U.S. dollar receivables in the Group at the balance sheet date.

The variance in Euro impact is mainly attributable to the exposure outstanding on European receivables in the Group at the balance sheet date.

LIQUIDITY AND INTEREST RATE RISK MANAGEMENT

The Group is exposed to the interest rate risks associated with its holdings of cash and cash equivalents and short term deposits.

Ultimate responsibility for liquidity risk management rests with the board of directors, which regularly monitors the Group's short, medium and long-term funding, and liquidity management requirements. The Group manages liquidity risk by maintaining adequate cash and cash equivalents and by continuously monitoring forecast and actual cash flows and matching the maturity profiles of financial assets and liabilities.

The Group's exposures to interest rates on financial assets and financial liabilities are detailed in the liquidity risk management section of this note.

The Group does not have any interest bearing instruments at the balance sheet date.

CREDIT RISK MANAGEMENT

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Group. The Group has adopted a policy of only dealing with creditworthy counterparties and obtaining sufficient collateral where appropriate, as a means of mitigating the risk of financial loss from defaults.

A default on a financial asset is when a counterparty fails to make a contractual payment within the agreed payment terms.

Financial assets are written off when there is no reasonable expectation of recovery, such as a debtor failing to engage in a repayment plan.

TRADE AND OTHER RECEIVABLES

Trade receivable exposures are managed locally in the company where they are generated, and credit limits are set as considered appropriate for each customer. The Group's customer base includes academic institutions, large listed and privately-owned pharmaceutical businesses and distributors. Customers are located throughout the world and credit risk varies depending on the customer's location and nature of business. The Group manages credit risk by consideration of credit limits offered to new and existing customers based on management judgement and use of credit ratings where appropriate.

In 2019, the largest customer by revenue accounted for 1.1% (2018: 1.7%) of the Group's trade receivables whilst the largest debtor at 31 December 2019 accounted for 8.0% of outstanding trade receivables but only 1.6% of revenue (2018: 6.9% and 0.2%).

The Group applies the simplified approach provided for in IFRS 9 to determine the credit risk from the Group's operating activities applicable to trade receivables. Trade receivables are generally short-term in nature and contain no significant financing components, Under the simplified approach, a loss allowance is equal to the expected lifetime credit losses. To measure expected credit losses, the Group uses a provision matrix to Group trade receivables based on shared credit characteristics and the days past due.

The expected loss rates are based on payment profiles over a period of 12 months before 31 December 2019 and the corresponding historical credit losses experienced within this period. The historical loss rates are adjusted to reflect current and forward-looking information that are specific to the debtors, general economic conditions of the industry in which the debtors operate and an assessment of both the current as well as the forecast direction of conditions at the reporting date.

The ageing of balances and allowance for credit losses as at 31 December 2019 is:

31 December 2019	Not yet due	0-30 days past due	30-90 days past due	90-180 days past due	Over 180 days past due	Total
Expected loss rate	0.8%	4.9%	5.3%	17.5%	75.0%	7.9%
Gross receivables	7,723	3,050	1,361	606	923	13,663
Loss allowance	(63)	(151)	(72)	(106)	(692)	(1,084)

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Notes to the financial statements continued

25. FINANCIAL INSTRUMENTS CONTINUED

31 December 2018 £'000	Not yet due	0-30 days past due	30-90 days past due	90-180 days past due	Over 180 days past due	Total
Expected loss rate	0%	0%	0%	49.9%	58.0%	7.2%
Gross receivables	8,960	1,909	1,149	593	1,197	13,808
Loss allowance	–	–	–	(296)	(694)	(990)

Impairment losses on trade receivables are presented within operating profit, any subsequent recoveries are credited against the same line. Trade receivables are derecognised when a reasonable assessment indicates that they are no longer recoverable.

The credit risk on liquid funds is limited because the counterparties are banks with high credit-ratings assigned by international credit-rating agencies.

LIQUIDITY AND INTEREST RISK TABLES

The Group's financial liabilities comprise of trade payables which all have a maturity of less than six months.

The table below analyse the Group's financial assets held for managing liquidity risk which are considered to be readily saleable or are expected to generate cash inflows to meet cash outflows on financial liabilities.

