



Xaar plc
Annual Report and
Financial Statements 2020

X A A R

XAAAR



OUR VISION

A world where you
can print anything
you can imagine

About Xaar plc

Innovation and collaboration

Innovation is at the heart of Xaar

We are a world leader in the development of inkjet technology. Our core business is to design and manufacture printheads which we sell globally to Original Equipment Manufacturers (OEMs) and User Developer Integrators (UDIs). Our technology drives the conversion of analogue printing and manufacturing methods to digital inkjet, which is more efficient, more economical and more productive than the traditional methods it replaces. We also develop print systems for product decoration and 3D printing which use our inkjet technology.

We put collaboration at the core of our global partnerships, helping our customers to unleash the true power of inkjet technology and open up a world of opportunities for their business.



Printhead

Our Printhead business unit focuses on the design, manufacture, marketing and sales of printheads and associated products which are used in a variety of applications such as Ceramic Tile Decoration, Graphics, Décor, Labels and Packaging as well as 3D Printing and Additive Manufacturing.

 [Read more on pages 18 to 23](#)

Product Print Systems

Product Print involves printing all kinds of industrial and promotional objects such as medical equipment, automotive parts, tools, apparel, appliances, sports equipment and toys. Xaar company, EPS, manufactures and sells a range of highly customised print systems for these applications, including some using Xaar's own inkjet printheads.

 [Read more on pages 24 and 25](#)

3D Printing

Our 3D Printing business unit, in which Xaar 3D sits, develops 3D printing solutions based on Xaar3D SAF™ technology which will have unique capabilities to address new markets especially in manufacturing. With investment from Xaar plc and Stratasys, Xaar 3D can leverage the natural synergies between global leaders in inkjet technology and 3D printing technology.

 [Read more on pages 26 and 27](#)

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Our guiding principles



**WE DO EVEN
WITH**

In September 2020, when we announced our new brand identity and launched the ImagineX printhead platform, we also launched a new set of values to reflect the true essence of Xaar. We use these values to guide the way we behave towards our customers, our partners and each other.

- + We do everything with passion
- + We are creative
- + We are innovative
- + We have integrity
- + We are collaborative

EVERYTHING WITH PASSION

”

When I joined Xaar, I was particularly struck by the passion for Xaar's technology that I came across when I met everyone for the first time. It was quite inspirational to see the abundance of enthusiasm for and pride in the fantastic technology created by a relatively small team of people. There is a real buzz, everyone is incredibly busy and working hard, with a positivity and joint sense of purpose.

John Mills
Xaar CEO

One creative idea inspires the next



In my experience innovative solutions rarely come as a brilliant idea of an individual, but are typically the result of teamwork whereby one creative idea inspires the next.

Renzo Trip

Principal Engineer, Advanced Application Group
Xaar

INN

CREATIVI

Creativity

"When I started at Xaar I was unfamiliar with inkjet and the printing industry in general. I did not think in terms of print resolution, line speed and greyscale, but rather in terms of pressure, velocity and volume.

The customers that the Advanced Applications group typically supports also look at a printhead from a different perspective. For example, they can see it as a device to create very thin layers on wafers, to produce flawless microscopic lenses or to deposit an accurate amount of drugs. To find ways to achieve these targets with a technology probably never used in a similar application before requires experience, expertise, and ... creativity."

Renzo Trip

Principal Engineer,
Advanced Application Group
Xaar

Nick Jackson

Principal Engineer,
Advanced Application group,
Inventor of Xaar's High Laydown Technology
Xaar

INNOVATION ACTIVITY

Innovation

"Three years ago, NKT collaborated with Xaar and took the lead in promoting Xaar 2001 printhead in the Chinese ceramic industry. In the past three years, NKT has sold more than 200 digital inkjet machines with Xaar 2001 printheads in China, Vietnam, India, Pakistan, Bangladesh, Iran, Africa and other countries.

The technical advantages of the 720 dpi and the innovative High Laydown Technology have greatly improved the exquisiteness and colour adaptability of ceramic digital printing, which has brought huge benefits to our customers.

We believe the introduction of the new Xaar 2002 printhead will further boost the performance of our machines. In future, NKT will collaborate more closely with Xaar and especially in the ImagineX platform to innovate and bring more value to our customers in the ceramics industry."

Mr Jack Peng

General Manager
New King Time Machinery

Long-term thinking and flexibility



**IN
COLLABO**

Integrity

"I encourage my team to be open and honest with our OEM customers. This builds up trust and a strong bond.

China and Asia have a huge market potential and there is a lot of work to be done. Integrity is highly important as it shows the right values and our Chinese OEMs will treat us not as a printhead supplier but as a strong business partner for today and in the future."

Samuel Tam

Xaar General Manager, Asia

INTEGRITY COLLABORATIVE

Collaborative

"Meta Additive's binder innovation would not be possible without the right printhead. We have been collaborating with Xaar for about a year, and we chose them because first and foremost they have a reliable printhead technology.

This is crucial for mass manufacturing. Collaboration and making headway in technology needs clear and open communication, and that's what we get from Xaar. They also give us long-term thinking and flexibility, meeting us in the middle, and their aim is to support and grow with us over the long-term. We have a strong partner in Xaar."

Kate Black

Founder and CTO
Meta Additive

Chairman's introduction



In what has been a challenging year across global economies, I am pleased to report excellent progress at Xaar. Our challenge has not only been the impact of the COVID-19 pandemic and new ways of working, but also, under new leadership, refocusing the business on our core competencies and developing a strategy for growth exploiting the fundamental strength of our bulk piezo inkjet technology.

Strategic and operational highlights

- Implementation of the new strategy continues to deliver positive customer engagement
- Strong performance for the Printhead business with consistent wins of new customers and projects following successful shift in go-to market strategy and focus on markets where products have a competitive advantage
- ImagineX platform successfully launched in September 2020 utilising investment in Thin Film IP, providing clear product roadmap and compelling market opportunity
- Investment in customer service centre in Shenzhen, China, to better service Xaar's largest addressable market
- Relocation of Cambridge offices during 2021 will result in £0.7 million full year cost saving
- Xaar Nitrox, the second product offering from our ImagineX platform, is officially launched today
- Engineered Printing Solutions (EPS) impacted by COVID-19, but good progress made and strong order book and pipeline including several new target markets
- Advanced discussions to divest Xaar 3D investment.

A number of changes have been made in the business: a realignment of our go-to-market approach with a clear focus on the value chain and customers, a revitalisation of our brand and corporate identity and, importantly, a focus on the technical and competitive advantages of the Xaar bulk piezo product range with a pipeline of new product developments that we plan to exploit as a part of our new ImagineX platform.

It has been most pleasing to see the energy and enthusiasm of the Xaar team, matched only by the response we have had from customers, with both existing and new OEMs and end-users seeking to deploy Xaar technology in their next generation products.

Our Printhead business has performed very strongly this year. Sales were higher than levels achieved in 2019 and, against the challenging economic backdrop created by the pandemic, our order book has remained consistently strong. We have been particularly pleased with efficiency gains made in our printhead operations, which resulted in both improved gross margins and strong cash generation from more efficient use of working capital. Development of this core platform is a priority for the Board in 2021 and beyond.

Our product print business, EPS, based in North America, was impacted by a fall in demand through the worst of the pandemic but, with a small grant from the US Government, made only a small loss and remains a valuable contributor to the Group.

Xaar 3D was similarly impacted by COVID-19 restrictions and progress has been slower than expected. Xaar's position in the 3D business is one of technology enabler and our end goal remains one of supplying Xaar printheads for use in 3D applications as opposed to becoming an OEM in the sector. As a result of programme delays in 2020, and following a re-evaluation of the further cash investment required and extended timescales to full commercialisation of the product, we have determined that it is in Xaar's best interests to bring forward the planned sale of Xaar's shares in Xaar 3D. The terms of the proposed revised option arrangement will be published in due course and subject to Xaar shareholder approval.

The past 12 months have seen much change at Xaar. We entered the year with optimism and a renewed sense of purpose but of course had no idea of the extent of challenge we would all face. It is to the great credit of the whole team at Xaar, in all businesses and in the many countries around the world where colleagues live and work, that they have adapted, committed to and succeeded in delivering both solid financial results and a platform for continued growth.

The Board is encouraged by our progress this year and, with the prospect of some return to better market conditions later in 2021, looks forward with confidence.

Andrew Herbert
Chairman

27 April 2021

Strategy update



In April 2020 we announced a new strategy across the business and are pleased to say that we continue to make good progress delivering this and we are already seeing real benefits from this new approach. We believe we are on track to return the business to profitability and growth in the medium term.

Printhead

Our strategy for the Printhead business is:

1. A customer-centric business model that places the customer, Original Equipment Manufacturers (OEMs) and User Developer Integrators (UDIs), at the heart of everything we do;
2. A focus on markets where Xaar Bulk Printhead Technology has a competitive advantage;
3. A product roadmap that will develop the Bulk Printhead range to offer advantages over the competition in existing and new markets; and
4. A marketing and communications plan that drives home the advantages of our current products, sells the value and capabilities of the new products on our roadmap, and builds trust in the new business model.

A customer-centric business model

The change in go-to-market strategy which includes removing distribution channels, a clear pricing strategy, and a sales process that is focused on selling the printhead based on its technical merits and the value of the relationship with Xaar, has already started to reap rewards.

As part of the customer-centric focus we have implemented end-to-end customer journey management to provide an enhanced level of service and support over the entire product lifecycle in order to reduce their development times, and therefore time to market, and to also provide improved aftersales support.

We now have OEMs and UDIs across multiple applications developing machines using a range of our products. We have seen OEM customers return and have also won new accounts including several exciting UDI opportunities. We have a growing pipeline with a significant number of opportunities which we have a good chance of winning thanks to our technology advantages. This will give us additional opportunities for further vertical integration.

With sales in Asia, and particularly China, growing significantly, up 56% year-on-year, customers re-engaging and our sales pipeline increasing, the Board has decided to invest in a Chinese customer service centre in Shenzhen which is ideally situated to address a large number of existing and potential customers whilst providing excellent links to other printing hubs in the rest of China. The Chinese market is the largest addressable market in the world for Xaar printheads and represents an important growth opportunity.

Financial highlights

Revenue – Continuing operations

£48.0m

in line with management expectations (2019: £49.4 million)

Gross margin – Continuing operations

27%

increased from 25% in 2019, benefitting from operational leverage in the business

Gross R&D spend

£4.5m

by continuing operations of £4.5 million, up £1.4 million on 2019 with investment focused on the ImagineX platform and product roadmap

- Positive aEBITDA contribution from Printhead & EPS businesses

Net cash inflows

£7.1m

Net cash inflow from continuing operations (2019: £8.4 million)

Annual cost savings

£0.7m

annual cost saving from relocation of office following comprehensive review

Net cash

£18.1m

Strong closing balance sheet with net cash, and Treasury deposits, excluding Xaar 3D (2019: £16.2 million)

Strategy update (cont.)

This new facility will enable us to provide both our existing and potential customers across the region with a higher level of service including enhanced technical support through a demonstration centre, waveform development and RMA facilities. These facilities will enable local support to be provided for all aspects of the customer product lifecycle from printhead selection, through machine development and commercialisation to warranty and RMA support. We expect to be able to start welcoming customers to our new customer service centre in the coming months.

Competitive advantage of our Bulk Printhead Technology

Xaar's Bulk Printhead Technology offers several advantages over the competition including our Through-Flow (TF) Technology ink recirculation, High Laydown Technology and high viscosity capability, which means our printheads can jet the widest range of fluids available making them suitable for a number of applications that other printheads aren't. We have focused on ensuring that the benefits are better marketed and understood. Together with our customer-centric business model, this has enabled us to win a significant number of new accounts over the last 12 months whilst building up a strong pipeline of opportunities.

Through a targeted approach, an effective business model and printheads for the right market, we have started to win back market share in the Ceramics sector and have established a strong position in the Glass sector which will enable revenue growth over the coming years. Our position in the Coding & Marking (C&M) and Direct-to-Shape (DTS) sectors remains strong especially in DTS where we have a clear competitive advantage over our competitors due to our TF Technology ink recirculation. In 3D and Advanced Manufacturing, we are well positioned due to our ability to print a wide variety of materials and have an exciting pipeline of opportunities.

Our mix of customers, both OEM and UDI, is growing and now spans a variety of industries from our more traditional sectors such as Ceramics and Labels to opportunities in Aerospace, Automotive, Advanced Manufacturing processes used in Electronics, and Robotics.

Product roadmap and ImagineX platform

In September 2020 we announced the launch of our new printhead platform under the brand name ImagineX. This platform builds upon several technology and development programmes from our legacy Bulk and Thin Film investment. The ImagineX platform will drive the next phase of Xaar's success enabling the business to increase its addressable market whilst establishing market leading products across all sectors.

The ImagineX platform will deliver a number of features over the next few years which will provide significant enhancements to the current portfolio; these include substantially improved speed and throughput (frequencies up to 150kHz, equivalent to a threefold increase in speed), aqueous compatibility, increased throw distance to improve image quality on curved surfaces, increased robustness to improve the life of the printhead and maintain image quality, higher viscosities enabling a broader range of fluids to be printed (above 100cP), and higher resolutions (up to 1440 dpi). These features will help strengthen our position in markets where we are already well represented and will drive improved adoption in several markets where we are currently not, such as Wide Format Graphics, Labels, Packaging and Textiles. The performance enhancements in our product roadmap give a clear path for OEMs to upgrade their products and maintain their product differentiation.

Several features from the ImagineX platform are already available and today we announce the launch of our second product, the Xaar Nitrox. The Xaar Nitrox delivers improved print uniformity and is capable of running at higher frequencies which enable the printhead to increase its speed and productivity by 40%. These enhancements make it ideal for Ceramics, Labels, and Advanced Manufacturing applications.

The first product from the ImagineX platform, the Xaar 2002, was launched in August 2020 following extensive customer feedback and incorporates several technology developments, including high viscosity, high laydown, and AcuChp, as well as an increased ease of integration for the OEM. This product has been well received by the market and is being adopted by both current and new customers alike.

We are engaged with OEM partners on several programmes related to our ImagineX platform, with our partners committed to alpha and beta trials. The change to the customer-centric business model is enabling improved Voice of Customer and we are engaged with a wide group of OEMs who are continuing to provide feedback on the roadmap.

Over the longer term Xaar will increasingly vertically integrate in order to provide a more complete printer solution in certain markets, whilst continuing its primary business model of selling printheads to OEMs and UDIs. The additional capabilities required to achieve this will be added through either partnership, development of existing capabilities or acquisition.

Marketing and communications

Twelve months ago, we talked about needing to rebuild the Xaar brand, regain the trust of OEMs, and to make sure the advantages of Xaar technology are well understood. We have made significant progress in addressing these issues, whilst acknowledging there is still more to do.

The combination of communicating the change in strategy and the new product roadmap, followed by a revised mission and vision, and more recently the new brand and launch of the ImagineX platform, have helped to shift perceptions of Xaar. Stakeholders are noticeably more engaged and excited by the direction Xaar is taking. This is demonstrated through the positive customer feedback, in addition to the growing number of customers engaging with the business, strong interaction with the press and positive media coverage including at conferences such as Future Print where we officially launched the ImagineX platform to the marketplace.

The level of engagement from previous and established customers indicates we have started to regain their trust. This has been achieved through our efforts to build relationships with them, our desire to listen to their needs and to work with them to find a solution, and through the consistent communications they receive. This has all been reinforced with corporate messaging on our social media platforms. The initial customer response has been encouraging, with the acceptance that we need to consistently listen and deliver on our customer needs to fully rebuild partnerships with them. We are now able to facilitate the end-to-end customer journey management, utilising marketing cloud for better campaigns and lead generation. We have also been successful in our conversion of these leads.

The launch of the Xaar 2002 printhead gave us the opportunity to demonstrate the advantages of Xaar's technology and discuss with customers our product roadmap. The launch of the ImagineX platform in September has helped reinforce the perception that Xaar's bulk technology adds real value today and has an exciting future. With ImagineX, customers can now see us as a potential partner not only for their current generation of products but also for future development programmes. The closer relationships we now have with our customers has the added benefit of enabling better Voice of Customer (VOC) which in turn allows us to fine tune our product roadmap and helps place us front and centre for the customers' next generation of products.

With the launch of the Xaar Nitrox we are also introducing a new naming convention to link into our new ImagineX platform and reflect our new brand identity. A significant amount of work is going into this product launch which will be the first of several in the coming 24 months.

To see the new Xaar brand identity and the ImagineX platform visit www.xaar.com.

Operational gearing

Substantial progress has been made in reducing the cost base of the Printhead business in recent years to reduce not only variable costs but also removing, or reducing, fixed costs where possible. These efforts had been obscured by the rate at which revenue declined, and subsequently we hadn't previously seen the expected positive impact on gross margins and ultimately the profitability of the business. With revenues increasing in 2020 we now see the benefit of these measures as sales and factory throughput have both increased and we can leverage the high operational gearing in the factory and wider business. This is reflected in the gross margin from continuing operations improvement, up 5% year-on-year to 27%. A combination of operational gearing and the reduction in the SG&A costs have seen adjusted EBITDA improve £5.4 million year-on-year to £0.0 million.

As the business continues to grow, we will be able to further leverage our high operational gearing with modest investment to support additional sales from the existing product portfolio or new products released from the ImagineX platform.

Beyond the factory we continue to review our cost base. Xaar's offices on the Cambridge Science Park are over 25 years old and require investment to bring them up to a more modern, appropriate standard. Furthermore, with the reduction in workforce over the last few years there is significant excess capacity. The move to homeworking caused by COVID-19 has been successful and has proven that flexible working can be effective for large parts of the workforce. Following a comprehensive review, a decision has been taken to relocate from the Cambridge Science Park to the nearby Cambridge Research Park. This move will allow the business to relocate to smaller premises offering a more modern and vibrant workplace for employees and guests. Significantly the move will also generate savings of £0.7 million per annum from the start of the second half of 2021.

EPS

Our strategy for the EPS business is centred on three principles:

1. Focused business development aimed at utilising existing technologies to expand into adjacent markets;
2. Increased scalability through the standardisation of modular components whilst retaining the ability to meet each customers' unique requirements through customised fixtures and tooling; and
3. Improved controls over pricing and costs.

We have continued to build upon the good progress made in the first half of the year. Despite the impact of COVID-19 continuing to impact our team's ability to travel we have been able to deliver improvements on our focused business development. This is reflected in the strong order book and pipeline at the start of 2021 which contains opportunities from several new target markets.

Our engineering teams have worked hard on delivering standardised modular systems and we continue to see orders won using this philosophy. This is significant in that it will not only reduce design costs, and improve product margins, but will also reduce the lead-time for the customer. Combined with improvements in the quotation process, and cost control, we expect to see the real benefit of this in 2021 through increases in gross margins and a faster turnover of machines on the shopfloor.

These developments aren't truly reflected in the full year performance where the rise in gross margin from the change in strategy, and related processes, are offset by the write off and provisioning of slow-moving legacy inventory and the reduction in revenue in the second half of 2020.

Additional work has been identified to take place in 2021 to remediate internal management and reporting controls to enable delivery of improved operational processes and remediate identified deficiencies, to deliver improvements in revenue recognition, gross margin and inventory management.

3D

Xaar's position in the 3D business is one of technology enabler and our end goal has been, and remains to, supply printheads for use in 3D applications and not become an OEM in the sector. That was the rationale behind our joint venture agreement with Stratasy, a recognised leader in 3D with a proven track record and strong routes to market, and the subsequent option agreement signed with Stratasy.

Alongside its investment in 3D, the Xaar Board has redefined its core business strategy during 2020 with a strong focus on the development of its bulk piezo printhead business. We have a programme of investment in technology and new products and, with a revised commercial model, we have been successful in both reengaging with OEM partners and developing new customer opportunities. Our key focus today is on building upon this core competency, increasing our capabilities in deploying bulk piezo printheads among chosen OEMs and UDIs, and prioritising investment to ensure we develop and sustain competitive advantage as we see increasing demand for our unique technology solutions. We enter 2021 with a range of further investment opportunities in both technology through internal R&D capability and capacity through the potential for acquisition of complementary technology, skills and expertise.

Whilst Xaar 3D has continued to make progress this year it has been impacted by the COVID-19 pandemic. This has affected the programme most significantly in two areas. Firstly, due to restrictions put in place in Denmark, the number of people able to access the Copenhagen facility has been limited. These limitations have restricted both the test capacity and the speed at which testing can take place. Secondly, travel restrictions have prevented the team from travelling and has meant face to face time with the sub-contract manufacturer has also been limited and has affected the original timeline of the alpha and beta programme. As a direct consequence of these delays we anticipate Xaar 3D would require further investment in 2021 (cash decreased in 2020 by £7.0 million to £2.1 million), significantly more than original plans anticipated.

As a result of the delays in the programme and the further investment anticipated, the Xaar Board has considered all options for the future financing and ownership structure of Xaar 3D, and accordingly has held detailed discussions to sell the remaining stake in Xaar 3D. Terms are still to be finalised and may potentially differ to those of the Call Option originally agreed in 2019. The Directors have assessed that the disposal is highly probable and therefore Xaar 3D is classified as a discontinued operation.

The terms of any final agreement will be subject to Xaar shareholder approval.

Such an arrangement would provide Xaar 3D with the best opportunity to complete the commercialisation of the HSS product range in the shortest time, would lead to an immediate injection of cash and will enable Xaar to focus on its core business.

Strategy update (cont.)

COVID-19

Following the outbreak earlier in the year we took measures across the Group to ensure the health and wellbeing of all our employees. The business has adapted incredibly well to these challenges with much of the organisation operating effectively from remote locations. In addition, changes at our manufacturing facilities have meant that we have been able to continue production without compromising the health and safety of our employees or our production capabilities.

The Xaar Printhead business has a significant customer base in both China and EMEA, including a strong customer presence in both Italy and Spain. Despite COVID-19 lockdowns in these geographies, which resulted in a number of short-term production stops at our customers' facilities and limited our ability to visit, we have continued to support and engage with them and have seen sales into both Asia and EMEA increase since the second half of 2019. Our teams have worked hard to maintain our supply chain and production capabilities in meeting the requirements of this increased demand. Our ability to ensure the continuity of supply has been well received by our customers and has helped us secure several orders versus the competition.