	31 December 2019 Within 6 months £'000	31 December 2018 Within 6 months £'000
Cash at bank and in hand	18,779	26,740
Trade receivables	12,579	12,818
	31,358	39,558

FAIR VALUE ESTIMATION

The carrying value less impairment provision of trade receivables and payables are assumed to approximate their fair values. The fair value of long term trade receivables and payables is estimated by discounting the future contractual cash flows at the current market interest rate for the underlying currency of the transaction.

FAIR VALUE MEASUREMENTS

The Group did not have any financial instruments that are measured subsequent to initial recognition at fair value. An analysis of the fair value hierarchy has therefore not been presented.

26. DEFERRED TAXATION

GROUP

The following is the deferred tax movement during the current and prior reporting period:

Current liabilities	**2019 £'000**	Restated 2018 £'000
Balance brought forward	(5,273)	(9,908)
Transition adjustment on adoption of IFRS 16	243	–
Balance brought forward (as restated)	(5,030)	(9,908)
Amount charged to the income statement (current year)	950	1,778
Amount charged to the income statement (prior years)	127	31
Charge to discontinued operations	653	2,577
Effects of movement in foreign exchange	158	249
Balance carried forward	(3,142)	(5,273)

Deferred tax assets and liabilities are offset where the Group has a legally enforceable right to do so. The following is the analysis of the deferred tax balances for financial reporting purposes:

Current liabilities	2019 Deferred tax asset £'000	2019 Deferred tax liability £'000	2019 Total £'000
United Kingdom	211	(211)	–
United States of America	6,096	(8,751)	(2,655)
Austria	206	(693)	(487)
	6,513	(9,655)	(3,142)

Current liabilities	Restated 2018 Deferred tax asset £'000	Restated 2018 Deferred tax liability £'000	Restated 2018 Total £'000
United Kingdom	142	(142)	–
United States of America	4,060	(8,473)	(4,413)
Austria	113	(973)	(860)
	4,315	(9,588)	(5,273)

	Restated Accelerated tax depreciation £'000	Restated Acquisition intangibles	IFRS 16 £'000	Other timing differences £'000	Share options £'000	Tax losses £'000	Restated Total £'000
AT 31 DECEMBER 2017	(1,227)	(12,214)	–	417	150	2,966	(9,908)
Credited/(charged) to income statement	1,492	945	–	262	(141)	(749)	1,809
Discontinued operations	104	1,496	–	–	–	977	2,577
Foreign exchange	69	156	–	18	(9)	15	249
AT 31 DECEMBER 2018	438	(9,617)	–	697	–	3,209	(5,273)
Transition adjustment on adoption of IFRS 16	–	–	243	–	–	–	243
AT 1 JANUARY 2019 (AS RESTATED)	438	(9,617)	243	697	–	3,209	(5,030)
Credited/(charged) to income statement	(42)	1,021	23	690	–	(615)	1,077
Discontinued operations	(552)	–	(229)	(456)	–	1,890	653
Foreign exchange	(69)	295	(4)	(30)	–	(34)	158
AT 31 DECEMBER 2019	(225)	(8,301)	33	901	–	4,450	(3,142)

At the balance sheet date, the Group has unused tax losses of £55 million (2018: £50 million) available for offset against future taxable profits. A deferred tax asset has been recognised in respect of £19 million (2018: £13 million) of such losses. No deferred tax asset has been recognised in respect of the remaining £35 million (2018: £37 million) as it is not considered probable that there will be future taxable profits available. All losses may be carried forward indefinitely. At the balance sheet date, the Group has unrecognised deferred tax assets on timing differences of £4.2 million (2018: £4.0 million).

No deferred tax liability is recognised on temporary differences of £10,493k (2018: £7,716k) relating to the unremitted earnings of overseas subsidiaries as the Group is able to control the timings of the reversal of these temporary differences and it is probable that they will not reverse in the foreseeable future.

COMPANY

At the balance sheet date, the Company has £1.5 million of unused tax losses (2018: £3 million) available for offset against future taxable profits.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

27. NOTES TO THE CASH FLOW STATEMENT

Group	2019 £'000	Restated 2018 £'000
Loss for the year	(4,605)	(35,139)
Adjustments for:		
Investment income	(58)	(90)
Finance costs	1,243	11
Depreciation of property, plant and equipment	2,704	2,876
Amortisation of intangible assets	4,895	5,354
Amortisation of right of use assets	2,040	–
Goodwill, intangible asset and property, plant and equipment impairment charges	–	32,124
Loss on disposal of property, plant and equipment	73	7
Loss on disposal of intangible assets	–	145
Tax credit	(3,375)	(5,515)
Share option charge	653	622
Unrealised gains/losses on foreign exchange	1,001	–
Profit on disposal of discontinued operations	(7,263)	–
Impairment of joint venture	3,019	–
Share of loss of joint venture	641	299
	5,573	35,833
Operating cash flows before movements in working capital	968	694
(Increase)/decrease in inventories	(3)	33
Decrease/(increase) in receivables	803	(1,894)
(Decrease)/Increase in payables	(2,338)	3,610
	(1,538)	1,749
Cash generated by operations	(570)	2,443
Tax credit received/(tax paid)	1,555	(924)
NET CASH FROM OPERATING ACTIVITIES	985	1,519

CHANGE IN LIABILITIES ARISING FROM FINANCING ACTIVITIES

The table below details changes in the Group's liabilities arising from financing activities, including both cash and non-cash changes. Liabilities arising from financing activities are those for which cash flows were, or future cash flows will be, classified in the Group's consolidated cash flow statement as cash flows from financing activities.

				Non cash changes		
	As at 31 December 2018 £'000	Recognition on adoption of IFRS 16 £'000	Cash flows – principal lease payments £'000	Acquisitions – leases £'000	Other changes[1] £'000	As at 31 December 2019 £'000
Lease liabilities (current and non-current)	–	15,182	(1,997)	18	(981)	12,222

1 Other changes include interest accruals and payments and foreign exchange.

The Group does not have any other liabilities with changes recognised in financing activities

Company	2019 £'000	Restated[1] 2018 £'000
Loss for the year	(1,388)	(31,472)
Adjustments for:		
Investment income	(1,930)	(1,621)
Finance costs	5	–
Amortisation of intangible assets	71	71
Impairment of investment	3,070	29,086
Unrealised currency translation losses	888	3,209
Impairment of intercompany loan receivable	(4,043)	4,043
Loss on discontinued operations	287	–
Share of loss of joint venture	641	299
	(1,011)	35,087
Operating cash flows before movements in working capital	(2,399)	3,615
(Increase)/decrease in receivables	(208)	461
Increase in payables	1,002	8
	794	469
CASH GENERATED BY OPERATIONS, BEING NET CASH FROM OPERATING ACTIVITIES	(1,605)	4,084

1 The 2018 loss for year as previously presented in this note has been restated for reasons set out in the company statement of changes in equity (see page 78).

In addition, the 2018 cash flow statement has been restated to correct an error in the treatment of unrealised currency translation losses on intercompany receivables. The unrealised currency translation losses had incorrectly been treated as an adjusting item in determining cash generated by operations and also incorrectly included in issue of intercompany borrowings which were classified as cash used in investment activities.

Accordingly, to correct these misstatements, the following restatements have been made.

- The cash generated from operations previously reported of £875k has been restated to £4,084k.
- Cash used in investing activities previously reported of £15,958k has been restated to 19,166k.

The Company does not have any liabilities with changes recognised in financing activities.

28. PENSION COSTS

The Group operates a defined contribution pension scheme for its employees in the United Kingdom. The assets of the scheme are held separately from those of the company in an independently administered fund operated by a major insurance company under the control of independent trustees.

For the Group's employees at its two subsidiaries in the United States, similar defined contribution schemes under United States' regulations are in operation. The only obligation of the Group is to make the specified contributions.

Upon the acquisition of GE Healthcare Dharmacon Inc. the Group inherited a defined benefit pension scheme for qualifying employees in Germany. The plan provided life-long benefit payments and was financed by annual contributions from the employer. The annual contribution amounts to 2.0% for the pensionable salary up to the social security contribution ceiling (SSCC) and 6.0% for the pensionable salary exceeding the SSCC.

The liabilities under this scheme were settled on 28 December 2018 with the final payment of €144k (£129k) being paid on 1 March 2019. Employees in Germany now participate in a defined contribution scheme which is an independently administered fund. The only obligation of the Group is to make the specified contributions.

The amount included in the consolidated balance sheet arising from the Group's obligation in respect of the defined benefit retirement scheme is £nil (2018: £129k). No amounts have been recognised in the consolidated income statement in relation to the defined benefit scheme.

The pension cost represents contributions payable by the Group to the defined contribution fund during the year and amounted to £2,009k (2018: £1,684k). At 31 December 2019, contributions of £56k (2018: £27k) due in respect of the current reporting period had not been paid over to the defined contribution schemes.