Our US-based EPS business has continued to operate throughout the period with little interruption to its manufacturing operations. As an OEM and supplier to end users the EPS business has felt the impact of a slowdown in the economy more directly than the Printhead business. Full year sales from Pad Printing machines and consumables were affected throughout the second half of the year as end user markets continued to be impacted by the pandemic. The EPS business has taken advantage of the Paycheck Protection Program (PPP) established by the 2020 US Federal government Coronavirus Aid, Relief, and Economic Security Act (CARES Act). As part of the PPP EPS has taken out a loan of \$1.0 million which under certain conditions can be waived. The company meets the criteria for the loan to be waived and has recognised it as income and reported it as a government grant (see note 7 on page 130). EPS is well positioned to take advantage of any upturn and has continued to secure orders for use of its products in various sectors despite the limitations arising from the pandemic. Furthermore, it has been able to establish both a strong pipeline and strong order book as customers start to plan for their capital investments again.

The 3D business unit has operations in Nottingham, UK, and Copenhagen, Denmark and has seen delays in the testing and commercialisation of the 3D printers. These were caused by minor delays in the supply chain and more significantly by restrictions in Denmark which limited the number of individuals who were allowed in the Copenhagen facility, restricting testing capacity, and the ability to travel and resolve issues face to face with the sub-contract manufacturer.

Both our Printhead business and EPS were well positioned prior to the pandemic with strong order books. We believe we are well positioned to continue to support our customers and suppliers, and our strong cash and balance sheet position provides confidence that we are well placed. We believe we are well positioned to take advantage of any economic upturn as pandemic restrictions recede.

Operating sustainably

Xaar strongly believes that corporate responsibility is integral to business success. We uphold the highest of standards across our business and comply with all relevant regulations in the territories in which we operate whilst enhancing the working environment for our employees and minimising the environmental impact of our products.

We have offset all of the UK regulatory Scope 1 and 2 carbon impact that we made and reported in 2020. Based on our carbon footprint reported in 2020 this makes Xaar a carbon neutral inkjet manufacturer.

We still need to understand the full impact from our operations and are committed to continue reducing the impact on the environment and maintaining our drive to achieve complete carbon neutrality in line with the UK's 2030 goal.

In August 2020 we introduced new packaging across our printhead portfolio and now all Xaar's printheads are shipped in fully recyclable and biodegradable cardboard packs with the aim of reducing our plastic consumption by 1.2 tonnes per year.

In addition, we have moved electricity supply for our Printhead business to a green energy supply, supplementing measures we are already taking to improve energy efficiency.

We have also started a project to review our carbon footprint and the measures we take to limit this. The results of this review including definition of appropriate KPIs will be announced later in the year.

In support of our local community, we have started a programme of work to establish apprenticeship and graduate schemes which we expect to roll out over the next 12 months. This is aligned with our sponsorship of local clubs around Huntingdon and Cambridge in the UK to drive interest in STEM subjects among school students.

Our priority during the COVID-19 period has been to ensure the health and wellbeing of our employees. Beyond this we have supported our local community by donating PPE to the Addenbrookes NHS trust and manufacturing 3D printed headbands for protective masks.

We have put in place on-site COVID-19 testing facilities to test all staff on-site on a twice weekly basis.

Brexit

The Group operates globally and the impact following the transition phase of Brexit continues to be monitored. We have taken action where necessary in moving to freight carriers to ensure smooth customs clearance and to date have experienced little impact. We will continue to evaluate all transport methods and ensure we meet any increased burden of audit trail compliance. As for many businesses, a greater challenge is potentially that of EU workers and migration. As a result of Brexit, the Group is exposed to potential currency fluctuations.

Brexit and trade barriers continue to be an integral part of the Group’s ongoing risk management and review process, for which solutions to address the risks identified are explored and implemented. We continue to believe that the direct consequences of Brexit will have no material impact on the Group.


Outlook and summary

We are very pleased with the performance of the business in 2020. Given the difficult trading environment and the wider economic impact of the COVID-19 pandemic, the results are positive. There is significant work still required to increase customer trust and capitalise on the many market opportunities, and the ongoing pandemic makes it difficult to provide reliable guidance on the outlook for 2021 and beyond. That said, the short-term outlook remains good with a strong order book across the business, and the continued strength of the Group’s balance sheet and cash position leave it well placed to withstand further volatility in the market. Implementing the new strategy is already proving successful and we believe this will continue. The foundations that are being laid at present will provide a springboard for future growth and a return to profitability in the medium term.

By order of the Board


John Mills
 Chief Executive
 Officer

27 April 2021


Ian Tichias
 Chief Financial
 Officer

27 April 2021



Our business model




Together with our partners and customers, we have been transforming the world of inkjet technology for over 30 years

The largest part of Xaar is the Printhead business. Here we sell our inkjet technology in component form (the printhead) to OEMs who produce and sell the complete digital printing solution. We also work with User Developer Integrators (UDIs) who are building their own digital system.

We actively partner and co-develop with fluid suppliers, hardware and software integrators as well as substrate suppliers to deliver a robust and attractive total solution to our customers.

Our product printing business – EPS – designs and develops complete industrial printing machines which we sell to end users.

Our 3D Printing business – Xaar 3D – is a leading developer of 3D printing solutions based on Xaar3D SAF™ technology. With investment from Xaar plc and Stratasys, Xaar 3D can leverage the natural synergies between global leaders in inkjet technology and 3D printing technology.

<p>Xaar designs</p> 	<p>We have R&D facilities in Cambridge, Nottingham, Copenhagen, Stockholm, and Vermont. We also work with strategic partners to jointly develop some products. We invest a substantial proportion of our revenue in R&D to remain a world leader in inkjet technology (2020: over 10%).</p>	<p>We continually add to our Intellectual Property ('IP') portfolio, and currently we have over 300 patents and patent applications. Our R&D staff totals 78 which is 21% of the total workforce.</p>
<p>Xaar manufactures</p> 	<p>Xaar manufactures its printheads in Huntingdon, UK. Xaar's manufacturing is capital intensive. The Group has invested over £70 million in assets and production facilities in Huntingdon since the plant opened in 2007. We export over 95% of our printheads to customers around the world.</p>	<p>EPS, our product printing business, manufactures customised and bespoke printing solutions in Vermont, USA.</p>
<p>Xaar markets</p> 	<p>Xaar offers a wide range of industrial inkjet printheads and print systems which are designed and produced to meet the customer-driven requirements of a range of manufacturing applications.</p> <p>Primary markets include:</p> <ul style="list-style-type: none"> • 3D Printing • Ceramic Tile Decoration • Coding & Marking 	<ul style="list-style-type: none"> • Decorative Laminates • Direct-to-Shape • Functional Fluid Deposition • Glass Printing • Graphics • Primary Labels • Packaging • Product Printing.
<p>Xaar sells</p> 	<p>Xaar sells direct to OEMs and UDIs around the world through its global sales team. Xaar's highly skilled application engineers offer the highest level of technical support to assist OEMs and UDIs in the successful design, build, commissioning, and ongoing maintenance of printing systems. Europe, Asia and North America are the primary locations of our current OEM partners.</p>	<p>Xaar company EPS also sells product printing equipment, services and consumables.</p>

We create value for all our stakeholders

Customers

OEMs and User Developer Integrators, and also end users, are able to innovate in their manufacturing methods and their products as well as benefit from a shorter distribution chain; they can take products to market more quickly, implement more precise and efficient processes, easily produce short batches, improve productivity, reduce waste and deliver more creativity.

Shareholders

A key goal at Xaar is to maximise the long-term growth in value delivered to shareholders via sustained, consistent growth in earnings per share. This is delivered through continued investment in R&D and producing a pipeline of new products which deliver a sustained return on capital employed.

Our employees

Our success depends on the capability and engagement of our people. We want bright and driven people who share our values and passion for developing and manufacturing world leading technology. We want to build a culture of innovation, continuous improvement, delivery of commitments, transparency and customer focus. We aim to build long-term relationships with all our employees by helping them grow and develop, and by making Xaar an interesting place to work as well as a great company to be involved with.

In a difficult year for many, we have focused on rebuilding trust and engagement with our people. We have carried out an employee opinion survey with very positive results, reflecting our enhanced communication with employees, both in frequency and type, and a belief in the new Company strategy. The data from the survey has resulted in targeted actions and improvements specific to different parts of the business.

We have also continued with the forums where employees have the opportunity to meet and chat with all our Non-Executive Directors along with the Exec Xchange where our employees get to meet members of the senior management team in smaller groups to ask questions and exchange ideas.

Environment

Digital print methods are inherently more environmentally friendly than the analogue techniques we seek to replace. Our research shows that, compared to analogue alternatives, digital has a huge impact in reducing energy consumption (by as much as 55%), water consumption (by up to 60%) and CO₂ emissions (by up to 95%), but also in reducing pollution and waste materials. Xaar is committed to reducing its impact on the environment wherever possible. Our actuator technology consumes less energy than competitor alternatives and our industrial printheads can remain in use for many years. In addition, we use a continuous improvement methodology and we have adopted a manufacturing ethos of "reduce, reuse and recycle".

We are committed to adopting advanced manufacturing techniques in our own cleanrooms wherever possible. Some of these techniques reduce manufacturing waste and eliminate the need for tooling and parts. In 2020 we moved to packaging which is 100% recyclable. In addition, we have commenced a review of our energy usage under a programme to target "Carbon Zero by 2030". Progress to date includes the transfer of electricity supply to an environmentally sustainable green source, the co-ordination of energy efficient actions via an Energy Reduction Team and the investigation of energy generation solutions via supply and installation of Solar array at our Huntingdon factory.

Digital printing compared to analogue reduces consumption of up to:

CO₂ emissions

95%

Energy consumption

55%

Water consumption

60%

Source: Xaar

Marketplace

From the brightest, most textured ceramic tiles to the smallest, most complex printed electronics, Xaar's digital inkjet technologies are transforming print processes in a wide range of markets.

Industrial markets

Ceramic Tile Decoration

The majority of the tile decoration market uses digital inkjet technology because, compared to traditional analogue techniques, it is superior in terms of image quality and is lower in cost. In addition, it offers the advantages of flexibility, inventory reduction and larger tile size capability. This is a mature market for Xaar with strong competition. However, with an average useful life of five to six years, several hundred new ceramics printers are required each year for the foreseeable future. The Xaar 2002 with three variants, 720 dpi resolution and unique High Laydown Technology for textured tile effects, is the most versatile printhead family for ceramic tile decoration on the market.

Decorative Laminates

Realistic wood finishes or creative design are the key features which sell the board/plank/finished item. The digital quality that can be produced with Xaar printheads matches the quality produced by the analogue process, thereby offering the opportunity for more economic short run work to be undertaken whilst reducing inventories and improving time-to-market.

Functional Fluid Deposition

Xaar's focus on functional fluid promotes our inkjet technology, which offers an unrivalled method of non-contact, fluid deposition with incredible precision, control and speed. Typically applications are challenging, pushing our technology to and beyond known limits in markets such as Flat Panel Display, Semiconductors, Printed Electronics and Optics.

There is an ever increasing interest in Xaar's inkjet technology as part of a manufacturing process, and through the work that we do we aim to develop these medium-term applications into commercial opportunities.

3D Printing

3D Printing is a manufacturing methodology that encompasses a range of processes and applications, with a common theme of building parts up, usually layer-upon-layer. This additive approach ultimately enables manufacturers to eliminate the need for tooling. There are significant advantages, including superior geometric freedom, giving designers much more capability, and a substantial reduction in lead time for products. In addition 3D Printing provides the facility to tailor unique products to consumers, enable de-centralised manufacturing and shrink spare part storage.

Glass Printing

Architectural glass is increasingly used to complement ceramic tiles in modern commercial design, and is starting to be used in residential projects also. Functional glass, such as car windscreens or glass tops used in induction hob cookers, is predominantly printed using analogue screen techniques, but is increasingly moving to digital to provide production flexibility and inventory reduction. This is an emerging sector for digital inkjet.

Many glass printing applications involve jetting highly viscous inks. Xaar's TF Technology provides a competitive advantage, and the Xaar 2002 is the leading printhead for glass printing.

Packaging markets

Coding & Marking

Coding & Marking is an application which relates to printing product identification codes such as batch numbers, use by dates and barcodes. Xaar's technology is used to print barcodes and logos on outer case/secondary packaging of consumer goods. This is an established and stable business, and competes with alternative technologies including print and apply, and thermal inkjet.

Primary Labels

Labels are used for many different applications, including product identification, name tags, warning and hazard identification, promotions and as decals for product decoration. So far only a minority of this market has converted to digital printing to date. The change driver is the delivery of lower cost per copy on run lengths up to 100,000 impressions.

There is a large range of substrates and inks in this application which adds complication to the conversion process. Xaar excels in two areas of label printing: colours (including white) and varnish based finishing effects using Xaar's High Laydown Technology.

Direct-to-Shape

Direct-to-Shape is a relatively new application where bottles and containers have the image printed directly onto their surface without the need for a label. The solution is aimed at reducing unit costs versus the application of a label. This approach can also be used as part of the identity of a brand, and provides differentiation versus other products that use paper or plastic labels. Xaar printheads are the best at printing in a vertical mode (a frequent requirement for these applications), thanks to TF Technology.

Other markets

Product Printing

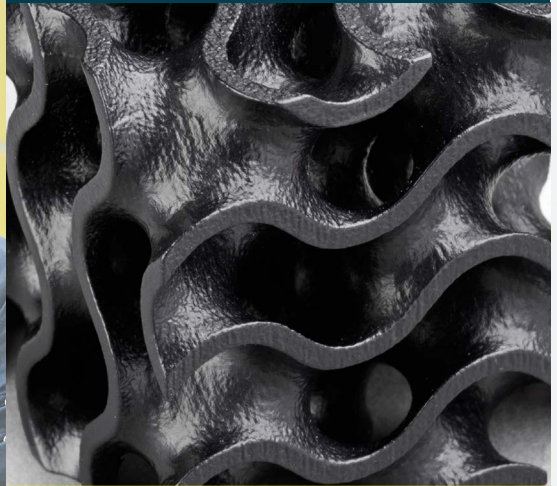
Product Printing covers printing onto all kinds of industrial objects, including consumer and promotional items, packaging, medical, automotive, apparel, appliances, sports equipment and toys. Xaar's printheads are particularly suitable to these applications because the printhead design enables the use of a wide range of fluids as well as configurations options. In addition, Xaar company Engineered Printing Solutions (EPS) is a leader in this sector, providing best-fit custom printing solutions for many different applications, including promotional, packaging, medical, automotive, apparel, appliances, sports equipment and toys.

Grand- and Wide-Format Graphics

Grand- and Wide-Format Graphics includes both indoor and outdoor signage and advertising, including billboards, posters and point of sale advertising. It is the most mature industrial inkjet market, active for over 15 years. Xaar's early product range, which included the Xaar 128 and Xaar 500, was instrumental in the growth of the digital graphics industry around the world.



3D Printing



Product Printing



Glass

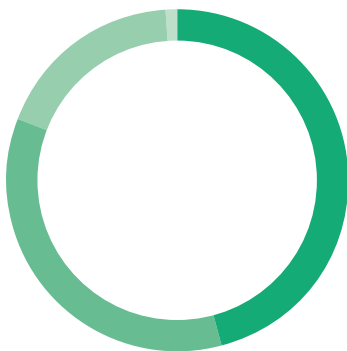


Our business units

Printhead

From the brightest, most textured ceramic tiles to the smallest, most complex printed electronics, Xaar's digital inkjet technologies are transforming print processes.

Key figures



● Industrial	46%
● Packaging	35%
● Graphic Arts	18%
● Royalty	1%

Printhead revenue

£35.3m

2020	35.3
2019	33.7

2020 summary

We made good progress with the new strategies for the Printhead business unit which we announced in April 2020.

[Read more on page 28](#)

We began to see the positive impact of the new business model introduced (only selling to OEMs and UDIs) with consistent new business wins. This has led to a growing mix of customers, both OEM and UDI, across a variety of industries beyond our more traditional sectors (Ceramics and Labels) to Aerospace, Automotive and Advanced Manufacturing.

The Xaar 2002 was launched in August. Developed using extensive customer feedback. The Xaar 2002 is being adopted by new and existing customers. The printhead incorporates drop in printhead alignment and tight mechanical tolerances to allow the printheads to be dropped into the printbar easier, making set up times faster, and machine builds quicker. In addition, thanks to its new advanced Tuned Actuator Manufacturing – TAM² – and Xaar AcuChp Technology, the Xaar 2002 also delivers visibly improved colour uniformity across the width of the printhead, further reducing printhead installation and set-up times, therefore maximising printer uptime.

The full launch of our ImagineX printhead platform took place in September, which provides a clear product roadmap for our customers and which will deliver some compelling advantages.

Priorities for 2021

A focus for 2021 is the Xaar Nitrox, launched in April 2021, and the second product offering from our ImagineX platform. As a very versatile, all round performer, this printhead, which offers a number of applications a 40% increase in productivity and more uniform print quality, is attractive to our Ceramics, Labels and Additive Manufacturing customer base in particular.

In China we are opening a Chinese office in Shenzhen to be able to deliver a higher level of service and enhanced technical support. The facility includes a demonstration centre, waveform development and RMA facilities.

We will continue focus on building our relationships with our OEM and UDI customers. This deeper working relationship is now facilitating Voice of Customer work to further develop our ImagineX platform product roadmap. In addition we are engaging with OEM and UDI partners on a number of product development programmes, with our partners committed to alpha and beta trials.

Where we excel

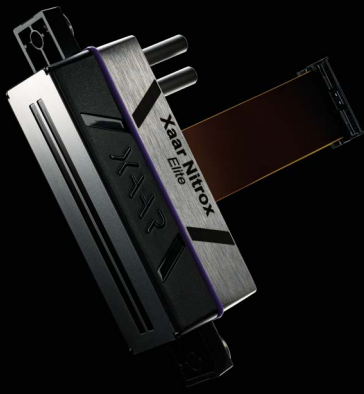
- We are the only truly independent inkjet technology company with 30 years of experience. Our independence enables a flexible, collaborative approach to ensure we remain customer-centric and focus on their goals
- State-of-the-art UK manufacturing facilities and an enviable R&D department staffed by scientists and engineers with a wealth of inkjet industry knowledge and expertise
- A comprehensive portfolio of printheads to cover a wide range of applications
- Engineers with extensive knowledge of inkjet and its application across many sectors as well as considerable field experience. This means they are able to assist our OEMs in the successful design, build, commissioning and post-installation support of all Xaar-based inkjet systems
- Ready-to-use development kits and an extensive portfolio of systems components ensures that OEMs can get up and running quickly.

Technologies

- TF Technology
- XaarDOT
- AcuDrp Technology
- High Laydown Technology
- Ultra High Viscosity
- Tuned Acuator Manufacturing
- XaarSMART.

[Read more on page 20](#)

| Our product range



Xaar Nitrox

With unparalleled productivity and performance, the Xaar Nitrox lets you create without limits



Xaar 2002

High productivity and out of the box exceptional print quality



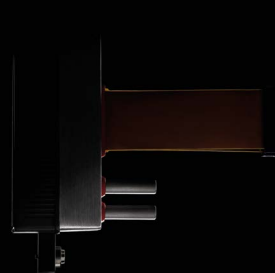
Xaar 1003 C

Ultimate versatility in ceramic tile decoration



Xaar 1003 U

All round reliable high quality printing for industrial applications



Xaar 1003 AMx

Highly accurate fluid deposition for additive manufacturing



Xaar 1003 AMp

Small drop deposition on an industrial scale



Xaar 501

High production up-time and industrial reliability



Xaar 502 O

Industrial reliability and mineral-oil free inks



Xaar 502 S

Exceptional print quality for Wide-Format Graphic



Xaar 128

Adaptable printhead with trouble-free integration

Our business units (cont.)

Printhead – Technologies

Xaar's unique inkjet technologies

We have a number of unique technologies which are incorporated into our printheads, and which provide distinct advantages to our OEM partners and their end user customers. Our leading technologies include:



TF Technology

Xaar's TF Technology is the original and still the best ink recirculation technology available. A printhead's architecture determines how well ink recirculation is implemented and therefore influences the degree to which the method delivers benefits across today's wide range of printing and jetting applications. Xaar's TF Technology, together with the unique Hybrid Side Shooter printhead architecture, enables ink or other fluids to flow directly past the back of the nozzle during drop ejection at very high flow rates.

This ensures the nozzles are continuously primed, keeping the printhead operational and the nozzles firing

and – with the ink in constant motion – prevents sedimentation and nozzle blocking, particularly in heavily pigmented inks. Any air bubbles and unwanted particles in the ink are also carried away, improving reliability, even in the harshest industrial environment.

This makes jetting significantly more reliable compared to alternative printhead designs where convoluted ink flow paths means that recirculation is close to, but not at the back of the nozzle.

The main benefits of TF Technology are unrivalled jetting reliability, outstanding print quality and an increased production uptime.

XaarDOT

XaarDot

Xaar's printheads cover three different drop configurations or three different modes of drop formation. Xaar's customers, therefore, have the flexibility to choose the right printhead for the application. XaarDOT ('Xaar Drop Optimisation Technology') encompasses

a range of drop formation options, each with specific features.

In a variable drop printhead, XaarDOT is incredibly flexible in giving customers the choice of what drop size or sizes to use for a job, both in terms of image quality and substrate flexibility.



AcuDrp

AcuDrp Technology delivers a number of advantages unique to Xaar including dynamic sub drop tuning for every nozzle in the printhead which helps minimise drop volume and drop speed variation

across the printhead, and from printhead to printhead. Therefore banding and colour density variations are minimised and changes in nozzle performance over time are managed effectively.



High Laydown Technology

Xaar's High Laydown Technology enables a range of new applications, thanks to its ability to deposit large quantities of fluid in each pass. It makes possible printing very high levels of UV inks or high build varnish in a single pass for tactile embellishments on labels, packaging and commercial print. Braille and label warning triangles are also possible. High Laydown Technology delivers unprecedented ink discharge rates for gloss and adhesive effects on ceramic tiles, so that effects can be printed at high line speeds.

For additive manufacturing applications, High Laydown Technology offers increased printing productivity which significantly accelerates build rate for parts and the ability to print a broader range of fluids including higher viscosity materials; this ultimately results in tougher 3D printed parts than those printed with standard inkjet technology.

Ultra High Viscosity

Xaar's Ultra High Viscosity capability opens up a wide range of new inkjet capabilities and applications for OEMs and manufacturers using Xaar technology. Most printheads can only jet materials with viscosities of up to 10-25 centipoise ('cP'). Thanks to Xaar's unique TF Technology and innovative High Laydown Technology, fluids with significantly higher viscosities – up to 100 cP – can now be jetted.

The ability to lay down fluids with higher particle loading and particle sizes offers advantages such as an increased colour gamut, opacity and special effects. In addition, jetting higher molecular weight photopolymers for Advanced Manufacturing and 3D printing applications is made possible.

Tuned Actuator Manufacturing

Actuator performance in each printhead is optimised with Xaar's Tuned Actuator Manufacturing. This process ensures full scalability with a simple and quick set up, streamlining printhead replacement, and achieves consistent print quality across long print bars with multiple printheads, at different greyscale levels.

XaarSMART

The Xaar 2001+ family of printheads incorporates XaarSMART technology which reports ink temperature and printhead status in real time so that printer performance can be easily adjusted to deliver consistent print quality throughout a production run.



Our business units (cont.)
Printhead – Focus on manufacturing



CUTTITI MANUFACT

Xaar's production processes are world-class and lead the way in inkjet manufacturing.

Our printheads are produced in a highly automated, cutting-edge factory in Huntingdon, Cambridgeshire which is ISO 9001 and ISO 14001 certified. Over 95% of Xaar's printheads are exported globally, with Asia, Europe and North America as the major markets.

Manufacturing on a micron and sub micron scale takes place in carefully controlled cleanrooms which have a total footprint of around 5,000m².

Initially, Xaar's printheads were manufactured in Sweden and in 2007 Xaar opened its UK factory. Since then we have invested over £70 million which gives us sufficient capacity to scale up the printhead business. Many of the machines used in the manufacturing process are bespoke as Xaar's processes have been built up from 30 years of highly specialised inkjet know-how.

In addition to manufacturing the printheads, we have specialist test areas for new developments as well as existing products, all of which go through a comprehensive print performance test before packing and shipment. In 2021 we will be opening a new customer demonstration centre to showcase the capabilities of our technologies.

ING-EDGE CTURING

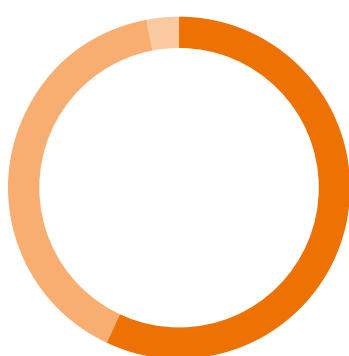
Our business units (cont.)

Product Print Systems

Introduction to the Product Print Systems business unit

Engineered Printing Solutions ('EPS') is a recognised leader in the industrial product marking machine industry, providing highly automated machines and accessories. As well as providing an industry-leading service and support, EPS occupies a niche position as one of only a few bespoke product marking machine companies in North America.

Key figures



- Digital 57%
- Analog 40%
- Other 3%

EPS revenue £m

£12.7m

Year	Revenue (£m)
2020	12.7
2019	15.7

Where we excel

Our core strengths are designing, building and integrating machines which allow our customers to product mark their parts in a highly automated manner, enabling significant cost savings and virtually unlimited print flexibility and personalisation. We offer unparalleled service and support which in turn ensures we build long-term relationships with our customers.

What we achieved in 2020

2020 was a challenging year for Engineered Printing Solutions due to the impact of COVID-19. Specifically, two of the company's key sectors – Ad Specialty and Promotional Goods – were hit very hard by the restrictions put in place to reduce the spread of the virus.

Whilst EPS saw a reduction in revenue year-over-year, we generated several long-term positive outcomes in improved margins, driven by cost cutting measures, improved lead times and the further exploitation of modular standardisation (by pre-building three core non-custom systems). This modular approach is starting to win orders.

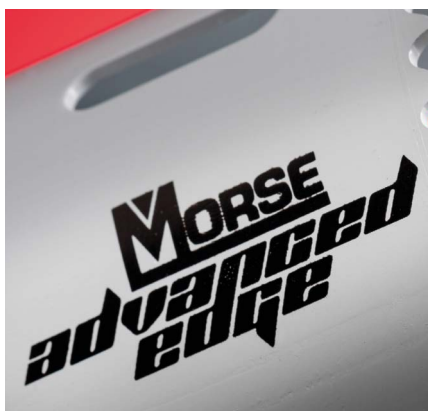
Outlook for 2021

We will continue to focus our strategy for the EPS business:

1. Business development aimed at utilising existing technologies to expand into adjacent markets;
2. Increased scalability through the standardisation of modular components whilst retaining the ability to meet each customers' unique requirements through customised fixtures and tooling; and
3. Deliver operational improvement to remediate management and financial controls, stock management, cost control and increased product margins.

Progress already made in business development is reflected in the strong order book and pipeline at the start of 2021 which contain opportunities from a number of new target markets.

Operationally, a key focus is the lead-time reduction initiative that will take the standard build times down from 26 weeks to 18 weeks to 12 weeks in two years.



EPS product portfolio

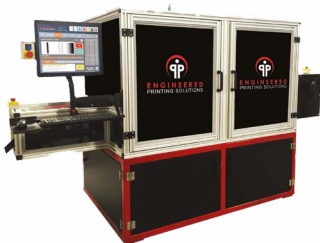
The EPS product portfolio major technologies:

In all three product portfolios, one of the key points that separates EPS from its competition is its ability to integrate and automate the product marking process. This includes robotic auto load and unload, part fixturing, part conveyance, pre-treating and post-print curing. EPS has designed and built standalone systems as well as drop-in integration solutions.



XD-360° Cylindrical Inkjet Printer

The XD-360° is a multi-colour, UV-LED, high-resolution industrial inkjet printer built specifically for decorating cylindrical objects. The XD-360° prints on flat walled or tapered cups and bottles with a synchronised printing and curing operation. Full WW+CMYK, optional primer and varnish heads are available.



F-Jet24 and Bottle Jet Digital Multi-Pass Scanning Systems

This technology is a lower cost, entry level approach to digital inkjet printing that is capable of producing high quality, high resolution images at a slower speed, but allows for image variability across multiple parts.



KP-KE Analogue Systems – Pneumatic Driven and Servo-Driven machines

Pad Printing employs machine heads, inks, silicone pads and clichés to produce a printed product. This technology is well-suited for long production runs that do not involve the changeover of artwork.



Our business units (cont.)

3D Printing

Introduction to the 3D business

Xaar 3D is developing 3D printing machines which leverage the benefits of industrial Xaar printheads.

These machines deposit a fine layer of plastic powder, onto which Xaar piezoelectric printheads print a high resolution cross-sectional pattern of the parts to be manufactured. Next, the complete powder layer is exposed to infra-red energy, causing the imaged powder to absorb this energy and fuse. This process is then repeated layer by layer until the whole build is complete. Unlike traditional laser systems, the Xaar 3D process is more consistent, controllable and cost effective.

Xaar 3D is an independent legal entity which comprises of Xaar 3D Ltd and Xaar 3D ApS. It is funded by investments from Xaar and Stratasys Solutions Ltd. The company's core strength lies in its capabilities and experience in machine design and development including powder management and thermal control, as well as years of experience in application and materials development for powder bed fusion. In order to maximise the revenue opportunity and expedite time-to-market for Xaar 3D's products, the Company has entered a partnership with global leading 3D Printing company Stratasys. In addition, Xaar 3D is working closely with materials suppliers and end-customers to assure the completeness of its product offering.

Where we excel

Our technical expertise in powder bed fusion is world-leading.

In addition our process and application team, including the technology's original inventor, bring unparalleled experience into the design of the product. The amalgamation of this knowledge has generated technology ideas under patent application and know-how that are capable of pushing the boundaries on industrial production via 3D Printing.

Our technologies

Our core technologies are predominantly based on unique implementation of a powder bed fusion process.

Inkjet printheads and infrared heaters are used to manufacture products layer by layer from polymer powder materials at much higher speeds than other additive manufacturing processes. Xaar 3D's Director of 3D Technology, Professor Hopkinson, is the original inventor of the core technology.



Our markets and opportunities

Xaar 3D is focused on enabling industrial production of products via 3D Printing.

CAGR of 3D Printing is approximately 23%* and the aspect to which we are focused, end part production – rather than prototype part production – is growing at a rate higher than the overall 3D Printing industry.

Stratasys partnership

In 2018 Xaar announced it would invest with Stratasys, the world's largest 3D Printing company, in a newly formed company, Xaar 3D Limited, to develop 3D printing solutions based on powder bed fusion. Xaar held 85% of Xaar 3D Ltd shares with Stratasys holding 15%. Subsequently in December 2019, Stratasys increased its investment in Xaar 3D to 45% with an option for Stratasys to acquire the whole of Xaar 3D within three years.

Progress update

During 2020 we manufactured commercially designed machines using our contract manufacturer partner.

With these first machines we completed our alpha programme in which we tested the commercial design and demonstrated that the machines are meeting our performance expectations and are capable of producing consistent end-use parts. We also completed the design and implementation of the workflow required for production of parts.

The successful completion of the alpha programme enabled us to ship the complete solution for further testing which also included a series of beta partners who specialised in the production of plastic parts in multiple target applications. Initial feedback from beta customers has been positive; therefore we are accelerating the beta programme during Q1 of 2021.

We are currently in advanced discussions for the disposal of our remaining stake in Xaar 3D as summarised in the strategy section (see page 11).

* Pira 2017.



Business performance

Due to the discussions to divest the remaining shares in Xaar 3D, the business will be classified as an asset held for sale as at 31 December 2020 and the business will no longer be classified as a continuing operation. Xaar's continuing operations, therefore, consist of the Printhead and EPS businesses.

Continuing operations

Revenue for the Group of £48.0 million was in line with management's expectations and whilst this represents a year-on-year decline of £1.4 million (2019: £49.4 million) it is a very pleasing result given the decline in Printhead sales in the second half of 2019 and the impact COVID-19 has had on the EPS business. Group revenues increased from £23.7 million in the first half of the year to £24.3 million in the second half driven by a £1.7 million increase in revenues from the Printhead business.

Revenue from the Americas fell year-on-year across the Group, down £3.6 million (2020: £20.3 million, 2019: £23.9 million), and also fell £1.3 million half-on-half. Printhead revenue declined by £0.6 million to £7.6 million whilst also decreasing £0.2 million half-on-half. Modest growth year-on-year in the 3D Printing and AVM sector was offset by declines in both the Coding & Marking (C&M) and Direct-to-Shape (DTS) sector and the Wide Format Graphics (WFG) and Labels sector. Revenue from the EPS business fell £3.0 million in 2020 to £12.7 million and declined by £1.1 million in the second half of the year.

Performance in Asia, and China in particular, has been very successful in 2020. Revenue grew £1.0 million in the first half of the year to £4.5 million (H2 2019: £3.5 million) and continued to grow in the second half to £5.1 million. This growth has largely been driven by the re-engagement of Chinese Ceramic customers who began to adopt the Xaar 2001 and have now transitioned to the newly launched Xaar 2002 for their new printer builds. Year-on-year revenues have increased from £7.0 million to £9.6 million, a 37% increase. This is a real proof point for the change in strategy, the removal of distribution channels, the implementation of a clear pricing strategy, and more

significantly a change in how we interact and support our customers have all helped with the speed of adoption of the Xaar 2002 in China.

Whilst revenue in EMEA was down year-on-year, £18.1 million compared to £18.5 million, we have seen a promising upward trend in revenue since H2 2019. Revenue in the first half of the year increased £1.0 million compared to the previous half to £8.4 million (H2 2019: £7.4 million) and then increased £1.3 million in the second half to £9.7 million. Increases in H1 were driven by the Ceramic sector which stayed flat in H2 whilst increases in H2 were driven by the C&M and Labels sectors.

Printhead revenue increased £1.6 million to £35.3 million (2019: £33.7 million) as we saw revenue increase half-on-half throughout the year. H1 revenue of £16.8 million was up £2.0 million relative to H2 2019 (£14.8 million) with revenues in H2 rising another £1.7 million to £18.5 million. Having hit a low of £4.4 million in H2 2019 the Ceramics & Glass sector has increased half-on-half throughout 2020 to £6.1 million in H1 and £7.7 million in H2. Full year revenues are up 13% at £13.8 million (2019: £12.2 million). Winning back market share with the launch of the Xaar 2002 in the Chinese Ceramics market, and to a lesser extent EMEA, has been a significant driver. We also established a marketing leading position in Glass with the Xaar 2002 and won several accounts in the Glass sector in 2020, with revenue in H2 2020 increasing 144% compared to H2 2019.

The C&M and DTS sector declined 3% year-on-year (2020: £11.5 million, 2019: £11.9 million). Whilst C&M has remained largely flat year-on-year, DTS declined 16% with the majority of the decline taking place in the Americas. With DTS still in its relative infancy, revenue from this sector remains volatile and largely driven by new machines from customers switching their production lines over to a digital solution. We remain confident in our ability to drive the adoption of digital solutions in this sector in the long run. Our current product portfolio, and the ImagineX product roadmap, make the C&M and DTS sector an area for potential growth in the long-term.

WFG and Labels revenue was up 13% at £6.3 million (2019: £5.6 million). As with the Ceramics & Glass sector we have seen improvements half-on-half throughout 2020 with growth in H1 (H1 2020: £2.9 million, H2 2019: £2.8 million) driven by WFG and growth in the second half (H2 2020: £3.4 million) driven by Labels.

3D Printing and Advanced Manufacturing (AVM) have stayed relatively flat year-on-year (2020: £2.5 million, 2019: £2.6 million) with gains in 3D Printing offset by a

Table A – Revenue by region – Continuing operations

£m
Americas
Asia
EMEA
Total

reduction in revenues from AVM. Similar to DTS, the AVM market for printheads is still relatively small but growing, and revenues can vary year-on-year depending on the number of production lines, or production processes, that are switched over to digital printing. Both 3D Printing and AVM are markets where we are well positioned to take advantage of growth opportunities, but development cycles can be long, therefore, it can take a number of years for a customer to reach full production and ultimately significant demand for printheads.

Revenues from Packing & Textiles remain modest. Our ability to target this sector effectively is somewhat limited by our current product range. However, advancements in the product portfolio driven by the ImagineX platform should make this large sector more accessible in the future. Full year revenue of £0.9 million was flat year-on-year.

Royalties from the single remaining licensee declined 42% (2020: £0.4 million, 2019: £0.6 million) which is in line with the declining royalty rate. This royalty rate will decline again in both 2021 and 2022 before ceasing altogether thereafter.

Revenue from the EPS business declined by £3.0 million to £12.7 million (2019: £15.7 million) as COVID-19 impacted on a number of markets addressed by their Pad Printing machines and consumables; Ad Speciality and Promotional Products were hit particularly hard. Whilst the first half was helped by a strong order book, particularly on the digital inkjet side, we saw a decline in sales in the second half from both Pad Printing and digital inkjet as companies held off making large capital commitments, and demand for consumables, which declined significantly in Q2, only partially recovered. Despite this we have been able to strengthen the pipeline and order book and are well placed to return to growth in H1 2021 as companies start to invest in capital equipment again and those markets affected by the pandemic, such as Ad Speciality and Promotional Products, start to rebound.

	2020 H1			2020 H2			FY 2020			FY 2019		
	PH	EPS	Total	PH	EPS	Total	PH	EPS	Total	PH	EPS	Total
	3.9	6.9	10.8	3.7	5.8	9.5	7.6	12.7	20.3	8.2	15.7	23.9
	4.5	-	4.5	5.1	-	5.1	9.6	-	9.6	7.0	-	7.0
	8.4	-	8.4	9.7	-	9.7	18.1	-	18.1	18.5	-	18.5
	16.8	6.9	23.7	18.5	5.8	24.3	35.3	12.7	48.0	33.7	15.7	49.4

Gross profit for the year increased by £0.7 million to £13.0 million (2019: £12.3 million) driven by an increase in the gross margin to 27% (2019: 25%). This was the result of an improvement in the Printhead business unit's gross profit which, whilst helped by increased revenue, was primarily caused by an increase in the gross margin from 22% in 2019 to 27% in 2020. 2019 was characterised by an underutilisation of the factory as throughput was lowered or cut in order to reduce inventory which had reached excessive levels on several product lines. In 2020, whilst we continued to improve our working capital position, and reduced inventory by another £4.5 million (2019: £6.1 million reduction in inventory), the higher level of demand, and the fact finished goods inventory is now at sustainable levels, meant the factory output went up year-on-year. With inventories of finished goods now at sustainable levels the Printhead business is well placed to take advantage of increased demand and utilise its high level of operational gearing to deliver further improvements in the gross margin.

Gross profit for the EPS business declined £1.2 million in the year to £3.4 million (2019: £4.6 million). Whilst gross margins were down year-on-year (2020: 27%, 2019: 30%) the fall in gross profit is largely attributable to the decline in revenue which was down £3.0 million year-on-year. The gross margins for EPS were negatively impacted in the second half by a 22% decline in machine sales as companies focused on maintaining their cash position and put planned capital investment on hold. The gross margins were further impacted by inventory provisions of £0.6 million related to legacy products. Excluding these one-off provisions, gross margins were 31%, up 1% on 2019 despite the lower revenue.

R&D spend of £4.5 million was up £1.4 million on 2019 (2019: £3.1 million). This reflects the investment in the ImagineX platform which will be central to our long-term growth.

Table B – printhead revenue

£m	2020 H1	2020 H2	FY 2020	FY 2019	Var	Var %
Ceramic & Glass	6.1	7.7	13.8	12.2	1.6	13%
C&M and DTS	6.0	5.5	11.5	11.9	(0.4)	(3%)
WFG & Labels	2.9	3.4	6.3	5.6	0.6	13%
3D Printing & AVM	1.3	1.1	2.5	2.6	(0.2)	(5%)
Packaging & Textiles	0.4	0.5	0.9	0.9	-	1%
Royalties	0.2	0.2	0.4	0.6	(0.3)	(42%)
Total	16.8	18.5	35.3	33.7	1.6	5%

* Figures (£m) and percentages (%) are subject to rounding.

Table C – EPS revenue

£m	2020 H1	2020 H2	FY 2020	FY 2019	Var	Var %
Digital inkjet	4.0	3.2	7.2	6.8	0.4	7%
Pad printing	2.7	2.4	5.1	8.1	(3.0)	(37%)
Other	0.2	0.2	0.4	0.8	(0.4)	(49%)
Total	6.9	5.8	12.7	15.7	(3.0)	(19%)

* Figures (£m) and percentages (%) are subject to rounding.

Sales and marketing spend for the year was £6.0 million (2019: £8.1 million). The decline in spend of £2.1 million year-on-year largely relates to cost savings in the Printhead business unit following the restructuring of the business in the second half of 2019. Further savings were seen in both the Printhead and EPS businesses due to COVID-19 which limited our ability to visit customers and led to the cancellation of the majority of tradeshow which one, or both, businesses would have attended.

General and administrative expenses increased £0.3 million from £7.7 million in 2019 to £8.0 million in 2020.

Impairment reversals on financial assets were £0.9 million (2019: £2.7 million loss). This reversal predominantly relates to a distribution channel used by the Printhead business and the collection of a customer debt previously provided for.

Other operating income in the period of £0.8 million relates to the US Government's COVID-19 support and the Paycheck Protection Program (PPP) loan taken out by the EPS business which is expected to be forgiven in the first half of 2021, having met all qualifying criteria during 2020.

Business performance (cont.)

Restructuring costs of £0.8 million predominantly relate to the final costs in liquidating the legacy Swedish entities and provisions for the dilapidation and exit of the office on the Cambridge Science Park.

The adjusted EBITDA for continuing operations in the year was a £0.1 million profit (2019: £4.9 million loss).

The adjusted loss before tax from continuing operations was £3.9 million, compared to £8.0 million loss in 2019. The performance of the Printhead business improved £4.6 million from a £8.0 million loss in 2019 to a £3.4 million loss in 2020 driven by increased sales, a much improved gross margin, and a reduction in operating expenditure despite increased R&D investment. The EPS business went from a £0.1 million profit in 2019 to a £0.5 million loss in 2020 due to the impact of COVID-19 on revenue, and the write off and provisioning of legacy inventory.

The loss before tax under IFRS was £4.3 million (2019: £10.9 million), £0.4 million higher than adjusted loss before tax. Restructuring costs of £0.8 million, foreign exchange losses on intra-group loans of £0.3 million, and share-based payments of £0.3 million were partially offset by other operating income £0.8 million and an R&D expenditure credit of £0.1 million. Loss per share from continuing operations was 5.7p (2019: loss 18.7p).

Discontinued operations

A £10.3 million loss was recorded in relation to discontinued operations (2019: £57.3 million) with cash outflows for the period of £12.1 million (2019: £17.2 million). The Thin Film business, which was classified as discontinued in 2019, recorded a loss of £3.7 million which primarily relates to inventory commitments and supplier liabilities. All liabilities in regard to the Thin Film business have now been settled. As a result of the intended sale of Xaar 3D, which is assessed as highly probable, that business has been classified as a discontinued operation held for sale. The 3D business recorded a loss of £6.4 million in 2020 (2019: £1.2 million loss). The increased level of losses in the business primarily relate to R&D expenses recognised in the period which increased by £4.5 million with gross R&D expenditure increasing by £1.8 million. In 2019 much of the gross R&D spend was treated as capitalised development, this only ceased at the end of November 2019 and with the amortisation of capitalised R&D commencing in December 2019. The year-on-year change in the net capitalisation/amortisation of R&D was £2.7 million.