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

29. OPERATING LEASE ARRANGEMENTS

THE GROUP AS LESSOR

As set out in note 7 property rental income earned during the year was £1,291k (2018: £1,233k). This rental income is generated by the sub-lease of a right-of-use asset.

At 31 December 2019 the Group had contracted with tenants for the following future minimum lease payments:

	2019 £'000	2018 £'000
Within one year	111	1,344
Between two and five years	–	111
	111	1,455

29. OPERATING LEASE ARRANGEMENTS CONTINUED

Operating lease receipts represent rentals receivable by the Group for certain of its properties and office equipment.

Operating lease obligations where the Group is a lessee have been reported in accordance with the requirements of IFRS 16 on adoption of the standard at 1 January 2019.

30. RELATED PARTY TRANSACTIONS

In March 2016, the Group formed a joint venture, Avvinity Therapeutics Limited, with Centauri Therapeutics Limited. The Group made sales of £nil (2018: £202k) to Avvinity Therapeutics during the year and at the balance sheet date £nil (2018: £36k) was owing from Avvinity Therapeutics Limited.

The terms and conditions associated with the related party transactions are in line with the Group's standard terms of business. There are no guarantees given or received and no bad debt provisions have been made against balances due. No trading activity took place between the parent Company and Avvinity Therapeutics Limited.

The remuneration of the directors and the key management personnel of the company is set out in note 8.

Balances and transactions between the company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note.

31. OWNERSHIP

Horizon Discovery Group plc is the parent company and ultimate controlling party of the Group.

32. INVESTMENTS IN SUBSIDIARIES

100% of the ordinary share capital of all subsidiary undertakings is held (directly or indirectly) by Horizon Discovery Group plc and consequently all subsidiary undertakings are consolidated in the consolidated financial statements of Horizon Discovery Group plc.

Subsidiary undertakings	Country of registration and principal place of business	Registered office
Horizon Discovery Limited*	England and Wales	8100 Cambridge Research Park, Waterbeach, Cambridge CB25 9TL
Horizon Diagnostics Limited	England and Wales	
Horizon Discovery Services Limited	England and Wales	
Synthetx Limited	England and Wales	
Horizon Discovery Inc	United States of America	245 First St, 3rd Floor, Cambridge, MA 02142.
Sage Laboratories Inc	United States of America	St. Louis, MO 61346
Horizon Genomics GmbH*	Austria	Campus Vienna Biocenter 3, 1030 Wien
Dharmacon Inc*	United States of America	PO Box 2216, Schenectady, NY 12301
Horizon KK TA*	Japan	Shiroyama Trust Tower, Taranomon 4-3-1, Minato-ku, Tokyo

* Denotes directly owned subsidiary of Horizon Discovery Group plc.

Company	Investments in subsidiary companies £'000
Cost or valuation	
At 1 January 2019	52,312
Additional investment in Dharmacon Inc	12,781
Capital contribution[1]	650
Impairment losses[2]	(51)
At 31 December 2019	65,692

1 The capital contribution represents share-based payment charges for options issued by the company to employees of its subsidiaries.

2 At 31 December 2019 and 2018, the Company assessed the recoverability of its investment in Sage Laboratories Inc. The recoverability of the asset was based on a value in use calculation using cash flow projections based on the business plans approved by management. As a result, the Company recognised an impairment loss of £51k (2018: £29,086k) which was included in profit or loss.

33. CAPITAL COMMITMENTS

As at 31 December 2019 the Group had capital commitments of £853k (2018: £23k) relating to Property, Plant & Equipment.

34. PROVISIONS

Company	Deferred Rent £'000	Onerous Contract £'000	Dilapidations provision £'000	Total £'000
AS AT 31 DECEMBER 2018	495	–	197	692
IFRS 16 adjustment	(495)	–	–	(495)
AT 1 JANUARY 2019, ADJUSTED	–	–	197	197
Charge for the year	–	576	–	576
Foreign exchange	–	–	(6)	(6)
AS AT 31 DECEMBER 2019	–	576	191	767

	2019 £'000	2018 £'000
Current (Note 21)	94	–
Non-current	673	692
	767	692

The dilapidations provision represents management's best estimate of the Group's contractual liability to repair and reinstate leased properties at the end of a lease. The current lease on the property for which the provision is made expires in December 2022.