Table D – Movement in net cash* (including 3D)

£'000	2020	2019
Cash & Treasury Deposits – Continuing operations	18,117	16,177
Cash & Treasury Deposits – 3D operations	2,120	9,145
Cash & Treasury Deposits at the end of the year	20,237	25,322
Cash & Treasury Deposits at the beginning of the year	25,322	27,946
Total Net Cash Outflow	(5,085)	(2,624)
Effect of foreign exchange rate changes on cash balances	57	211
Decrease in net cash for the Group	(5,028)	(2,413)
Consisting of:-		
Total cash inflow from continuing operations	7,073	8,405
Cash outflow from Xaar 3D business	(7,018)	(4,852)
Xaar 3D - Proceeds from share capital and share sale	-	12,002
Net cash outflow from Thin Film operation	(5,083)	(17,968)
Decrease in net cash for the Group	(5,028)	(2,413)

* Net cash is defined as cash and cash equivalents, plus treasury deposits.

Loss for the year

The loss for the Group was £14.7 million (2019: £71.7 million) with the loss per share of 15.2p (2019: loss 92.5p).

Strong cash focus and improved working capital position

The net cash position remains strong with continuing operations generating £7.1 million of cash.

The Group's continuing operations continue to generate cash with a net increase attributable to continuing operations of £7.1 million for the year (2019: £8.4 million on a like for like basis and £14.8 million total). Due to cash outflow on discontinued operations, total net cash declined in the year £5.1 million (2019: £2.6 million).

Operating cash flows before movements in working capital for continuing operations improved from an outflow of £4.9 million to an inflow of £1.4 million. This was largely due to the improvements in the adjusted EBITDA (2020: £0.1 million, 2019: loss £4.9 million) and reduced expenditure on restructuring following the extensive restructuring of the business in the final part of 2019 (2020: £0.8 million, 2019: £1.5 million). Operating cash flows were further helped by £0.8 million of US Government grants.

As part of the Group's strong cash focus working capital remains a key area. Driven primarily by a £5.1 million reduction in inventory, £6.7 million of cash was released from working capital to give cash generated by operations of £8.1 million (2019: £7.6 million). Factoring in tax receipts of £0.3 million (RDEC related), and expenditure on property, plant and equipment (PPE), intangible assets and lease liabilities, continuing operations generated £7.1 million of cash (2019: £8.4 million). Whilst down year-on-year, 2019 performance was assisted by £2.6 million of income taxes received (£1.6 million of RDEC and a net inflow of £1.0 million corporation tax) and movement in working capital of £12.6 million as the business tried to address the significant excess inventory position at the end of 2018 and the large receivables position with a number of distributors.

Discontinued operations consumed cash of £12.1 million (2019: £17.2 million). The cash outflow from Thin Film operations was £5.1 million (2019: £18.0 million). This was driven primarily by supplier liabilities and the build out of inventory for a small number of customers. With all liabilities now settled and inventory in place, cash flows in future years will be minimal.

Table E – Cash flow table – Continuing operations (excluding 3D)

	2020	2019
aEBITDA	62	(4,857)
Restructuring	(754)	(1,518)
Depreciation of right of use assets	1,107	962
Government grant (PPP loan)	819	–
Other	144	473
Operating cash flows before movements in working capital	1,378	(4,940)
Movement in working capital	6,735	12,574
Cash generated by operations	8,113	7,634
Income taxes (paid)/received	351	2,618
Net cash used in investing and other financing activities	(1,391)	(1,847)
Net increase in cash and cash equivalents from continuing operations	7,073	8,405
Proceeds from the sale of share in Xaar 3D	–	6,372
Total cash inflow to continuing operations	7,073	14,777

Cash outflows from the 3D business excluding share issues increased from £4.9 million in 2019 to £7.0 million in 2020. The increase represents the accelerated investment in R&D and go-to-market functions prior to the commercialisation of the 3D printers. In 2019 the investment was offset by £5.6 million from the issue of ordinary share capital which was not repeated in 2020.

Excluding cash from the 3D business, which is now held for sale, net cash increased from £16.2 million in 2019 to £18.1 million in 2020 despite the need to settle the final Thin Film liabilities.

Strong balance sheet

Non-current assets declined £10.8 million in the year from £35.5 million to £24.7 million. This was driven by a reclassification of 3D assets to current assets held for sale (2020: £6.1 million, 2019: £6.7 million), £1.0 million depreciation of right of use assets, and a £2.8 million reduction in PPE and intangible assets as new purchases were controlled in with line with the Group's cash focus and therefore depreciation exceeded capital expenditure.

Current assets, excluding the disposal group assets held for sale, declined £13.9 million from £52.7 million in 2019 to £38.8 million. A significant proportion of this decline is attributable to the reclassification of the 3D business to an asset group held for sale with £4.0 million of current assets at the end of 2020 being reclassified. The remaining £4.4 million decline is primarily as a result of the £5.7 million reduction in inventory across the Printhead and EPS businesses (2020: £10.4 million, 2019: £16.1 million), a £1.4 million reduction

in current tax assets to £0.4 million (2019: £1.8 million), a £0.8 million increase in trade debtors and other receivables, and £1.9 million of cash generated by the rest of the business.

The 3D business has been classified as held for sale with £10.2 million of assets reclassified as at the end of 2020.

Current liabilities, excluding liabilities associated with Xaar 3D (held for sale), increased by £0.5 million. Excluding £0.9 million of 3D liabilities at the end of 2019 current liabilities increased £0.4 million. Provisions, which at the end of 2019 primarily related to the Thin Film operation, declined by £2.5 million to £0.4 million (2019: £2.9 million). Lease liabilities decreased from £1.3 million to £1.1 million primarily as a result of the decision to relocate from the Cambridge Science Park to the nearby Cambridge Research Park. These declines were offset by an increase in trade and other payables in relation to the Printhead and EPS businesses of £2.6 million (2020: £9.9 million, 2019: £7.3 million); these increases were primarily driven by increased supplier liabilities and bonus accruals within the Printhead business.

Non-current liabilities, which all mainly relate to lease liabilities recorded under IFRS 16, decreased by £1.0 million in the year.

Dividend

No dividend has been declared for 2020. The Board recognises the importance of regular income to many investors but believes that it would be inappropriate to reinstate payment of dividends before sustainable profits are restored.

Stakeholder engagement

Identifying our key stakeholder groups makes our business better

The Directors have ongoing engagement with all our key stakeholders: Our Investors. Our People. Our Communities, and Our Partners.

The Directors continually review the impact that any decisions will have on these key stakeholders.

The Board regularly reviews the Company's principal stakeholders and how it engages with them. This is achieved through information provided by management and by direct engagement with stakeholders themselves.

We aim to work responsibly with our stakeholders, including suppliers. The Board has reviewed its anti-corruption and anti-bribery, equal opportunities and whistle-blowing policies.

The key Board decisions made in the year are set out below:

- Response to COVID-19
- Determine Xaar 3D as asset held for sale
- Relocation of HQ office space to Cambridge Research Park
- Investment in ImagineX platform and development of new products
- Branding activities for re-launch of Xaar to OEM customers
- Investment in new legal entity in China to support growth.

Stakeholders

Shareholders

All Board decisions are made to promote the long-term success of the Group for the benefit of our shareholders.

People

Our people are a highly-skilled and technical workforce. They are an essential component of the Group's ability to stay ahead in a fast-moving world.

Community

As a Group, we have a wide-reaching indirect impact on the communities and environments we interact with and we are committed to making sure that this impact is as positive as possible.

Customers

Understanding our customers is critical for the success of our businesses. By developing long-term relationships with them we are well placed to support their evolving business requirements.

Suppliers and partners

Our relationships with our suppliers and partners are integral to the delivery of quality products to our customers and the operational success of our business.

Material issues

- Financial performance
- Our strategy
- Long-term viability
- How the Group meets its environmental, social and governance objectives.

- Culture
- Values
- Operating in an ethical environment
- Progression and personal development opportunities
- Remuneration
- Diversity and inclusion
- Workforce engagement.

- Economic and operational impact of Group businesses on local communities
- Environmental impact of operations, both directly and indirectly
- Being able to demonstrate clear environmental, social and governance policies and how these are measured.

- Operational strength and the ability to meet customer requirements
- Ability to provide high-quality solutions and technical expertise and advice
- Ensuring we remain competitive with a strong, differentiated value proposition
- Innovation with R&D to develop new solutions to customer requirements.

- Ensuring an ethical supply chain
- Potential disruption of supply chain
- Competitiveness
- Financial performance
- Research and development investment.

Engagement methods

- Annual General Meeting
- Annual Report and Accounts, results statements, trading updates and press releases for new branding and ImagineX product launches
- Regular interactions between Directors and shareholders via investor relations roadshow and one-on-one meetings or video calls
- Further details of shareholder engagement are reported in the Directors' Remuneration Report (pages 78 to 96).

- Response to COVID-19 to secure a safe working environment and initiate a working from home policy where appropriate.
- Annual review and renewal of corporate policies and procedures
- Annual employee appraisal by managers and development plan
- Establish apprenticeship and graduate training schemes
- Recruitment, Retention and Development plans
- Regular business forums with Non-Executive Directors and senior management update calls to all employees
- Further details of employee engagement are reported in the Directors Remuneration Report (pages 78 to 96), and Sustainable and responsible business (pages 34 and 35).

- Provide PPE and 3D printed visors to local NHS hospital
- Developing the reporting of emissions across the Group with the intention to further improve environmental performance
- Communication and involvement of employees in office relocation
- Charitable donations determined by employees for local charities
- Further details of activities in the community are reported in Sustainable and responsible business (pages 34 and 35).

- Developing high-quality products in conjunction with customers to equip them to maximise productivity and operational efficiency to utilise less energy and fewer raw materials
- Maintaining effective customer relationship management tools to support the identification of customer needs
- Focus on continued innovation and prioritisation of R&D resource and spend in new ImagineX platform
- Key account management structure across the businesses to encourage meaningful, consistent and ongoing engagement with OEM and UDI customers
- Investment in China subsidiary to be closer to strategic customers.

- Review of supply chain to minimise impact of Brexit / TCA
- Effective and regular communication with suppliers with standardised procedures
- Ensuring high standards throughout our Tier 1 supply chain, measuring our key suppliers against specific criteria, including anti-slavery
- Clear payment practice processes across the Group to ensure fair and prompt treatment of creditors
- Continually monitoring the quality of our strategic suppliers to optimise operational efficiency
- Ensuring that Xaar values are shared with our business partners and suppliers.

Sustainable and responsible business

Working in responsible ways

A strong belief in responsibility

The Group strongly believes that corporate responsibility is integral to business success. The Group is compliant with all relevant regulation and legislation whilst enhancing the working environment for our employees and minimising the environmental impact of our manufacturing processes. There is internal reporting of key metrics throughout the business, and each member of staff is expected to take individual responsibility for their performance and to work together to achieve shared goals.

Our community

Xaar sponsors two Imagineering Clubs at local primary schools. These Clubs are designed to introduce children to engineering through fun activities. The sponsorships are part of Xaar's role in helping to create the 'engineers of the future' and drive interest in STEM subjects ('Science, Technology, Engineering and Mathematics') amongst school students. During 2020 the impact of COVID meant the clubs were not held as frequently as would normally be the case.

During the initial COVID lockdown in 2020, the Group donated both additional cleanroom PPE gowns and masks, and 3D printed visors were manufactured for distribution to the local NHS hospital.

 **Non-financial information statements are indexed in the Directors' Report on page 59**

Social responsibility

- Xaar employees usually raise money during the year for a number of charities, including taking part in various activities for Comic Relief on Red Nose Day, coffee mornings for Macmillan Cancer Support and Christmas Jumper Day for Save the Children. Unfortunately due to the Coronavirus pandemic in 2020 we were unable to participate in charity fundraisers this year, instead charity nominations took place in November 2020 with Hinchingsbrooke Special Care Baby Unit (donation made January 2021) and Wood Green Animal Shelter selected to receive £2,000 each
- Xaar usually sponsors a number of employees and their families engaging in events throughout the year, including charity golf days, equipment for a charity football team, various sporting events and donations to community food banks. In total, the Group made charitable contributions to local and national

charities during the year totalling £3,150 (2019: £5,100)


- No political donations were made in the current or previous year
- The social club, which is aimed at encouraging staff to have fun and get to know each other socially, was paused during 2020 as a consequence of COVID restrictions
- Xaar continues to sponsor an Imagineering Foundation club which operates at primary schools in both Huntingdon and Cambridge. Supported by eight volunteer tutors from Xaar's Operations and R&D teams, the weekly, hour-long after-school clubs are attended by up to 12 Year Six students. The students learn about basic science and engineering concepts and make working mechanical and electronics-based models, such as a balloon-powered 'rocket' car, a steady hand game and even an AM radio. The Foundation's aim is to introduce young people of 8-16 years to the exciting world of engineering, science and technology through fun, hands-on activities
- The Group has commenced a review of its energy usage under a programme to target "Carbon Zero by 2030"; actions to date incorporate:
 - Transfer of electricity supply to an environmentally sustainable green source
 - Co-ordination of energy efficient actions via an Energy Reduction Team
 - Investigation of energy generation solutions via supply and installation of Solar array at Huntingdon.

The Group respects all human rights and in conducting its business the Group regards those rights relating to non-discrimination, fair treatment and respect for privacy to be

Our guiding principles



Our new brand identity and launch of the ImagineX printhead platform.

 **Read more on pages 2 and 3**




A new set of values to reflect the true essence of Xaar.

 **Read more on pages 4 and 5**



Guide the way we behave towards our customers, our partners and each other.

 **Read more on pages 6 and 7**

the most relevant and to have the greatest potential impact on its key stakeholder groups of customers, employees and suppliers.

The Board has overall responsibility for ensuring that the Group upholds and promotes respect for human rights. The Group seeks to anticipate, prevent and mitigate any potential negative human rights impacts as well as enhance positive impacts through its policies and procedures and, in particular, through its policies regarding employment, equality and diversity, treating customers fairly and information securely. Group policies seek both to ensure that employees comply with the relevant legislation and regulations in place in the UK and other operating locations and to promote good practice. The Group's policies are formulated and kept up to date by the relevant business area, authorised by the Board and communicated to all employees.

The Group's policies are incorporated into the Xaar Code of Conduct, including:

- Xaar Anti-bribery and Corruption policy
- Xaar Anti-money Laundering policy
- Xaar Corporate Criminal Offence policy
- Xaar Employee Share Dealing Code.

The anti-bribery and corruption policies of the Group are set out in the Corporate Governance section on page 67

The Group undertakes extensive monitoring of the implementation of all of its policies and has not been made aware of any incident in which the organisation's activities have resulted in an abuse of human rights.

Equality and diversity

The Group is committed to providing a working environment in which employees feel valued and respected and are able to contribute to the success of the business. Employees are requested to co-operate with the Group's efforts to ensure that the policy is fully implemented.

The Group's aim is that its employees should be able to work in an environment free from discrimination, harassment and bullying, and that employees, job applicants, customers, retailers, business introducers and suppliers should be treated fairly regardless of:

- race, colour, nationality (including citizenship), ethnic or national origins;
- gender, gender reassignment, sexual orientation, marital or civil partnership status;
- religious or political beliefs or affiliations;
- disability, impairment or age;

- real or suspected infection with HIV/AIDS;
- membership of a trade union;
- pregnancy, maternity and paternity;

and that they should not be disadvantaged by unjust or unfair conditions or requirements.

The Group aims to ensure that applications for employment from people with disabilities, and other under-represented groups, are given full and fair consideration and that such people are given the same training, development and job opportunities as other employees. Every effort is also made to retrain and support employees who suffer from disabilities during their employment, including the provision of flexible working to assist their re-entry into the workplace.

The Group places considerable value on the involvement of its employees and has continued to keep them informed of the various factors affecting the performance of the Group. This is achieved through written communications shared through the Company intranet and email, and formal and informal meetings. All employees participate in a bonus scheme based on individual performance and Group business targets and, in the UK, have the opportunity to participate in an HMRC approved Share Save Scheme and Share Incentive Plan.

Based on the closing headcount at 31 December the split of staff by gender was as follows:

	2020 Male/ Female	2019 Male/ Female
All employees	311/77	297/69
Directors	4/1	6/1
Senior managers	40/9	42/8
Employees	267/67	249/60

The Group undertakes R&D and manufactures products in the UK and the USA. The Group complies with all local and European legislation. The Group's manufacturing facility in Huntingdon is both ISO 9001:2015 and ISO 14001:2015 certified and as a minimum complies to HSG65. It is the Group's policy to maintain this level of certification for its Huntingdon manufacturing facilities and to comply at all times with all relevant environmental and other legislation in the territories in which the Group operates. The Group is compliant with REACH ('Registration, Evaluation, Authorisation and restriction of Chemicals'), WEEE ('Waste Electrical and Electronic Equipment') and RoHS ('Restriction of the Use of Certain Hazardous Substances') directives, as required under UK and European legislation.

The Group has a proactive Health and Safety System modelled on OHSAS 18001/HSG65 in Cambridge, Huntingdon and Nottingham.

Health, safety and environment

Xaar has a manufacturing site in Huntingdon, along with R&D and head office functions in Cambridge, Nottingham, Europe and the USA, plus sales offices worldwide.

It is always Xaar's intention to conduct business in a manner that protects the public, the environment, and employee safety. Xaar's Environmental and Health and Safety policies provide a framework for setting and reviewing of Occupational Health, Safety and Environmental Objectives. This demonstrates Xaar's continued commitment to the prevention of injury and ill health and also the continual improvement in our Environmental and Occupational Health and Safety Performance. Xaar believes that the combination of a safe place of work and safe working practices, together with a productive and innovative environment, are critical to the continued success of the Company.

Employee health and wellbeing

Employee health and wellbeing remains a keen priority for the Group.

In line with this approach, the businesses within the Group have prioritised different initiatives that best reflect their workforce, such as volunteering and employee wellbeing policies, regular wellbeing weeks, step challenges, weekly Yoga sessions, qualified mental health first-aiders and other activities to encourage and promote a healthier workforce.

During the COVID pandemic the safety and wellbeing of our employees has been and continues to be our overriding priority. Our executive and senior management team have monitored events closely to ensure that we have been able to react quickly to an ever-changing situation. At the start of the pandemic we enabled working from home at short notice for those who were able to do so, and in the workplace we took actions to introduce enhanced hygiene and social distancing measures, screens, temperature checks, use of face coverings and more recently workplace lateral flow testing.

Sustainable and responsible business (cont.)

Task Force on Climate-related Financial Disclosures (TCFD)

Despite the pandemic, the focus on climate change has not diminished. Policy-makers, regulators, industry and wider society all increasingly recognise the urgent need to adapt.

Background

The TCFD’s recommendations continue to be adopted internationally. According to the TCFD Status Report 2020, more than 1,500 organisations have now voiced their public support. Over 110 regulators and government organisations are TCFD supporters, including the UK Government, Bank of England and the FCA. The private finance agenda of the UN Climate Change Summit 2021 (COP26) also features TCFD implementation as an objective.

The FRC has carried out a thematic review of how climate-related issues are being addressed across its various areas of responsibility, including governance, corporate reporting, audit and professional oversight.

In November 2020, the UK Chancellor of the Exchequer announced the UK’s intention to move towards mandatory TCFD-aligned disclosures across the UK economy by 2025, with most measures to be in place by 2023. Within the roadmap presented by HM Treasury, premium listed companies (like Xaar plc) will be expected to comply with the reporting requirements by the end of 2021, from January 2022 to be included in the Annual Reporting framework.

Xaar’s response:

Digital print methods are inherently more environmentally friendly than the analogue techniques we seek to replace.

Our research shows that, compared to analogue alternatives, digital has a huge impact in reducing energy consumption (by as much as 55%), water consumption (by up to 60%) and CO₂ emissions (by up to 95%), but also in reducing pollution and waste materials.

Xaar is committed to reducing its impact on the environment wherever possible, with Senior Independent Director Alison Littlely having specific responsibility for ESG matters.

As part of the management of emerging risks within the risk register, the Board has received initial information on the potential risks and opportunities that are presented by requirements for managing climate change risk, and meeting the Task Force on Climate-related Financial Disclosures requirements in the next year.

Recent years have seen further progress internally to identify improvements in both electrical and energy usage and to reduce the greenhouse gas emissions of the Company recorded in Scope 1 and 2 (see GHG page 50).

As part of the development to ensure affordable and clean energy, Xaar is in the process of entering into a supply contract in 2021 for the supply of green electricity from a renewable source.

Xaar has also initiated a project to remove packaging complexity and improve sustainability, and introduced new packaging for its products in 2020, removing plastic as a packaging material, reducing its plastic consumption by 1.2 tonnes per year. All Xaar’s printheads will be shipped in fully recyclable and biodegradable cardboard packs by the end of the year.

<https://www.xaar.com/en/news/2020/sustainable-packaging-delivers-for-all/>

The management have set up a “Carbon Zero by 2030” team to identify metrics and targets that could be used by the organisation and develop other opportunities to reflect sustainable development goals to target continuation in the reduction in emissions to zero.

We still need to understand the full impact from our operations and are committed to continue reducing the impact on the environment and maintaining our drive to achieve complete carbon neutrality in line with the UK’s 2030 goal.

Potential UN Sustainable Development Goal targets



Ensure access to affordable, reliable, sustainable and modern energy for all.

What can business do?

Check your energy efficiency. Source your energy from renewable sources. Check what impact your energy need has on the local community.



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

What can business do?

Put a value on the economic impact generated by the jobs your company creates to evidence your licence to operate. Check you have a policy on human rights and that it is being adhered to throughout your supply chain. Check what programmes you have in place to reduce workplace injury and recruit and retain people with disability – are both improving?



Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.

What can business do?

Review your transport and building infrastructure to identify efficiencies. Consider investing in local transport improvements that would deliver a direct business benefit to you. Check how disruptive technologies or innovative business models could impact your market. Explore your digital potential (both what you do and how you do it).



Ensure responsible consumption and production patterns.

What can business do?

Check what you are doing to manage scarce resources. Set and meet targets to reduce energy and resource intensity in production and use. Assess the waste disposal of your company. Reduce the need for new resources and waste disposal by extending product life, repairing, reusing, re-manufacturing and recycling products. Adopt circular economy principles.

The core recommendations



Governance

The organisation’s governance around climate-related risks and opportunities.

Strategy

The actual and potential impacts of climate-related risks and opportunities on the organisation’s business, strategy, and financial planning.

Risk management

The processes used by the organisation to identify, assess, and manage climate-related risks.

Metrics and targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities.

Initial actions in 2021 are focused upon:

- We have offset all of the UK regulatory Scope 1 and 2 carbon impact that we made and reported in 2020. Based on our carbon footprint reported in 2020 this makes Xaar a carbon neutral inkjet manufacturer
- Identify targets and metrics applicable to Xaar, to measure across the organisation
- Preparation and identification of Scope 3 emissions within the supply chain
- Identify actions to remove natural gas as an energy and heat source, or replace with a renewable gas supplier e.g. biogas
- Identify tier 1 suppliers and their disclosures around climate change and GHG emissions
- Green energy projects to identify additional energy and GHG savings:
 - Investigate Solar panel installation at Huntingdon location to generate a proportion of electricity ourselves.
 - Electric vehicle chargers installation for employee and delivery vehicles.
 - LED light installations to further reduce the utilisation of electricity
- Review product return policy, to identify possibilities for improvements in responsible consumption in production and remanufacturing of products, reduction in plastic use, reclaiming raw materials, recovery of any heavy metals, copper, lead etc.
- Set, measure and disclose a zero waste to landfill target, any waste not recycled being sent to a waste to energy recovery process.

	Disclosures	Recommended disclosures
Governance	Disclose the organisation’s governance around climate-related risks and opportunities.	a. Describe the board’s oversight of climate-related risks and opportunities. b. Describe management’s role in assessing and managing climate-related risks and opportunities.
Strategy	Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning where such information is material.	a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long-term. b. Describe the impact of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning. c. Describe the resilience of the organisation’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.
Risk management	Disclose how the organisation identifies, assesses, and manages climate-related risks.	a. Describe the organisation’s processes for identifying and assessing climate-related risks. b. Describe the organisation’s processes for managing climate-related risks. c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation’s overall risk management.
Metrics and targets	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

Key performance indicators

Our progress in numbers

We monitor progress against the delivery of our strategic goals using financial key performance indicators ('KPIs').

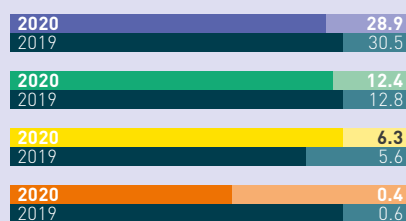
Revenue

Continuing operations

£48.0m

Total revenue for the Group was £48.0 million, down £1.4 million year-on-year (2019: £49.4 million). Revenue declined 3% year-on-year.

Revenue by sector £m



Declining EPS revenue due to COVID (3.0 million) in the industrial sector. WFG and Labels sectors increased throughout the year with full year revenue up 13%. Royalties from the single remaining licensee declined and will continue to decline in both 2021/22 before ceasing.

- Industrial
- Packaging
- Graphic Arts
- Royalties

Revenue by region £m



The significant reduction of revenue in Americas is primarily due to the sales decline in the EPS business. Performance in Asia, and China in particular, was successful with growth of £2.6 million in Printheads driven by re-engagement of Chinese Ceramic customers who began to adopt the Xaar 2001 and have now transitioned to the newly launched Xaar 2002 for their new printer builds. EMEA was slightly lower, but we have seen a promising upward trend in H2 2020 driven by C&M and Labels sectors.

- EMEA
- Asia
- Americas

Profit

Gross margin – Continuing operations %

27%



The increase in the gross profit for the Group can be attributed to the performance of the Printhead business. This was driven by the operational leverage in the business with increased product throughput absorbing greater costs in 2020 (2019: 25%).

Loss before tax £m – Continuing operations

(£4.3m)



Loss before tax from continuing operations represents operating loss after investment income and finance costs (2019: £10.9 million loss).

Adjusted loss before tax £m – Continuing operations

(£3.9m)



Adjusted loss before tax from continuing operations represents the loss before tax adjusted for recurring and non-recurring items. Reconciliation of adjusted financial measures is provided in note 4 (page 126) (2019: loss £8.0 million).

Net cash

Cash and cash equivalents comprise cash at bank (£18.0 million) and short-term highly liquid investments with an original maturity of three months or less. Net cash incl. Treasury deposits of £0.1 million.

Cash & Treasury deposits £m

£18.1m

2020	18.1
2019	25.3

2019: £25.3 million comprising cash £24.8 million and Treasury deposits of £0.5 million (including £9.1 million 3D cash).

Net cash inflow from continuing operations £m

£7.1m

2020	7.1
2019	8.4

Net cash inflow (incl Treasury deposits) from continuing operations was £7.1 million as consequence of improved aEBITDA performance and further improvements in working capital (2019: £8.4 million).

Gross R&D investment £m

£4.5m

2020	4.5
2019	3.1

Gross R&D investment (continuing operations) reflects the investment in the ImagineX platform (£4.5 million). 2019 investment excludes amortisation of Xaar 3D development costs and impairment of Thin Film (2019 restated: £3.1 million).

Adjusted diluted earnings / (loss) per share – continuing operations

(5.2p)

2020	(5.2p)
2019	(15.1p)

Adjusted EPS – Continuing operations is considered to provide a fairer representation of the Group's trading performance year on year. (2019: (15.1p). EPS performance is one of the criteria for the new LTIP.

See more on page 126 and page 135

Following the appointment of a new leadership team and implementation of a new strategy for profitable growth, an assessment of our KPIs will be undertaken to ensure we utilise the best metrics to monitor our performance.

Alongside this, a new remuneration policy will be designed to ensure alignment between the interests of the Executive Directors and the senior management team with the core aims of the new strategy, as well as to align management with the interests of shareholders in the reward for improved performance against the market.

As a result, a new Long-Term Incentive Plan ('LTIP') was introduced in 2020. Metrics will be set to reflect the key challenges seen across the business and specific units for that year.

See the Directors' Remuneration Report on page 78

Xaar uses adjusted figures as key performance measures in addition to those reported under IFRS, as the Board believes these measures enable management and stakeholders to better assess the underlying trading performance of the businesses as they exclude certain items that are considered to be significant in nature and/or quantum – they exclude other operating income, share-based payments, intra-group foreign exchange movements, gain / loss on financial instruments, restructuring and R&D tax credits, that management consider to have a distorting effect on the underlying results of the Group.

The alternative performance measures ('APMs') are consistent with how the businesses' performance is planned and reported within the internal management reporting to the Board and executive management. Some of these measures are used for the purpose of setting remuneration targets.

See more on page 83 and page 126

2019 comparatives are based on continuing operations (where relevant) and are therefore restated to incorporate adjustments arising from financial instruments and discontinued operations.



Risk management

Managing our risks

Key risk areas

The risks around our business are set out in more detail on pages 43 to 49, but the key risk areas can be identified as being associated with the following:

Market		Risk owner: CEO John Mills	
<p>1. Competition Maximising returns over the long-term in the target application through early adoption to achieve a market leading position and then retention of that position.</p>	<p>2. Identification of market requirements Successfully developing products with the characteristics that meet market requirements within the necessary timescale.</p>	<p>3. Commercialising and maintaining products with cutting edge technology Creating value by generating innovative products.</p> <p>4. Merger and acquisition opportunities Seek opportunities to expand, create synergies and generate greater shareholder value.</p>	<p>5. Coronavirus ('COVID-19') – External Tracking the potential global impact and external risks arising from pandemic response and impact on customers / supply chain.</p>
Operational		Risk owner: CEO John Mills	
<p>6. Organisational capability Having the right people in the right roles.</p>	<p>7. Coronavirus ('COVID-19') – Internal / Company Tracking the potential local impact and response to pandemic and operational internal risks on employees or organisation.</p>	<p>8. Brexit Tracking the impact of the Trade & Co-operation agreement between UK & EU.</p> <p>9. Manufacturing facility Diversifying products, locations and manufacturing partners to alleviate operational issues.</p>	<p>10. Partnerships Working with the right companies, at the right time on the right terms to deliver long-term value.</p>
IT		Risk owner: CFO Ian Tichias & Group IT Director – Graeme Smith	
<p>11. IT systems and information failures Failure of our IT infrastructure or key IT systems. Further, failure to build resilience at the time of investing in and implementing new IT infrastructure or IT systems.</p>	<p>12. IT transformation Failure to achieve our IT transformation objectives due to poor prioritisation, ineffective change management and a failure to understand and deliver the IT infrastructure, IT systems, and business process changes required.</p>	<p>13. Cyber security risk – see incident response Loss of systems or confidential data due to a malicious cyber-attack, leading to disruption to business operations and loss of data.</p>	
Financial		Risk owner: CFO Ian Tichias	
<p>14. Ability to access sufficient capital Ability to access sufficient capital to fund growth opportunities.</p>	<p>15. Customer credit exposure Offering credit terms ensuring recoverability is reasonably assured.</p>	<p>16. Inventory obsolescence Holding excess inventory levels when compared to demand, that leads to increased risk of obsolescence and write-off before consumption.</p>	<p>17. Exchange rates Monitoring global economic events and mitigating any resulting significant exchange rate impacts.</p>

Risk management

Effective risk management is key to our success against the dynamics of the industry that we operate in and the characteristics of our chosen business model.

The printing industry in which we operate is declining in overall terms of total output, tends to be capital intensive, is slow to react to change and is resistant to the adoption of new technology. Analogue printing processes are declining rapidly particularly in areas such as Commercial print (transactional documents and publications) where electronic media and digital printing processes are becoming more widespread.

However in areas such as Packaging and Textiles, analogue processes are still dominant and the conversion to digital still modest.

The first approach to managing these risks is to have high quality individuals within the necessary functions that these risks tend to fall into. Other examples of the effective day to day management of these risks include operating multi-functional teams to share knowledge across the business, having regular stage gates in the management of development programmes, and the regular assessment of manufacturing capacity against future potential needs.

In addition to day to day processes the Group's risk register is formally reviewed at senior management and Board level, including the assessment of the performance of risk management during the preceding period.

During 2020, the senior management and Board re-evaluated the existing principal risks, to consider emerging/alternative risks, with significant developments within the IT risk being expanded to cover increase in principal risks arising from cyber-security.

The Board will continue to develop the management framework across these specific risks so that it operates effectively alongside the changing organisational structure, and will inform an assessment of the Group's principal risks throughout 2021, allowing the Board to periodically review existing risks and consider key emerging risks, whether they be operation-specific or broader in scope, such as climate change and environmental matters, with particular reference to TCFD reporting requirements in 2022 (see page 36).

The Board has applied principle O of the 2018 UK Corporate Governance Code by establishing a continuous process for identifying, evaluating, and managing the significant risks the Group faces which has operated throughout the year and up to the date of this report. The internal control and risk management system is designed to manage rather than eliminate the risk of failure to achieve business objectives and can only provide reasonable and not absolute assurance with respect to the preparation of financial information and the safeguarding of assets against material misstatement or loss.

In compliance with provision 28 of the 2018 UK Corporate Governance Code, the Board regularly reviews the effectiveness of the Group's system of internal control.

The Board's monitoring covers all controls, including financial, operational and compliance controls, risk management systems and internal control systems. It is based principally on reviewing reports from management to consider whether significant risks are identified, evaluated, managed and controlled and whether any significant weaknesses are promptly remedied and indicate a need for more extensive monitoring. Significant deficiencies in internal control were identified in EPS during the external audit process in respect to financial statement close process and management controls (see Audit Committee report on page 74), and an action plan has been developed to be implemented in 2021.

The Board has also performed a specific assessment for the purpose of this Annual Report. This assessment considers all significant aspects of internal control arising during the period covered by the report. The Audit Committee assists the Board in discharging its review responsibilities.

Approach to risks

The first approach to managing these risks is to have high quality individuals within the necessary functions that these risks tend to fall into.



Risk management (cont.)

Cyber security – Xaar Group IT security incident

As communicated in Company announcements in 2020, Xaar experienced a critical security incident on 4 October 2020 when the Group’s IT infrastructure was hit by a Ransomware attack.

Our quick response to the issue by shutting down IT systems across multiple sites contained the attack and limited the impact from it, however data was encrypted by the Ransomware on several systems. We did not experience any significant impacts to business operations and we successfully fulfilled all customer orders in the period following the attack.

As one of the affected systems was our HR system, we immediately notified the Information Commissioner’s Office (ICO) of the Personal Data Breach. We co-operated with the Information Commissioner throughout the investigation and were informed on 27 October that no further regulatory action would be taken.

We engaged external cyber security experts to investigate the attack and other key IT partners to assist with the safe recovery of the affected systems. Recovery activities continued for several weeks following the attack and were completed by the end of November. The forensic investigation into the attack confirmed that no data was extracted.

While working to recover our IT systems, we have focused on using the insights gained in the process to further strengthen our IT security and data protection platforms. We will continue this important work going forward as documented in our Risk management activities.

The external fees incurred responding to and recovering from this security incident were £35k.

Approach to risks

The first approach to managing these risks is to have high quality individuals within the necessary functions that these risks tend to fall into.

Probability rating

The probability rating is likelihood of an event occurring based on previous experiences, historical information and professional judgement with respect to the incident in the territory or industry. Probability can be subjective and is not an exact science. The probability of an incident occurring can be estimated to give a probability rating. This gives an overall view of the generic risk exposure faced by the business.

Impact rating

The impact of an incident can be measured in terms of human suffering, damage to assets, interruption to operations or business, effect on customers, impact on reputation/brand and financial loss. The calculation of the impact rating should be taken as the worst case in respect of these categories. The financial element of the impact rating is the amount of money that is “at risk”.

This “at risk” means that it is either revenue at risk, or the cost of rebuilding a system, or replacement cost of hardware. This must be taken in the context that there are limited recovery capabilities and that revenue at risk is not a daily amount, but the amount of revenue that would be lost until the process, system or business function can be reinstated.



Key of change

⬆ Increase

↔ No change

⬇ Decrease

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Market			
1. Competition	<p>We compete on the basis of our technology, innovation, price, quality, reliability, brand, reputation and customer relationships.</p> <p>Failure to continually improve in these areas may mean that we lose market share or have to reduce prices. Since there are fixed factory costs, reductions in sales volumes may substantially lower profit margins.</p> <p>We are the only true independent printhead company in the world and we are competing with vertically integrated large scale multinational companies.</p>	<p>Competitive pricing policies are employed and product portfolios and pricing are constantly monitored. The re-alignment of our go-to-market capabilities allows us to focus more on our customers and to deliver requested products into the OEM marketplace.</p> <p>Production efficiency improvement programmes are established to ensure that cost bases remain competitive within the marketplace.</p> <p>Regular communication and sharing of information with customers and partners to enhance 'peer-to-peer' relationships. Market reports and other reliable sources are reviewed to improve demand forecasting.</p> <p>Continued investment in innovative technical solutions for development of new applications from existing technologies and launch new technologies.</p>	<p>Probable Very High</p> <p>↔</p>
2. Failure to identify market requirements	<p>Products need to meet the changing demands of the market, including regulatory changes.</p> <p>Failure to meet future market requirements/specifications could impact on long-term revenue and profit.</p>	<p>Regular, specific and detailed reviews are held to assess current and anticipated market requirements, including expected regulatory changes.</p> <p>These reviews include regular customer visits between senior executives, technical experts and R&D team members to develop a culture of innovation that focuses on delivering technical solutions to original equipment manufacturers ('OEMs') requirements.</p> <p>Product developments are selected on appropriate criteria. Product development activity is properly managed with regular reviews of progress against project plans, and gated milestone reviews. We have a rigorous product lifecycle management process which ensures we deliver against our customers' requirements.</p>	<p>Possible Very High</p> <p>↔</p>
3. Commercialising and maintaining products with cutting edge technology	<p>We aim to produce quality end products. Failure to meet the required quality standards could have an impact on products that have been sold or that are held in inventory.</p> <p>This could lead to:</p> <ul style="list-style-type: none"> • Unexpected costs associated with resolving the issues • Possible warranty costs, customer compensation or write-down in inventory values • Potentially longer-term revenue loss if customers move to competitors and damage of reputation. <p>We operate in an increasingly dynamic and changing environment. To counter the risks associated with this and, most importantly, to exploit the opportunities it presents, we must embrace innovation, protect our Intellectual Property and capitalise on technology advancements to ensure we grow our market position.</p>	<p>The quality of supplies is constantly monitored. Quality performance is regularly reviewed by senior management who apply appropriate resources to systematically address recurrent problems. New products are thoroughly tested before launch.</p> <p>Xaar's manufacturing facilities are ISO 9001 accredited. Customer returns are reviewed quickly using a consistent and thorough investigation process.</p> <p>Warranty costs, RMA and customer return costs are reviewed and compared against forecast to highlight unexpected costs, and identify root cause for corrective action. We will continue to focus on product innovation.</p> <p>This is evidenced by our continued focus on R&D spend and the number of new products brought to market.</p>	<p>Probable High</p> <p>⬇</p>

Risk management (cont.)

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Market (cont.)			
4. Merger and acquisition opportunities	<p>Our strategy is predicated primarily on organic growth.</p> <p>Failure to realise the expected benefits of an acquisition or post acquisition performance of the acquired business not meeting the expected financial performance at the time acquisition terms were agreed could adversely affect the strategic development, future financial results and prospects of the Group.</p> <p>Divestments also carry risk. We may sell an asset at the wrong time, or may not realise appropriate value for the asset. Separation may be complex and, if poorly executed, may impact the wider business.</p>	<p>Full financial and other due diligence is conducted to the extent as is reasonably achievable in the context of each M&A opportunity.</p> <p>Integration risk and planning would be reviewed and undertaken as part of every acquisition.</p> <p>A detailed business case including forecasts is reviewed by the Board for each opportunity.</p> <p>Use of external advisors.</p>	<p>Possible Medium</p> <p>›</p>
5. Coronavirus (COVID-19) – External	<p>In the uncertain environment of a global pandemic the impact of COVID-19 can be felt within the entire customer base and supply chain.</p> <p>We operate in a global environment with significant exposure as part of the new business model to OEM customers in China, Europe and USA.</p> <p>Any slowdown in the global economy could lead to delays in capital investment for new equipment that utilises Xaar printhead.</p> <p>Temporary disruption to the supply chain and further workplace restrictions may threaten to slow down production or delay testing and the commercialisation of the 3D printers.</p>	<p>Whilst it is difficult for a company individually to mitigate against a global economic slowdown, taking a portfolio approach on risk factors enables Xaar to spread the risk throughout its customer base, rather than previously relying upon distribution as a business model.</p> <p>We are carefully monitoring our own supply chain and are in regular contact with our suppliers. We hold a sufficient buffer stock of critical components and at present we do not foresee any supply issues.</p> <p>Xaar has improved its customer relationships and remains close to its customers to be able to respond quickly to any slowdown; the opening of the China subsidiary will enable an agile response specifically in this market.</p> <p>Order books and manufacturing processes are closely aligned with goods manufactured to customer order.</p> <p>Newly developed printhead will enable Xaar to diversify into a broader customer base and new vertical markets.</p> <p>Scenario planning alongside stress testing and reverse stress testing to identify and develop alternative solutions, as guidance and requirements change during an evolving event.</p> <p>Assessment has taken place by the Board of the impact upon the 3D operation, and work has commenced to identify an appropriate solution to de-risk and transfer ownership of the 3D business.</p>	<p>Certain High</p> <p>NEW</p>

Key of change

⬆ Increase

↔ No change

⬇ Decrease

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Operational			
<p>6. Organisational capability</p>	<p>Our people remain key to our business. Ensuring the right people are in the right roles is critical to our future success and growth. We need to attract and retain the right talent to enable achievement of our strategic aims. Failure to do this risks delivery and growth as follows:</p> <ul style="list-style-type: none"> • Lack of staff to meet a specific business need or contract requirement • Loss of project specialisms • Single point of failure • Loss of key skills. 	<p>Our focus is to minimise the voluntary turnover of employees, through better hiring for fit, improved induction procedures and employee engagement initiatives.</p> <p>Investment to build a learning organisation with focus on culture, reward and recognition.</p> <p>The Group reviews remuneration to ensure that the appropriate reward packages accompany a fulfilling work environment.</p> <p>An updated suite of Learning and Development tools is being developed to ensure key skills are developed and enhanced. Internal courses are developed in conjunction with the Institute of Learning and Management (ILM) to support key manager development. A new graduate and apprenticeship programme is to be launched in 2021.</p> <p>Annual performance management reviews for the majority of employees to identify talent and develop key employees.</p> <p>Campaigns to increase performance and development of communication between managers and employees to ensure alignment to Company objectives.</p>	<p>Possible Medium</p> <p>↔</p>
<p>7. Coronavirus ('COVID-19') – Internal / Operations</p>	<p>Impact across all business operations and locations:</p> <p>Reduction in staff availability and development of commercial opportunities.</p> <p>With the continued uncertainty associated with the virus it is too early to assess the impact on the Group's financial performance.</p> <p>IT infrastructure – see 11. IT risk</p>	<p>We have stopped all international travel and remote access and business continuity testing has been performed.</p> <p>Employees where possible are working from home, we have communicated sick and self-quarantine policies to all our staff.</p> <p>There has been minimal impact upon the manufacturing operations in Huntingdon, with work being performed to new shift patterns to reduce the number of staff on site at any one time. COVID secure working practices have been introduced across all sites with handwashing, face coverings and safe working spaces being mandatory for all employees.</p> <p>The Group is debt free with sufficient cash reserves and liquidity to be able to continue operations "as-is" in the short term. The business has a proven track record for disciplined cost control, which will continue to be vital in the current trading environment.</p> <p>In 2020 no claims for furlough or job support were requested from the UK Government. A claim was submitted in the USD for a government loan that was subject to conditions to obtain relief and has been recorded as a Government grant.</p> <p>Further assessment will be made against available Government support schemes, should the need arise.</p>	<p>Certain Medium</p> <p>⬇</p>

Risk management (cont.)