The onerous contract provision relates to a license agreement for the In Vivo business which has remained an obligation to the Group after the disposal of the business unit. The license no longer provides any economic benefit to the Group's continuing operations. Amounts provided reflect management's best estimate of the expenditure required to settle the unavoidable cost of the obligations of the agreement at the balance sheet date. They are expected to be fully utilized within the next 10 years.

At the balance sheet date, the Company has no provisions (2018: £nil).

YEAR ENDED 31 DECEMBER 2019

Notes to the financial statements continued

35. SUBSEQUENT EVENTS

On 4 February 2020, the Group announced that it had confidentially submitted a draft registration statement with the Securities and Exchange Commission relating to a proposed initial U.S. public offering of American Depositary Shares representing the Group's ordinary shares, the Offering. The U.S. Listing process is currently delayed, but the Company intends to pursue this when market conditions are considered to be more favourable. The Placing will support Horizon's aim to pursue a dual listing from a position of strength.

The COVID-19 outbreak has developed rapidly in 2020, with a significant number of infections. Measures taken by various governments to contain the virus have affected economic activity. We have taken several measures to monitor and mitigate the effects of the COVID-19 virus. These include health and safety measures for our employees such as social distancing at work for operational staff and home working for those able to do so and ensuring continuity of supply of materials that are essential to our production process.

At this stage, we are monitoring the impact on our business on a regular basis and will implement appropriate mitigating actions as conditions evolve. We will continue to follow the various national or state level advice and in parallel ensure continuity of our operations in the safest way possible. We also refer to note 1 where we describe our going concern assessment.

The impact of the COVID-19 on the business is considered to be a non-adjusting event after the period end under IAS 10. At this stage we are not aware of any adverse impact on the carrying value of the Group's assets, including goodwill, or liabilities as a result of the outbreak.

However, given the ongoing uncertainty around the scope, duration and impact of the pandemic, we are not able to forecast the consequences of the pandemic. There may be a potential future impact on the carrying value of goodwill and acquisition related intangibles.

On 17 April 2020 the Company successfully placed 6,764,365 shares at a price of 102 pence per share, raising gross proceeds of £6.9 million.

Glossary

SCIENCE:

ANTIBODY
A protein produced in the blood that fights disease by attacking harmful foreign bodies such as bacteria

ASSAY
A test that detects a molecule, often in low concentrations, that is a marker of disease or risk in a sample, often taken directly from a patient

BIOLOGICS OR BIOPHARMACEUTICALS
Large Biological molecules used as pharmaceuticals, for example, antibodies

BIOMARKER
A biological molecule that can be used to identify a biological condition such as presence of a disease

BIOPRODUCTION OR BIOMANUFACTURING
The process of manufacturing biopharmaceuticals

BIOTHERAPEUTIC
Therapeutic materials produced using biological means, including antibodies and recombinant DNA technology

CAS9
A protein that cuts DNA as part of the CRISPR genome editing process

CELL THERAPY
The transplantation of cells into a patient to replace or repair damaged tissue, can involve gene editing to directly repair damage cells extracted from a patient

CHO CELL
Chinese Hamster Ovary Cell, used as the primary means of manufacture of biologic drugs

COMPANION DIAGNOSTIC
A diagnostic used in combination with a therapeutic drug to determine a patient's applicability

CRISPR
Clustered regularly interspaced short palindromic repeats. CRISPR is a RNA-guided gene-editing platform introducing double strand breaks and single strand 'nicks' to the DNA

DNA
Deoxyribonucleic Acid, a self-replicating material which is present in nearly all living organisms as the main constituent of chromosomes. It is the carrier of genetic information

GENE MODULATION
The manipulation of the genes in cells to amplify or reduce the effect of that gene

GENE THERAPY
The therapeutic use of gene editing to directly edit a patient's genome to correct disease generating mutations

GENOME
The complete set of genes in an organism

GENOME EDITING OR GENE EDITING
A process in which DNA is inserted, replaced, or removed from a genome via homologous recombination or non-homologous end joining

HAPLOID CELLS
Cells that have only a single copy of most or all genes in its genome

HIGH THROUGHPUT SCREENING
Process by which thousands of experimental samples are subjected to simultaneous testing under given conditions

IMMUNE CELLS
White blood cells (leukocytes) that circulate in the blood and lymph and participate in reactions to invading microorganisms or foreign particles, comprising B cells, T cells, macrophages, monocytes, and granulocytes