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Operational (cont.)			
8. Brexit	<p>The United Kingdom's decision to leave the European Union presents both risk and opportunities to the Company.</p> <p>The formal trade negotiations concluded at the end of 2020 and are now governed by the Trade and Co-operation agreement reached between the UK and the European Union.</p> <p>A challenge continues to be free trade into the EU. Around one third of our revenues are generated from EU countries and so any actual or perceived barriers to free trade are an obvious area of concern.</p> <p>The free movement of employees and recruitment of potential employees are key focus areas under the new arrangements.</p> <p>We remain exposed to currency fluctuations that could result from the United Kingdom decision to leave the EU.</p>	<p>Key managers across the business are continuously monitoring the latest political developments and putting mitigating actions in place where there may be a potential impact on Xaar or its stakeholders.</p> <p>A review of import and export tariffs identified minimum effect on the raw materials and finished goods.</p> <p>Non-tariff barriers (i.e. import/export documents) are being reviewed with our freight forwarders and couriers to ensure pro-active compliance with documentation requirements from 1 January 2021.</p> <p>Identify and support EU, EEA or Swiss employees requiring advice in completion of application to the EU Settlement Scheme by June 2021.</p> <p>Xaar will become a licensed sponsor for recruitment of EU nationals. This does not apply to Irish citizens or those whose eligible status is covered by the EU settlement scheme.</p> <p>Identify talent that will meet visa requirements under existing Tier 2 conditions and/or minimum threshold criteria for skilled worker general visa.</p> <p>The Group transacts in four main currencies – Sterling, US Dollars and Euro for sales and purchases, with some additional exposure to purchases in Japanese Yen – and adopts natural hedging where possible to mitigate against exchange rate movements.</p> <p>The Group has sufficient cash resources to protect against any short-term volatility.</p>	<p>Certain Low</p> <p>^</p>
9. Loss of manufacturing facility	<p>We have manufacturing facilities in the UK and the US, and we rely on our strategic partners for key products and components.</p> <p>COVID-19: Sites left vacant / limited access, risk of theft / vandalism increased.</p> <p>If our manufacturing sites or our partners' manufacturing sites were to experience an incident this could have operational and supply chain issues for the business.</p>	<p>Formal disaster recovery plans are maintained and reviewed. Appropriate precautions are taken in all factories and warehouses to safeguard against theft and fire.</p> <p>Business continuity plan implemented, site access restricted, security enhanced, daily building and IT checks for security and performance.</p> <p>Given the specialised nature of the manufacturing equipment and processes there would be short-term disruption.</p> <p>We are also able to use manufacturing partners to alleviate some operational issues.</p>	<p>Unlikely Very High</p> <p>^</p>
10. Partnerships	<p>Companies with whom we have alliances in certain areas (i.e. manufacturing/research) may already be or may become our competitors in other areas. In addition, companies with whom we have partnerships may also acquire or form alliances with our competitors, which could reduce their business with us. If we are unable to effectively manage these complicated relationships with alliance partners, our business and results of operations could be adversely affected.</p>	<p>The IP and Legal team focuses on the extensive review of legal agreements and in particular IP with such partners.</p> <p>Partnerships are constantly reviewed both internally and with those partners at the most senior level to develop long-term partnerships and supply agreements to the benefit of both parties.</p> <p>Where significant investment and research is undertaken (e.g. 3D/Stratasys) there will be contractual arrangements to ensure appropriate governance and Board structure to support the business and product development.</p>	<p>Probable Medium</p> <p>^</p>

Key of change

⬆ Increase

↔ No change


⬇ Decrease


Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
IT			
11. IT systems and information failures	<p>COVID-19: IT network resilience and access to information via hardware and software capabilities.</p> <p>Inability to operate effectively or loss of operating capability.</p> <p>Loss of information, incurring financial or regulatory penalties.</p> <p>Reputational impact, business disruption and potential deterioration in customer relationships.</p>	<p>Appropriate testing of the network environment, new software access (MS Teams) and allocation of laptops, monitors etc., to enable work from home and instant communication.</p> <p>Developed and communicated a new IT Vision statement and IT Strategy which is clearly aligned to our overall business objectives.</p> <p>Developed a three-year IT Transformation Programme to deliver the necessary enhancements to our IT infrastructure and IT systems. This includes investment in moving to a hybrid cloud model, strengthening the resilience and security of our IT infrastructure, rationalising and modernising our business systems, and re-aligning systems with improved operational business processes.</p> <p>Consolidating more of our critical manufacturing and finance processes into our Epicor ERP system and delivering improved engagement with our existing and potential new customers through our Salesforce based CRM platform.</p> <p>Placing increased focus on ensuring that continuity plans for critical IT systems are tested and current as the IT infrastructure and systems are changed.</p> <p>Developing the IT Service Delivery maturity and increasing capacity in the Group IT function.</p>	<p>Probable Medium</p> <p>↔</p>
12. IT Transformation	<p>Partial or complete failure to deliver the key elements of the IT strategy and achieve the Vision for IT.</p> <p>Inability to progress sufficiently quickly to avoid disproportionate increases in the operational cost base as the business grows.</p> <p>Lack of alignment between business processes and IT systems.</p> <p>New risk: As a result of planning and initiating a major IT Transformation Programme in Q4 2020.</p>	<p>Designed the IT Transformation Programme to deliver the three-year plan for IT which has been generated from the IT Vision and Strategy and has been aligned with three-year plans from all the key operational functions within the business.</p> <p>Established executive-level governance and oversight for the IT Transformation activities to ensure that the Programme is adequately resourced, milestones achieved and to approve key rollout decisions.</p> <p>Active engagement with business stakeholders across the organisation and direct involvement in the Programme.</p> <p>Undertaking real-time project delivery management and assurance activities throughout the Transformation Programme.</p>	<p>Probable High</p> <p>NEW</p>


Risk management (cont.)





Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
IT (cont.)			
13. Cyber threat and information security	<p>Inability to operate effectively or significant loss of operating capability and business disruption.</p> <p>Unauthorised access to data, breach of information security and data protection regulations incurring financial penalties from regulators.</p> <p>Reputational impact, business disruption and potential deterioration in customer relationships.</p> <p>Potential loss of Intellectual Property or exposure of commercially sensitive information.</p> <p>Extensive resources expended in responding to security incidents and recovering from them. IT security breaches or disruption (loss of network), unauthorised access or mistaken disclosure of information.</p> <p>New risk: As a result of the cyber attack suffered by Xaar in October 2020, a general increase in the threat level, and increases in the financial and reputation impact from such attacks, we have separated this from inclusion in other IT risks to enable a much clearer focus on this area of IT risk.</p>	<p>Implemented a Multi-Factor Authentication solution for VPN to reduce the likelihood of remote attacks. MFA to be rolled out across all key systems in 2021.</p> <p>Strengthened our Enterprise Backup Solution by incorporating a third immutable copy of all system data in a secure public cloud environment.</p> <p>Prioritisation of infrastructure and systems rationalisation to reduce the available attack surface for malicious cyber attackers.</p> <p>Implemented a risk-based security testing approach across IT infrastructure and systems to identify ongoing vulnerabilities and prioritise remediation.</p> <p>Inclusion of a Security Work stream in the IT Transformation Programme, with an in-depth externally conducted IT Security Assessment to be completed in Q1 2021.</p> <p>IT Service maturity and increased capacity in the Group IT function will enable us to enhance our Security Operations capability.</p> <p>Employees are trained on the risks of phishing and best practices for information security.</p> <p>Access to information is only provided on a "need-to-know" and "least privilege" basis consistent with the user's role and requires the appropriate authorisation.</p>	<p>Possible High</p> <p>NEW</p>
Financial			
14. Ability to access sufficient capital	<p>Our ability to access sufficient capital/liquidity may restrict growth opportunities for our organisation, as well as the strategic plan and vision.</p> <p>Significant investment is required to bring new products to market and ramp up to meaningful volumes.</p>	<p>The Group has implemented cost reduction actions to focus resources on key initiatives and to achieve breakeven under current volume requirements.</p> <p>The Group has sufficient cash available for execution and delivery of the turnaround strategy within agreed timescales.</p> <p>In order to continue to fund our research and development activities and to realise the full potential value of our product portfolio we are seeking strategic investment partners (e.g. 3D/Stratasys).</p>	<p>Probable High</p> <p>></p>

Key of change

 Increase

 No change

 Decrease

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
<p>15. Customer credit exposure</p>	<p>The Group may offer credit terms to its customers which at times could be extended beyond what is considered normal terms for products in early stages of its lifecycle. The Group is at risk to the extent that a customer may be unable to pay the debt on time, thus impacting working capital.</p>	<p>This risk is mitigated by strong ongoing customer relationships, close monitoring of product launches by the customer in the marketplace and by credit insurance in certain jurisdictions.</p> <p>Monitor overdue receivables and manage credit limits prudently. Close management of overdue debtors and use of credit holds to encourage payment.</p> <p>The business model is being reviewed with a move away from a distribution model, to being a direct supplier to OEM manufacturers, which will reduce the future risk being contained in a limited number of large transactions to a wider breadth of supply across a consistent sales order pipeline.</p> <p>Significant level of existing debts written off — recoverability of remaining outstanding debts as distributors run down balances.</p> <p>Previous OEM customers being on boarded with favourable payment terms depending upon credit history — exposure to Chinese manufacturers – payments in advance.</p>	<p>Probable Medium</p> <p></p>
<p>16. Inventory obsolescence</p>	<p>Holding too much inventory increases the risk of obsolescence, theft and other costs of holding stock. Furthermore, working capital restrictions created by excess inventories could affect Xaar's liquidity or prevent investment in new products or identified future acquisitions.</p> <p>Conversely, too little inventory risks stock outs, missed sales opportunities and ultimately damage to Xaar's reputation. Insufficient buffers in raw materials increases Xaar's exposure to supply chain issues – particularly during times of economic uncertainty (see Brexit) or health emergencies (see COVID).</p>	<p>Put in place appropriate stock holding policies, ensuring these are reviewed frequently and change dynamically in line with market/business conditions.</p> <p>Identify and write off obsolete or slow moving stock items, review work in progress to determine profitability of contracts and revenue recognition for EPS.</p> <p>Enforcing lead times for customer orders to ensure we have the most accurate forecast in place as far out as possible.</p> <p>Continually develop forecasting techniques so that stock requirements can be predicted with great accuracy.</p> <p>Ongoing supplier negotiation to reduce minimum order quantities to prevent obsolescence and inflated inventory.</p> <p>The risk has reduced compared to prior year, following cessation of Thin Film activities and operational improvements.</p>	<p>Unlikely Medium</p> <p></p>
<p>17. Volatility in exchange rates</p>	<p>Global economic events and uncertainty may cause currencies to fluctuate and currency volatility contributes to variations in our sales of products and services in impacted jurisdictions.</p> <p>The Group is exposed to currency transactional risk relating to day-to-day sales and purchases across GBP, USD, EUR and SEK.</p> <p>Reported results of overseas subsidiaries are subject to translational risk which may cause volatility in earnings and the balance sheet.</p> <p>The risk is that there could be significant adverse movements in currencies which cause a foreign exchange loss, reducing profit.</p>	<p>Our treasury policy allows us to hedge.</p> <p>There is a partial natural hedge for foreign currency movements.</p> <p>Cash flows are constantly reviewed and action is taken when appropriate.</p> <p> See 'Brexit' risk above for further disclosure.</p>	<p>Possible Low</p> <p></p>

Greenhouse gas emissions statement

Xaar plc has calculated its global greenhouse gas (GHG) emissions statement using an operational control consolidation approach.

Scope 1 emissions

Scope 1 emissions occur from sources that are owned or where Xaar plc has operational control. This includes direct emissions from gas combustion in our buildings and fuel used in leased Company vehicles. Actual and estimated gas consumption data has been collected from each of the leased properties under the control of the Xaar Group, from data sources including direct meter readings, meter readings from suppliers included on invoices and estimations where required based on available information from property management suppliers and other sources. Actual mileage data has been collected from the leased Company vehicle fleet.

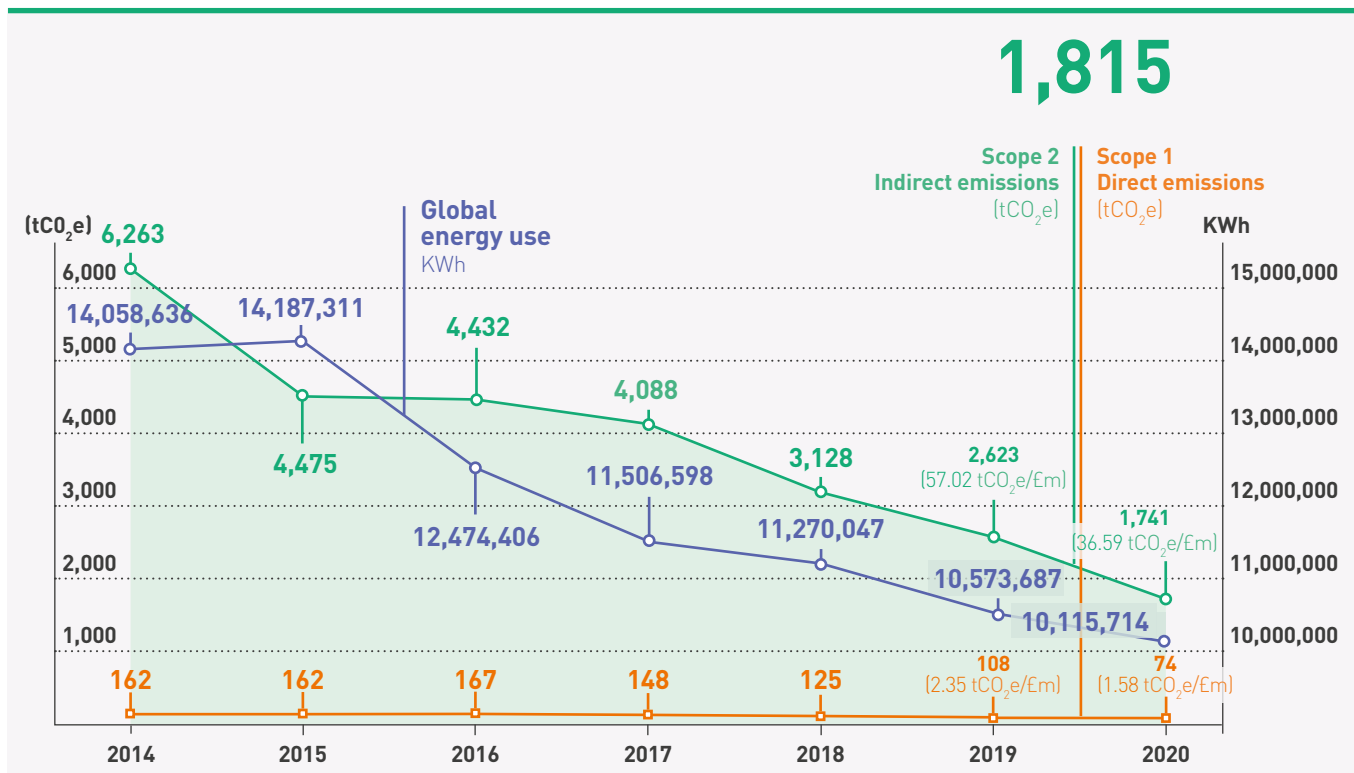
Scope 2 emissions

Scope 2 refers to indirect emissions from the consumption of purchased electricity (also including any purchased heat, steam or cooling) from facilities owned or under the operational control of Xaar plc. Actual and estimated data has been collected from each of the leased properties under the control of the Xaar Group, from data sources including direct meter readings, meter readings from suppliers included on invoices and estimations where required based on available information from property management suppliers and other sources. Please refer to page 15 for what Xaar is doing to offset its carbon usage.

Assessment parameters	
Baseline year	1 January 2013 to 31 December 2013
Consolidated approach	Operational control
Boundary summary	All entities and all facilities under operational control included subject to the materiality threshold applied
Consistency with the financial statements	The only variation is that leased properties deemed to be under operational control have been included in Scope 1 and 2 emissions
Materiality threshold	Materiality has been set at Group level at 5%*
Assessment methodology	Greenhouse Gas Protocol and ISO 14064-1 (2006)
Intensity ratio	Emissions per £m turnover exc. royalties (2020: £47.6m)

* The total of any excluded emission sources is estimated to be less than 5% of Xaar plc's total reported emissions.

UK energy usage 9.67MWh / 1,706 tCO₂e; included in this is 2.35 MWh of renewable energy attributes, in the form of Guarantees of Origin from renewable wind sources.



Board approval of the Strategic and Annual Reports

Board approval

The section 172 statement forms part of this Strategic Report – please see page 53.

The Strategic Report, 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 position, performance, business model and strategy.

The Strategic Report was approved by the Board on 27 April 2021 and is signed on its behalf by:



Andrew Herbert
Chairman



Alison Littley
Senior Independent Director



John Mills
Chief Executive Officer



Chris Morgan
Non-Executive Director



Ian Tichias
Chief Finance Officer

Introduction to Governance

An introduction from our Chairman



We all lead with integrity, passion and courage to inspire everyone to live our values. We overcome our challenges through innovation and deliver on promises to our customers, winning together.

Andrew Herbert
Chairman

The past 12 months have seen much change at Xaar, with a new brand identity and set of values launched in 2020.

2021 focus areas

- Continue the development and rollout of new products and solutions under the ImagineX platform
- Conclude negotiations in amendment of the Call Option for disposal of Xaar 3D Group to be submitted to shareholder approval
- Improvements to internal control and financial reporting environment within EPS
- Task Force for Climate-related Financial Disclosures (TCFD) to be incorporated into 2021 reporting
- Identify non-organic growth opportunities across the business environment.

Dear Shareholders

This corporate governance section of the Annual Report sets out what governance means to Xaar and to the Board, both in itself and in terms of its impact on decision making in the business, and looks to assure shareholders and others we have embedded the values that they would expect to see in place.

Corporate governance is not just a set of guidelines but a framework which underpins the core values of the business. It sets standards against which we can judge whether we are acting in the right way and for the right reasons when we make decisions, while ensuring we have all the appropriate and necessary safeguards, checks and balances in place.

Purpose, culture and values

A healthy corporate culture is a valuable asset, a source of competitive advantage and vital to the creation and protection of long-term value. It is the Board's role to determine the purpose of the Company and ensure that the Company's values, strategy and business model are aligned to it.

In September 2020, when we announced our new brand identity and launched the ImagineX platform, we also launched a new set of values to reflect the true essence of Xaar and which we use to guide the way we behave towards our customers, our partners and each other.

These values are our guiding principles:

- + We do everything with passion
- + We are creative
- + We are innovative
- + We have integrity
- + We are collaborative

Board changes

This year saw significant changes to Board membership including a new Chair, a new CFO and a new Non-Executive Director.

The Nomination Committee has reviewed and concluded that, in the initial period of implementation of the new business strategy, and in the face of stringent cost measures implemented elsewhere in the business, it is appropriate to maintain three rather than the previously four independent Non-Executive Board members. This position remains under review by the Committee to ensure the Board and its Committees maintain appropriate skills and experience and that the majority of the Board remains independent.

Looking ahead

The past 12 months have seen much change at Xaar.

The Board continues to provide effective and independent oversight of the Company's strategy and its broad business operation, within a framework of effective controls and prudent risk assessment.

Additional work will be undertaken in 2021 to address internal control issues raised during the external audit within EPS, and to identify the roadmap for compliance with the TCFD reporting requirements by end of 2021.

Andrew Herbert
Chairman

27 April 2021

Section 172 Statement

Decisions of the Board take into account not just short-term, but also medium and long-term consequences, which are carefully considered and balanced, having regard to the sometimes conflicting needs and priorities of the business, its customers, partners, employees and other stakeholders.

The decision to potentially divest the 3D business will create a cash funding pool available for investment into targeted development of the ImagineX platform to strengthen both the existing product portfolio and existing customer relationships, but also to develop new product solutions and new revenue streams in new customer sectors.

The Directors’ report and Corporate governance report set out in greater detail Xaar’s policy towards its employees. Xaar’s value is created through innovation, which is a product of motivated employees. They are of central importance to Xaar’s success, and the Directors believe that the Xaar culture and core values create an environment for engaged and successful employees. The Xaar HR team supports managers to look after employee needs, and the Directors review an annual employee engagement survey, which ensures that employee interests and needs are at the kept forefront of the Board agenda.


Three virtual ‘Meet the NEDs’ employee sessions took place in 2020, hosted by each of the Non-Executive Directors. Topics discussed were wide ranging with discussions around the new strategy and direction of the business, remuneration, employee training and opportunities for development.

Regular communication sessions were organised with the Executive Directors, including presentation of the three year business plan via webinar to all employees, with a question and answer session.

Xaar’s success depends on strategic relationships with key partners, OEM customers and suppliers, so the Board maintains ongoing oversight of these. Monthly management packs report to the Board on the status of key relationships, which have Board-level engagement from an operational perspective.

Product performance is constantly monitored, and customer feedback continuously captured through regular account meetings, which are always attended by management-level, and often Director-level, representatives.

Xaar seeks to make a positive contribution to its community, at local and global levels, and to minimise as far as possible its impact on the environment. Xaar backs its employees’ interests in community activities, supporting them in terms of time to attend to these commitments and financial backing.

 **Further details on practical steps Xaar has taken during the COVID pandemic can be found in the Strategy update (page 12) and Sustainable and Responsible business report (page 35).**

We are pleased to confirm that throughout the year ended 31 December 2020, the Company has followed the provisions of the UK Corporate Governance Code 2018 (‘the Code’), and has either complied or explained why a provision has not been followed. An explanation of non-compliance in post employment shareholdings is provided in the Directors’ Remuneration report (page 71).

Xaar works with the global leaders of the digital inkjet technology industry. Accordingly, the highest standards of business are demanded. Xaar works with these global leaders, at the forefront of business, industry and technological innovation, to ensure these standards are constantly challenged and improved. The competing needs of the various stakeholders of the Company are monitored and reviewed at management and Board level. Where conflicting needs arise, advice is sought from the wider Board and, as necessary, from Xaar advisors. Through the careful balancing of stakeholder needs, Xaar seeks to promote success for the long-term benefit of shareholders.

Governance highlights at a glance

Key governance activities

- Establish new Executive and Non-Executive Board membership following significant personnel changes in 2020
- Undertake a review of the way the Board works and identify improvements in both agenda and delivery of Board material
- Conduct an internal review of Board effectiveness and performance during the year.

Board attendance

Director	% attendance	Director	% attendance
Andrew Herbert Chairman	100	Chris Morgan Non Executive Director	100
John Mills Chief Executive Officer	100	Alison Littley Senior Independent Director	100
Ian Tichias CFO	100		

Introduction to Governance (cont.)

Q&A with Ian Tichias and John Mills

This year saw significant changes to Board membership, with a new executive management team, including a new CEO and CFO



John Mills Chief Executive Officer



User Developer Integrators are turning to Xaar's technology because it goes beyond the typical capabilities of inkjet.

John Mills
CEO

What attracted you to Xaar?

Of all the inkjet businesses in the Cambridge area, Xaar was top of the list of companies I'd like to run, so when the opportunity arose, obviously I was delighted. I have always been aware of the fundamental benefits of Xaar's technology but also some of the limitations. In my previous role at Inca I would never have adopted Xaar technology because the limitations outweighed the benefits for our application. Moving to Xaar has given me the chance to eliminate those limitations and to showcase the compelling benefits of Xaar's technology, which is very exciting.

What do you bring to the role of CEO?

A technical background and many years in inkjet companies has certainly been useful to quickly get to grips with the complex nature of Xaar's products and to see the unique advantages and potential of the technology. My five years as CEO of OEM Inca Digital gave me a great understanding of what our customers need from Xaar in order to drive success in their own businesses. It was clear to me that Xaar's business model and route to market created confusion, specifically with our OEM customers.

We have now adopted a clear single route to market through our OEM and UDI customers and are already starting to see the impact of the changes made.

What do you see as the main opportunities for Xaar in the coming year?

The progress made to date has allowed us to regain customer trust which opens new business opportunities. We are starting to gain more interest from User Developer Integrators looking to build print systems for their own specific applications which might fall outside of the typical capabilities of inkjet. UDIs are turning to Xaar's technology because it goes beyond the typical, offering the widest application window, handling a broader range of fluids, viscosities and printing modes.

We will also progress the roadmap to deliver products that offer real value propositions to our customers, which will in turn enable them to drive the success of their own businesses with our technology.

In addition, we are developing integrated solutions to enable our customers to easily adopt inkjet technology and get to market more quickly and efficiently.



Ian Tichias Chief Financial Officer



It's an exciting challenge – to rebuild the Company and be involved in shaping a new, better Xaar.

Ian Tichias
CFO

What attracted you to Xaar?

The main thing that attracted me to Xaar was the opportunity and potential of the Company and what Xaar could achieve. Huge potential such as this is really exciting and motivating. In addition, Xaar is an established business and has had such a good reputation for innovation and expertise in its field which presents me with an exciting challenge – to rebuild the Company and to be involved in shaping a new, better Xaar.

What do you bring to the role of CFO?

Having spent 17 years in the pharma industry, I bring to Xaar substantial experience gained in successful, well managed and organised businesses. My career has been built across a number of functions, not just finance, and I have a good track record of building successful teams and driving high performance through strong leadership and direction.

Knowing what good looks like and applying best practice gives confidence to know what needs to be done to make the most of Xaar's potential. Overall, it's quite a broad leadership background which means I can easily adapt to deliver what the business needs as it develops and grows.

What do you see as the main opportunities for Xaar in the coming year?

We're at the start of an exciting opportunity for Xaar. We have a lot of ambition and determination. We will move forward in careful, measured steps, embedding quality process and behaviours across the Company. We will make sure we have the right teams focused on the right goals and that the whole Company is aligned. The result will be a structured, stable and sustainable business. The good news is we are already making steady progress! Over the next year we will continue to build on this, to put in place a stable platform to successfully develop Xaar into the foreseeable future.

Board of Directors



Andrew Herbert

Chairman



Appointed to the Board
2016

Qualifications

- FCMA Chartered Management Accountant
- BA (Hons) in Business Studies.

Skills and experience

- Extensive experience in the global digital printing industry following a 30-year career with Domino Printing Sciences plc, working both in the UK and the US
- Group Finance Director/Chief Financial Officer of Domino Printing Sciences plc from 1998 to 2015 during which time he played an instrumental role in expanding the business geographically through acquisition and creation of sales channels, and in broadening the product range via acquisition of technology based businesses
- Previously held a number of line director roles in Finance, Operations, Planning and Business Development.

External appointments

- Non-Executive Chairman of Midwich Group plc.



John Mills

Chief Executive Officer



Appointed to the Board
2019

Qualifications

- Ph.D Physics.

Skills and experience

- Five years as CEO at Inca Digital
- Previously CEO at DataLase and COO at Plastic Logic
- Wealth of experience in inkjet, having started career at Domino Printing Sciences as Development Scientist rising to Director of Development after four years in various technical roles.



Ian Tichias

Chief Financial Officer

Appointed to the Board
2020

Qualifications

- ACA Institute of Chartered Accountants in England & Wales
- BSc (Hons) Economics & Maths, University of Leeds.

Skills and experience

- Over 15 years' experience in senior financial roles
- Previously, Ibstock plc Group Finance Director and Deputy CFO, with direct responsibility for the Group's Clay division business
- Other past roles include Senior Director, Finance & Global Pricing Lead – Europe, Africa and Middle East for Zoetis and before that, Head of Finance for Pfizer Diversified Businesses ('PDB') UK
- Proven track record of delivering business focused finance operations that drive efficiency and commercial performance beyond finance.



Chris Morgan
Non-Executive Director

A R N

Appointed to the Board
2016

Skills and experience

- Wealth of expertise in managing complex international technology businesses, having spent 25 years at HP Inc.
- Strong background in global marketing, sales and general management senior executive roles including global accountability for HP’s multibillion dollar graphics/industrial portfolio of digital 2D and 3D printing businesses from 2009-2012
- Extensive experience in Asia and Japan having spent more than a decade in senior APJ leadership roles
- Led strategic investments in key growth markets and has been involved in a number of mergers and acquisitions at both the strategic and operational levels
- Chief Marketing Officer for Stratasys in 2014-2015 and recently served as Senior Vice President of Americas and Asia for 3D Systems, Inc. until January 2018
- Currently a Non-Executive Director for San Diego based additive manufacturing company, Intrepid Automation.



Alison Littley
Senior Independent Director

R A N

Appointed to the Board
2020

Skills and experience

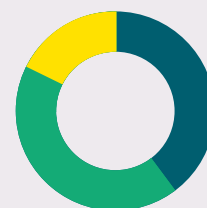
- Over 25 years’ experience within international blue chip organisations, including multinational manufacturing, supply chain and marketing services roles
- Strong international leadership background of building effective management teams and third-party relationships gained through a variety of senior management positions in Diageo plc, Mars Inc and an Agency to HM Treasury, where she was Chief Executive Officer
- For the past nine years Alison has been a Non-Executive Director (NED) of both international PLCs and privately owned businesses. She is currently NED at Norcros plc, and the family-owned Osborne construction company consisting of Osborne Group Holdings Ltd and Rosewood Group Holdings Ltd.

Key to Committee

- A** Audit
- R** Remuneration
- N** Nomination
- Chair
- Member

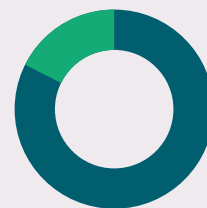
Board composition

- Executive Director 2
- Non-Executive Director 2
- Chair 1



Board diversity

- Male 4
- Female 1



Board tenure

- 0-3 years 3
- 3-6 years 2



Board structure

Board of Directors

Management Committee

Audit Committee

The Audit Committee is responsible for monitoring and reviewing the integrity of the financial reporting process, including the appropriateness and effectiveness of the Internal Controls and Risk Management procedures of the Group.

Chris Morgan Chair
Appointed 1 April 2020

 See page 72



Principal Committees

Nomination Committee

The Nomination Committee is responsible for reviewing the size, structure and composition of the Board and providing advice to the Board on Board and senior management appointments and succession planning; monitoring of the composition of the Board and its Committees.

Andrew Herbert Chair
Appointed 1 April 2020

 See page 76



Remuneration Committee

The Remuneration Committee is responsible for the development and implementation of the Group's remuneration framework and policies for Directors including all incentives and bonuses.

Alison Littley Chair
Appointed 1 July 2020

 See page 78



Directors' report

Report on the affairs of the Group

The Directors present their Annual Report together with the financial statements and auditor's report for the year ended 31 December 2020.

The Company has chosen, in accordance with section 414C(11) of the Companies Act 2006, to include matters of strategic importance in the Strategic Report which otherwise would be required to be disclosed in the Directors' report. An indication of likely future developments in the business of the Company and details of research and development activities and important events since the financial year-end are included in the Strategic Report. The following cross-referenced material is incorporated into this Directors' report.

Non-financial information statement – Subject Matter	Section/Page
Principal Risks and uncertainties	Risk Management on pages 40-49
Business model	Strategic Report on page 14
Employee engagement	Strategic Report on page 15 Stakeholder engagement on page 32 Directors' Remuneration report on page 79
Equality, Diversity, Inclusion and Human Rights	Sustainable and responsible business on page 35
Disabled employees	Sustainable and responsible business on page 35
Supplier engagement	Stakeholder engagement on page 32
Engagement with customers and other business relationships (including community engagement)	Strategic Report on page 15 Stakeholder engagement on page 32 Sustainable and responsible business on page 34
Greenhouse gas emissions and environmental policies	Sustainable and responsible business (TCFD) on page 36 GHG statement on page 50
Political donations	Sustainable and responsible business on page 34
Ethics and Governance, including Code of Conduct, Anti-bribery and corruptions policies	Sustainable and responsible business on page 35 Corporate Governance section on page 68

Branches

In addition to the subsidiaries disclosed in note 11 of the Company's separate financial statements on page 165, there is a branch in Stockholm, Sweden through which research and development activities are conducted. Xaarjet Overseas Limited also has sales branches in Haryana, India (closed in 2021) and Hong Kong.

Dividends

No interim or final dividend was proposed or paid for the year ended 31 December 2020.

 Details on dividends are set out in note 13 on page 134.

Capital structure

Details of the issued share capital, together with details of the movements in the Company's issued share capital during the year, are shown in note 26. 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, except for shares held in the Xaar Share Incentive Plan trust, which hold no voting rights.


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 on voting rights.

There are a number of employee share schemes, namely, Employee Share Option Schemes ('ESOP'), Long-Term Incentive Plans ('LTIPs'), Share Incentive Plans ('SIP'), and Share Save Schemes ('SAYE').

- Details of the shareholding held in trust by Xaar Trustee Ltd and held by the Xaar plc ESOP trust are provided in note 28. These have voting rights exercised by the Trustees
- Details of other share-based payment schemes are set out in note 32. Shares held in Xaar plc SIP do not hold voting rights.

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

The business of the Company is managed by the Board, which may exercise all the powers of the Company subject to the Articles and the Companies Act.

 The powers of Directors are described in the Main Board terms of reference, copies of which are available on request, and the Corporate Governance statement, division of responsibilities on page 69.

Directors' report (cont.)

Treasury

The Group's policy enables it to use financial instruments to hedge foreign currency exposures. The main trading currency of the Group is GBP Sterling. The Group's use of financial instruments and the related risks are discussed further in notes 21 and 22.

At the 2020 AGM held on 2 June 2020, the Company's shareholders granted the Company authority to make one or more market purchases (within the meaning of section 693(4) of the Companies Act 2006) of ordinary shares of 10 pence each in the capital of the Company.

The Company did not purchase any shares for cancellation or to be held as treasury shares in 2020 or 2019.

Directors and their interests

The Directors who served during the year, and subsequent to the year-end, unless otherwise stated, were as follows:

Robin Williams

Chairman (retired 31 March 2020)

Andrew Herbert

Non-Executive Director (appointed Chairman 1 April 2020)

John Mills

Chief Executive Officer

Ian Tichias

Chief Finance Officer (appointed 1 March 2020)

Margaret Rice-Jones

Senior Independent Director (retired 30 June 2020)

Chris Morgan

Non-Executive Director

Alison Littley

Senior Independent Director (appointed 1 May 2020, Senior Independent Director 1 July 2020)

 Brief biographical descriptions of the Directors are set out on pages 56 and 57.

 Full details of their interests in shares of the Company and its subsidiary undertakings are included in the Directors' Remuneration report on page 90.

Shareholdings in the Company

The interests of the Directors in the shares of the Company and its subsidiaries (all of which are beneficial) as at 31 December 2020 are as follows:

	Number of ordinary shares of 10p each 31 December 2020	Number of ordinary shares of 10p each 31 December 2019
Andrew Herbert	100,000	—
John Mills	125,000	—
Ian Tichias	50,000	—
Chris Morgan	—	—
Alison Littley	—	—

There have been no changes in the Directors' interests in shares of the Company between 31 December 2020 and 27 April 2021. Directors' interests in options in the Company and in deferred bonuses (in shares) are shown in the Directors' Remuneration report. The Executive Directors are required to receive a portion of their bonus in deferred shares. At the point in which the bonus is approved each year, the shareholding is then increased accordingly.

Directors' liabilities

Xaar plc, the ultimate parent company, and its subsidiaries have granted an indemnity to all of the Directors of Xaar plc and of its subsidiaries against liability in respect of any potential proceedings that may be brought by third parties, subject to the conditions set out in the Companies Act 2006. Such qualifying third party indemnity provision was in place during the year and remains in force as at the date of approving the Directors' report.

Share capital

As at 31 December 2020 the Company had been notified in accordance with Chapter 5 of the Financial Conduct Authority's ('FCA's') Disclosure and Transparency Rules of the following material interests in its share capital:

Top 10 shareholders (by parent company) – at 31 December 2020	Number of ordinary shares held	Percentage of issued share capital
Schroders	22,238,789	28.39%
Aberforth Partners	8,461,333	10.80%
Hargreaves Lansdown PLC	5,508,346	7.03%
Invesco	4,070,814	5.20%
Interactive Investor Trading	3,618,360	4.62%
Columbia Threadneedle Investments	3,520,252	4.49%
Fidelity Worldwide Investment (FIL)	2,836,253	3.62%
Barclays Bank	2,395,398	3.06%
Chelverton Asset Mgt	2,331,826	2.98%
River & Mercantile Asset Mgt	2,211,608	2.82%
Total	57,192,979	73.01%

During the period 31 December 2020 to 26 April 2021, the Company had been notified in accordance with Chapter 5 of the Financial Conduct Authority's ('FCA's') Disclosure and Transparency Rules of the following material interests in its share capital:

Changes in material shareholdings since 31 December 2020	Number of ordinary shares held	Percentage of issued share capital
Schroder Investment Mgt (London) (decrease in shareholding from 28.39% to 27.33%)	21,406,643	27.33%
Columbia Threadneedle Investments (increase in shareholding from 4.49% to 6.69%)	5,241,342	6.69%
Hargreaves Lansdown PLC (decrease in shareholding from 7.03% to 6.54%)	5,119,423	6.54%
Odyssean Capital LLP (increase in shareholding from 2.69% to 5.09%)	3,982,500	5.09%
Interactive Investor Trading (decrease in shareholding from 4.62% to 3.57%)	2,796,503	3.57%
Fidelity Worldwide Investment (FIL) (decrease in shareholding from 3.62% to 3.23%)	2,534,063	3.23%
Barclays Bank (decrease in shareholding from 3.06% to 2.80%)	2,190,041	2.80%
River & Mercantile Asset Mgt (decrease in shareholding from 2.82% to 1.77%)	1,389,995	1.77%

COVID-19 statement

The health and wellbeing of our colleagues, shareholders and the wider community in which our Company operates is a priority for us. The Directors have carefully considered the impact on the meeting of the constantly evolving COVID-19 situation and the UK Government's restrictions and guidance on, amongst other things, public gatherings and social distancing. As at the date of publication of the notice of the Annual General Meeting, it is anticipated that this year's AGM will be held as a closed meeting. Accordingly, save for the Chairman of the Meeting and such other persons as the Chairman of the Meeting may decide should be admitted for the purposes of forming a quorum, shareholder attendance in person at the AGM will not be permitted.

The Company will continue to closely monitor the developing impact of COVID-19 and the latest legislation and guidance issued by the UK Government. If circumstances evolve such that the Directors consider that, within safety constraints and in accordance with government guidance, arrangements regarding attendance at the Annual General Meeting can change, the Company will notify shareholders as soon as reasonably practicable of any such changes via a Regulatory Information Service and on our website. We encourage shareholders to monitor the Company's website and regulatory news services for any updates in relation to this year's AGM.

Given the uncertainty around whether shareholders will be able to attend the AGM, we strongly recommend that shareholders exercise their votes by submitting their proxy as set out in the Notice of Meeting. This will ensure that your vote will be counted if attendance at the meeting is restricted (which is likely to be the case due to the ongoing COVID-19 restrictions). All shareholders are strongly recommended to vote electronically at www.signalshares.com as your vote will automatically be counted. In addition, should a shareholder have a question that they would have raised at the meeting, we ask that they send it by email to investor.relations@xaar.com before 5.00 pm on 9 June 2021. Answers to the questions will be published on our corporate website (www.xaar.com) after the AGM.

Annual General Meeting

 The notice convening the Annual General Meeting is set out on pages 167 to 170.

Resolutions 1 to 9 set out in the notice of the meeting deal with the ordinary business to be transacted at the meeting. The special business to be transacted at the meeting is set out in Resolutions 10 to 13.

Directors' report (cont.)

Re-election of Directors

Resolutions 4 to 8

The Company's Articles of Association require the Directors to retire by rotation at least once every three years, with the number to retire by rotation at each Annual General Meeting being the number nearest to but not exceeding one third of the Board. However, the UK Corporate Governance Code provides that all Directors should be subject to re-election by their shareholders every year. In accordance with this provision of the UK Corporate Governance Code and in keeping with the Board's aim of following best corporate governance practice, the Board has, in recent years, decided that all Directors should retire at each Annual General Meeting and offer themselves for re-election.

Directors' Remuneration report

Resolution 9

This Resolution seeks shareholder approval for the Directors' Remuneration report.

 **The Directors' Remuneration report can be found on pages 78 to 96 (inclusive) of the Annual Report and Financial Statements.**

In accordance with regulations which came into force on 1 October 2013, Resolution 9 offers shareholders an advisory vote on the implementation of the Company's existing remuneration policy.

Power to issue securities

Resolutions 10, 11 and 12

Under section 551 of the Companies Act 2006 (the 'Act'), the Directors may only allot shares or grant rights to subscribe for or convert any securities into shares if authorised by the shareholders to do so.

Resolution 10, which complies with guidance issued by the Investment Association, will, if passed, authorise the Directors to allot ordinary shares or grant rights to subscribe for or convert any securities into ordinary shares, up to an aggregate nominal value of £2,611,143 (corresponding to approximately one third of the issued share capital at 26 April 2021) and up to an additional aggregate nominal value of £5,222,286 (corresponding to approximately two thirds of the issued share capital at 26 April 2021) in the case of allotments only in connection with a fully pre-emptive rights issue. The Directors have no present intention to exercise the authority sought under this Resolution. However, the Directors may consider doing so if they believe it would be appropriate in respect of business opportunities that may arise consistent with the Company's strategic objectives.

This authority will expire no later than 15 months after the passing of the Resolution. It is the Board's current intention to seek renewal of such authority at each future Annual General Meeting of the Company.

Disapplication of pre-emption rights Resolutions 11 and 12

Under section 561(1) of the Act, if the Directors wish to allot equity securities (as defined in section 560 of the Act) they must in the first instance offer them to existing shareholders in proportion to their holdings. In addition, there may be occasions when the Directors will need the flexibility to finance business opportunities by the issue of shares without a pre-emptive offer to existing shareholders. This cannot be done under the Act unless the shareholders have first waived their pre-emption rights.

In accordance with institutional guidelines, under Resolution 11, to be proposed as a Special Resolution, authority is sought to allot shares:

- (i) in relation to a pre-emptive rights issue only, up to an aggregate nominal amount of £5,222,286 (being the nominal value of approximately two thirds of the issued share capital of the Company); and
- (ii) in any other case, up to an aggregate nominal amount of £391,672 (representing 5% of the issued share capital of the Company).

The Directors do not currently have an intention to exercise the authority.

In addition, Resolution 12, which is also to be proposed as a Special Resolution, asks the shareholders to waive their pre-emption rights in relation to the allotment of equity securities or sale of treasury shares up to a further aggregate nominal amount of £391,672 (representing 5% of the issued share capital of the Company), with such authority to be used only for the purpose of financing (or refinancing, if the authority is to be used in the six months after the original transaction) a transaction which the Directors of the Company determine to be an acquisition or other capital investment of a kind contemplated by the Pre-emption Group's Statement of Principles on Disapplying Pre-emption Rights.

The Directors will also have regard to the guidance in the Statement of Principles concerning cumulative usage of authorities within a three-year period. Accordingly, the Board confirms that it does not intend to issue shares for cash representing more than 7.5% of the Company's issued ordinary share capital in any rolling three-year period other than to existing shareholders, save as permitted in connection with an acquisition or specified capital investment as described above, without prior consultation with shareholders.

If Resolutions 11 and 12 are passed, the authorities will expire at the conclusion of the next Annual General Meeting of the Company, or, if earlier, the date which is 15 months after the date of passing of the Resolutions. It is the Board's current intention to seek renewal of such authorities at each future Annual General Meeting of the Company.