IMMUNO-ONCOLOGY
Subject area where the human immune system is modulated and harnessed to treat cancer

IN VITRO
In an artificial environment outside the living organism

IN VIVO
Processes performed or taking place in a living organism

LEAD OPTIMISATION
The stage in drug development where the chemical structures of compounds or biologics are modified to improve a range of factors, including target specificity and toxicology

LIBRARIES
Many thousands of defined CRISPR or RNAi sequences enable disruption of thousands of specific genes in a single experiment

MOLECULAR DIAGNOSTICS
Applying molecular biology to medical testing by using biological markers based on an individual's genetic code and how their cells express their genes as proteins to determine a test result

MOLECULAR REFERENCE STANDARDS OR DIAGNOSTIC CONTROLS
A class of 'controls' or standards used to check the performance of molecular diagnostic assays

NGS OR NEXT GENERATION SEQUENCING
High-throughput sequencing of DNA (or RNA) by parallelising the sequencing process, producing thousands or millions of sequences concurrently

NUCLEIC ACIDS
The constituent parts of DNA and RNA

PERSONALISED MEDICINE
The tailoring of healthcare (diagnostics, therapeutics) to suit the needs of individual patients

Glossary continued

PLASMA
The fluid portion of blood, without cells

PRECISION MEDICINE
Medical care designed to optimise efficiency or therapeutic benefit for particular groups of patients, especially by using genetic or molecular profiling

REAGENT
A substance or mixture for use in chemical analysis or other reactions

REFERENCE STANDARD
A material that acts as a control in a biological assay or diagnostic

RNA
Ribonucleic acid, a nucleic acid that is generally single stranded and plays a variety of roles including transferring information from DNA to the protein-forming system of the cell

RNAI
RNA interference molecules, a biological process in which RNA molecules inhibit gene expression or translation

SHRNA
Short Hairpin RNA, an artificial RNA molecule with a tight hairpin turn that can be used to silence target gene expression via RNA interference

SIRNA
'Short interfering RNA' that can disrupt the generation of proteins by binding to and promoting the degradation of messenger RNA

TARGET IDENTIFICATION
The process of identifying a direct molecular target that, if affected, could impact the onset or development of disease

TARGET VALIDATION
The process by which the predicted molecular target, for example, protein or nucleic acid, of a potential therapeutic is verified

THERAPEUTIC
A therapy or drug designed to treat disease

BUSINESS:

AIM
AIM, a market operated by the London Stock Exchange

AIM RULES
The AIM Rules for Companies and AIM Rules for Nominated Advisers, as appropriate

APAC
Asia and Pacific

CMOS
Contract Manufacturing Organisations

DIRECTORS OR BOARD
The Directors of the Company as at the date of this document

EBITDA
Operating loss as disclosed in the Group income statement plus Depreciation and Amortisation

ERP
Enterprise Resource Planning

EXECUTIVE DIRECTORS
The Executive Directors of the Company as at the date of this document namely Mr Terry Pizzie and Mr Jayesh Pankania

FDA
Food and Drug Administration

FTSE
Financial Times Stock Index

Fx
Foreign Exchange

GMP
Good Manufacturing Practices

GROUP
Horizon and its subsidiaries

IND FILING
Investigational New Drug filing. The first step in preparing for clinical trials

IP
Intellectual Property

IPO
Initial Public Offering

JV
Joint Venture

KOL
Key Opinion Leaders

NED
The Non-Executive Directors of the company as at the date of this document namely Dr Ian Gilham, Mrs Susan Searle, Dr Susan Galbraith, Dr Vishal Gulati, Mr Grahame Cook and Ms Margarita Krivitski

OEM
Original Equipment Manufacturer

OTS
Off The Shelf

QCA
The Quoted Companies Alliance

R&D
Research and Development

RNS
Regulatory News Service

ROI
Return on Investment

SKUs
Stock Keeping Unit

U.K. CORPORATE GOVERNANCE CODE
The U.K. Corporate Governance Code published by the Financial Reporting Council

U.S. OR U.S.A.
United States of America, each state of the United States and the District of Columbia, its territories and possessions

Officers and professional advisers and contact information

DIRECTORS, OFFICERS AND ADVISERS

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Mr J Pankhania
Dr I D Gilham
Mrs S J Searle
Dr V K Gulati
Dr S Galbraith
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Mr J Pankhania

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