Authority to purchase own shares

Resolution 13

It is proposed by Resolution 13, by Special Resolution, to authorise the Company generally and unconditionally to purchase its own shares at a price of not less than the par value of the shares and not more than the higher of:

- (i) 5% above the average of the middle market quotations of the shares as derived from the London Stock Exchange Daily Official List for the five dealing days immediately preceding the day on which the purchase is made; and
- (ii) the higher of the price of the last independent trade and the highest current independent bid on the trading venue where the purchase is carried out (in each case exclusive of any expenses payable by the Company).

The authority will be for a maximum of 14.9% of the Company's issued share capital and will expire at the earlier of the next Annual General Meeting of the Company or within 15 months from the date of the passing of this Resolution. The Directors currently have no intention to exercise the authority and will only purchase shares if it is in the best interests of shareholders as a whole.

The total number of ordinary shares under option, which remain unexercised and outstanding as at 26 April 2021 (including options awarded under LTIP which may be satisfied by subscription for new shares) was 3,480,593. This represents 4.4% of the issued ordinary share capital at that date. If the Company was to buy back the maximum number of ordinary shares permitted pursuant to the passing of this Resolution, then the total number of ordinary shares under option which remain unexercised and outstanding as at 31 December 2020 would represent 5.2% of the reduced issued ordinary share capital.

Additional information for shareholders

The following provides the additional information required for shareholders as a result of the implementation of the Takeovers Directive into UK law.

The structure of the Company's issued share capital is shown in note 26.

Details of ordinary shares held in trust owned by the Company can be found in note 28.

The Company is not aware of any agreements between shareholders that may result in restrictions on the transfer of securities and/or voting rights.

The Directors are authorised to issue and allot shares and to undertake purchases of the Company's shares. Appropriate resolutions to renew these authorities are proposed to be passed at the Annual General Meeting as detailed above and notice of which is on pages 167 to 170.

 **The notice of the Annual General Meeting is on pages 167 to 170.**

Ordinary shares

On a show of hands at a general meeting of the Company every holder of ordinary shares present in person and entitled to vote shall have one vote for every ordinary share held and, on a poll, every member present in person or by proxy and entitled to vote shall have one vote for every ordinary share held. The notice of the Annual General Meeting on pages 167 to 170 specifies deadlines for exercising voting rights either by proxy notice or present in person or by proxy in relation to resolutions to be passed at the Annual General Meeting.

All proxy votes are counted and the numbers for, against or withheld in relation to each resolution are made available at the Annual General Meeting and are published on the Company's website after the meeting. No person holds securities carrying special rights with regard to control of the Company.

Directors' report (cont.)

Restrictions

There are no restrictions on the transfer of ordinary shares in the Company other than:

- certain restrictions may from time to time be imposed by laws and regulations (for example, insider trading laws and market requirements relating to close periods); and
- pursuant to the Listing Rules of the FCA whereby all employees of the Company require the approval of the Company to deal in the Company's securities.

Articles of Association

The Company's Articles of Association may only be amended by a Special Resolution at a general meeting of the shareholders. Directors are reappointed by Ordinary Resolution at a general meeting of the shareholders.

Action to be taken

As detailed in the notes to the notice convening the Annual General Meeting, you will not receive a Form of Proxy for the Annual General Meeting in the post. Instead, you can vote online at www.signalshares.com. To register, you will need your Investor Code, which can be found on your share certificate; once logged on, click on the "Vote Online Now" button to vote. Proxy votes should be submitted as early as possible and in any event, no later than 48 hours before the start of the meeting (excluding weekends and public holidays). Shareholders attempting to attend the meeting will be refused admission.

You may request a hard copy proxy form directly from the registrars, Link Asset Services on 0871 664 0300. (Calls cost 12 pence per minute plus your phone company's access charge. If you are outside the United Kingdom, please call +44 371 664 0300. Calls outside the United Kingdom will be charged at the applicable international rate.) Lines are open between 9.00a.m. to 5.30p.m., Monday to Friday, excluding public holidays in England and Wales.

Appointment and replacement of Directors

With regard to the appointment and replacement of Directors, the Company is governed by its Articles of Association, the UK Corporate Governance Code, the Companies Act and prevailing legislation.

The Board can appoint a Director but anyone so appointed must be elected by an Ordinary Resolution at the next general meeting. All Directors are required to submit themselves for reappointment every year at the AGM (see: Re-election of Directors, above) in line with the UK Corporate Governance Code.

A Director may be removed by the Company in certain circumstances set out in the Articles of Association or by an Ordinary Resolution of the Company.

Significant interests

 **Directors' interests in the share capital of the Company are shown in the table on page 60.**

 **Major interests (i.e. those greater than 3%) of which the Company has been notified are shown on page 61.**

Company share schemes

The Xaar plc ESOP Trust holds 0.9% (2019: 1.2%) of the issued share capital of the Company in trust for the benefit of employees of the Group and their dependants. The voting rights in relation to these shares are exercised by the Trustees.

Change of control

The Company is not party to any agreements which take effect, alter or terminate upon a change of control of the Company following a takeover bid. There are no agreements between the Company and its Directors or employees providing for compensation for loss of office or employment (whether through resignation, purported redundancy or otherwise) that occurs because of a takeover bid. Depending on the achievement of performance conditions, share-based payment arrangements may vest on change of control but this is subject to the approval and exercise of the discretion of the Remuneration Committee.

Going concern

 **The Group's business activities, together with the factors likely to affect its future development, performance and position, are set out in the Strategic Report on pages 9 to 13 and Business performance on pages 28 to 31.**

The Group's business activities, together with the factors likely to affect its future development, performance and position are set out in the Strategic Report on pages 6 to 19. The Group reported a loss after tax for the year ended 31 December 2020 of £14.7 million, of which £10.3 million related to discontinued operations, being the final costs relating to Thin Film and the Xaar 3D business which is expected to be sold. Notes 21 and 22 include a description of the Group's objectives, policies and processes for managing its capital; its financial risk management objectives; details of its financial instruments and hedging activities; and its exposure to credit risk and liquidity risk. The Group's day to day working capital requirements are expected to be met through the current cash and cash equivalent resources (including Treasury deposits) at the balance sheet date of 31 December 2020 of £18.1 million. The Group was debt free as at 31 December 2020 and across each of the going concern scenarios described below.

Whilst the impact of COVID-19 on the performance of the business over the last year has not been significant, the long-term implications of the spread of the virus remain uncertain making it difficult to determine the impact on the 2021 financial performance. The Board has therefore considered the performance of the different businesses across the Group and each of their funding requirements before performing a number of stress tests. The base going concern case assumes that the disposal of Xaar 3D completes as described in note 37 and the Strategic update on page 11, however excludes the anticipated consideration. Conservatively, a second case which excludes the disposal of Xaar 3D has been applied. In both cases the downturn in revenue across the entire Group required to prevent the business continuing as a going concern would have to be severe and is not plausible given the nature and size of the order book and the trading experience of the printhead and EPS segments during COVID-19 conditions to date. Notwithstanding this, the Group has further options to mitigate a cash shortfall which have not been factored into the above forecasts, such as staffing reductions, further delaying/stopping capital and research and development expenditure and aligning performance related pay to actual results.

The Group continues to enjoy a strong cash position and is well positioned to cope with the current situation. The Board remains confident in the long-term future prospects for the Group and its ability to continue as a going concern for the foreseeable future.

The Directors have a reasonable expectation that the Group has adequate resources to continue in operational existence for the foreseeable future, based on the Group's forecasts and projections for the period to 30 April 2022, taking account of reasonably possible changes in trading performance. For this reason, we continue to adopt the going concern basis in preparing the financial statements.

Viability Statement

The long-term viability of the Group is assessed by the Directors as part of the risk management process and regular strategic reviews.

The Company has undertaken a thorough strategic review of all three business units which has resulted in a three-year plan which takes into consideration the principal risks, product portfolios and R&D roadmaps, the market opportunities, our competitive position, core capabilities, and the cost structure, effectiveness and efficiency of the organisation.

 **Details of which are outlined in the CEO report and in the strategic review on pages 9 to 13.**

The plan forms the basis for strategic actions to be taken across the Company and the key objectives for each business. These objectives, and the key performance metrics associated with these, are regularly reviewed by the Directors.

The Company is aware that it operates in an uncertain environment and faces risks both internally and externally that could potentially impact on the Company's ability to achieve its strategy.

 **The principal risks and uncertainties faced by the Company are included on pages 40 to 49.**

As part of the process of reviewing these risks, and other potential risks, the Board assigns responsibility for these to members of the Executive Committee. It is the responsibility of the Executive Committee members to manage the risk and the mitigating actions. This process is supplemented with strong internal controls and processes. This combination ensures that the Company manages the risks it face appropriately and that these are considered in all of the financial models.

The Board has assessed the viability of the Group over a three-year timeframe based on the development cycles of our competitors and that of our customers and the probability this could lead to technological advancements that disrupt the markets that Xaar operates in. In practice the combined development time to produce a new printhead and subsequently a new printer is longer than this. The major risks to the Group in the three-year timeframe considered predominantly relate to existing competition displacing Xaar with their current product portfolios and macro-economic events, such as the COVID-19 pandemic, that cause a significant downturn in the global economy.

A reverse stress test of the business based on the business having insufficient liquidity to continue trading was modelled. The scenarios run focused predominantly on significant declines in revenue. In these scenarios, the Directors have considered the actions that would be taken if these events were to become a reality. These actions include reduced capital expenditure, suspension of bonus plans, and a delay in R&D programmes. These results confirmed the Group would be able to withstand these scenarios.

Taking account of the Company's current financial position, operating performance, and the principal risks and uncertainties, the Directors have assessed the prospects of the Company, and confirm that they have a reasonable expectation that the Company will be able to continue in operation and meet its liabilities as they fall due for the next three years, to December 2023.

Directors' report (cont.)

Auditor

Ernst & Young LLP were re-appointed in 2020 and have expressed their willingness to continue in office as auditor and a resolution to reappoint them will be proposed at the forthcoming AGM.

Directors' statement as to disclosure of information to auditor

 The Directors who were members of the Board at the time of approving the Directors' report are listed on page 51.

Having made enquiries of fellow Directors, each of these Directors confirm that:

- To the best of each Director's knowledge and belief, there is no information relevant to the preparation of their report of which the Group's auditor is unaware
- Each Director has taken all the steps a Director might reasonably be expected to have taken to be aware of relevant audit information and to establish that the Group's auditor is aware of that information
- If any independent Director does not agree to support this statement this must be disclosed.

This confirmation is given and should be interpreted in accordance with the provisions of section 418 of the Companies Act 2006.

Approval

The Directors' report was approved by the Board on 27 April 2021 and is signed on its behalf by:



John Mills
Chief Executive Officer

Corporate Governance statement

The Board's primary objective remains the acceleration of the transformation strategy, ensuring long-term, sustainable growth for the benefit of the Company's shareholders and wider stakeholders. This includes an ongoing commitment to the highest standards of corporate governance.

The 2018 UK Corporate Governance Code is an updated set of principles and provisions that emphasise the value of good corporate governance to long-term sustainable success and achievement of wider objectives.

Application of the main principles of the Code

The Board has considered and implemented the provisions of the 2018 Code effective 1 January 2019.

We are pleased to confirm that throughout the year ended 31 December 2020, the Company has followed the principles and provisions of the UK Corporate Governance Code 2018 ('the Code'), which applies to all companies with a premium listing on the London Stock Exchange, and has either complied with the provision or explained why the provision has not been followed.

The current policy post-employment shareholding do not fully comply with the Code, and an explanation is provided in the Directors' Remuneration report on page 71.

The terms of reference for the Audit, Nomination and Remuneration Committees reflect the changes in the 2018 Code, with the Committees addressing additional requirements of them.

A director of a company must act in the way he considers, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole, and in doing so have regard (amongst other matters) to factors (a) to (f):

- a) The likely consequences of any decision in the long-term,
- b) The interests of the company's employees,
- c) The need to foster the company's business relationships with suppliers, customers and others,
- d) The impact of the company's operations on the community and the environment,
- e) The desirability of the company maintaining a reputation for high standards of business conduct, and
- f) The need to act fairly as between members of the company.

The governance report gives:

- A clear and honest view of progress throughout the year
- The outcome of our Board evaluation
- Disclosure of Board discussions and the resulting actions
- Our approach to ensuring long-term viability of the business
- Our approach to risk and mitigation.

This statement outlines the processes the Company has undertaken throughout the year to apply the Code and demonstrates compliance with each provision. An explanation of how the main principles have been applied during 2020 is set out below.

The disclosures in respect of the Takeovers Directive (as implemented in the UK) are included in the Directors' report and form part of this report.

1. Board leadership and Company purpose

The Board's role is to promote the long-term sustainable success of the Company, generating value for the shareholders and contributing to wider society:

The Group has three main locations. The head office functions, R&D, EMEA sales, marketing, human resources, finance, IT and facilities are based in Cambridge and Nottingham, UK. The Group has two manufacturing facilities: one in Huntingdon, UK, and the other in Vermont, USA. The Group also has representatives in other global locations including Italy, India, Hong Kong, Sweden and Denmark.

 **Refer to page 14 for the Xaar business model.**

In accordance with the Directors' duties in Section 172 of the Companies Act 2006, the Board considers the likely consequences of any decision in the long-term. The Board incorporates the basis on which the Company generates and preserves value in formation of the strategy and strategic decision-making.

Corporate Governance statement (cont.)

During 2020, the Board transformation progressed with the executive Board incorporating the new CEO, CFO and Chair being appointed, the continuation in the business turnaround in developing a more customer-centric business model and a change in the go-to-market strategy to increase the product offering to original equipment manufacturers and progress development of new technological solutions to address customers' requirements, with a clear product roadmap leading to the launch of ImagineX platform and new IP and product launches.

In the year ended 31 December 2020, the Company invested approximately £7.0 million in Xaar 3D. Due to delays caused by the impact of the COVID-19 pandemic on the development of Xaar 3D products, the Directors believe there was a risk that the Xaar 3D programme might take longer than anticipated when it entered into the original Call Option with Stratasy, and subsequently the Company would be required to commit additional funds to Xaar 3D. Following a re-evaluation of the further cash investment required and extended timescales to full commercialisation of the product, we have determined that it is in Xaar's best interests to bring forward the planned sale of Xaar's shares in Xaar 3D.

The terms of the proposed revised option arrangement will be published in due course and are subject to Xaar shareholder approval.

Such an arrangement would provide Xaar 3D with the best opportunity to complete the commercialisation of the HSS product range in the shortest time, would lead to an immediate injection of cash and would enable Xaar to focus on its core business.

The Board is responsible for establishing, assessing and monitoring the Company's purpose, values, strategy, and culture. In doing so, the Board ensures the alignment of the Company's culture and the transformation programme.

The Board and Directors seek to build on a mutual understanding of objectives between the Group and its institutional shareholders by meeting at least twice per year, following interim and annual results, to provide an update on trading and obtain feedback.

 **See Shareholder communications as part of the Directors' Remuneration report on page 80.**

The Group's financial public relations advisors and lead brokers give all investors and potential investors who have met with the Group's investor relations team the opportunity to provide feedback on the meetings. Additionally, the Chief Executive Officer and the Chief Financial Officer provide feedback to the Board at the meeting following shareholder meetings to ensure that the Board, and in particular the Non-Executive Directors, possess an understanding of the views of the Company's major shareholders. Both the Chairman and the Senior Independent Director are available to meet with shareholders as required.

The Board uses the AGM to communicate with investors and to encourage their participation.

Following a general meeting, voting results are published on the Company's website. If the votes against a resolution exceeded 20%, an explanation would also be published on the website. At the most recent AGM in 2020, there were no resolutions with more than 1% of votes cast against the Board's recommendation. The Company engages with shareholders both throughout the year and specifically in respect of new or significantly amended resolutions in order to ensure the Board's recommendation is aligned with the members' views.

Shareholders can access up-to-date Company information from the Investors section of the Xaar website at www.xaar.com.

The Board has worked closely with executive management to redefine the Group's mission, vision and values which will underpin the Group's evolving culture under the new leadership team. Further information is in Directors' Remuneration report page 78 and Sustainable and responsible business page 34.

The Board has formally introduced workforce engagement sessions to be held at least three times a year. With the impact of COVID, the three sessions taking place in 2020 were held virtually, hosted by each of the Non-Executive Directors. Topics discussed were wide ranging but focused mainly around the new strategy and direction of the business, remuneration, employee training and opportunities for development

The Company conducts its business with the highest standards of integrity and honesty at all times and expects its employees to maintain the same standards in everything they do. Employees are therefore required to report any wrongdoing by Xaar or its members of staff that falls short of these principles. The whistle-blowing, and anti-bribery and corruption policies are available and communicated to all employees via the Company intranet, and all employees confirm in writing that they have read and comply with the whistle-blowing and anti-bribery and corruption policies. All reported incidences of actual or suspected bribery or corruption will be promptly and thoroughly investigated and dealt with appropriately by the Board. The purpose of the anti-bribery and corruption policy is to protect Xaar and its employees from breaches of anti-bribery and corruption laws. Xaar does not tolerate any employee or third party being involved in any level of bribery or corruption. Xaar is committed to complying with applicable anti-bribery and corruption laws in all countries in which it conducts business.

Following the changes made to the Company's Articles of Association to incorporate the provisions of section 175 of the Companies Act 2006 which gave boards the statutory power to authorise conflicts of interest, any potential conflict of interest is approved by the Board in advance of any action or appointment that could result in a conflict of interest arising. Internal controls are in place to ensure that any related party transactions involving Directors, or their connected parties, are conducted on an arm's length basis. Each member of the Board is familiar with the procedure to follow in relation to conflicts of interest and the process is operated efficiently.

2. Division of responsibilities

The Board discharges its responsibilities by providing strategic and entrepreneurial leadership of the Company, within a framework of strong governance, effective controls and a strong culture emphasising openness and transparency, which enables opportunities and risks to be assessed and managed appropriately. In addition, the Board sets the Company's strategic direction; ensures that the necessary financial and human resources are in place for the Company to meet its objectives; and reviews management performance.

The Chairman, Andrew Herbert, was deemed independent on appointment in 2020. There exists a clear division of responsibilities between the Chair and the Chief Executive Officer, which is exercised by John Mills. The Chair's primary role includes ensuring the Board functions properly, that it meets its obligations and responsibilities, and that its organisation and mechanisms are in place and are working effectively.

The Board delegates management of the business to the Executive Committee, comprising Executive Directors and senior operational managers, headed by the Chief Executive Officer. The Executive Committee meets weekly and is responsible for implementing Group strategy, monitoring business performance, preparing the operating and capital expenditure budgets for recommendation to the Board, and ensuring efficient management of the Group.

The Non-Executive Directors attend the Board meetings, and form the Audit, Remuneration and Nomination Committees. They are responsible for scrutinising the performance of management and determining appropriate levels of remuneration of Executive Directors. They also have a key role in appointing and, where required, removing Executive Directors.

The Non-Executive Directors are identified on pages 56 and 57 of the Annual Report and a short biography provided. The Board has determined that each Non-Executive Director is independent in character and judgement; commits sufficient time and energy to the role; and continues to make a valuable contribution to the Board and its Committees. The Board keeps under review whether there are relationships or circumstances which are likely to affect, or could appear to affect, their independence.

The Company Secretary is the secretary to the Board and its Committees and is also the secretary to the Executive Committee. All Directors have access to the services of the Company Secretary and Directors may take independent legal and other professional advice at the expense of the Company. Camila Cottage was re-appointed as Company Secretary on 1 February 2021.

3. Composition, succession and evaluation

The Nomination Committee is responsible for regularly reviewing the composition of the Board. In recommending appointments to the Board, the Nomination Committee considers the range of skills, knowledge and experience required, with due regard for the benefits of diversity on the Board, including gender.

The Board continues to consider that diversity quotas at Board level are inappropriate, and is committed to recruiting the best talent available, assessed against objective criteria of skills, knowledge, independence and experience. All candidates are therefore considered on merit but without reference to a specific diversity policy and without any established measurable objectives in respect of diversity quotas (e.g. age, gender, ethnicity, disability, religion or educational and professional background). More information on the Group's gender profile is reported in Sustainable and responsible business on 35.

The Board of Directors comprises the Chairman, two Executive Directors and two Non-Executive Directors.

The Board considers Alison Littley, Chris Morgan and Andrew Herbert to be independent within the meaning of the Code. To be considered independent each Non-Executive Director is sufficiently separate to management and free from any business or other relationships which could affect their judgement, impartiality or objectivity.

All the Non-Executive Directors are deemed to be independent members of the Board having no financial relationship or significant links with related parties. Chris Morgan maintains his independence, having departed Stratasys in 2015. All Directors complete a disclosure document prior to appointment.

The appointment of new Directors is led by the Nomination Committee. The year was a less active one for the Nomination Committee, with the appointment of Alison Littley as Senior Independent Director following the retirement of Margaret Rice-Jones in June 2020.

The Board conducted an internal review of the effectiveness of itself, with each Non-Executive Director, the Chairman and the Board Committees in December 2020. From the review and conclusion process areas of improvement were identified, in summary:

1. Preparation of material, content and frequency of meetings
2. Delegation of authority and matters requiring Board approval to be extended to commercial contracts with long-term consequences
3. Insight into and interaction with the operating management
4. Access to off-Board management and focus on succession planning.

 **Further details of the activities of the Nomination Committee can be found on page 76.**

As part of the selection process for any potential Directors, any significant external time commitments are considered before an appointment is agreed. All Directors are required to consult with the Chair of the Board and obtain the approval of the Board, before taking on additional appointments.

Corporate Governance statement (cont.)

Executive Directors are not permitted to take on more than one significant appointment as a director of a FTSE 100 company or any other substantial appointment.

The responsibilities of the Chair, Chief Executive, Senior Independent Director, Board and Committees are clear, set out in writing, agreed by the Board and made publicly available, with terms of reference for the Committees available on request.

The Board's policy for individual Director performance review is for a formal and rigorous appraisal process based on performance by the individual Director against specific targets. Individual Director performance is reviewed at least annually. The Senior Independent Director, in consultation with the other Non-Executive Directors and taking into account the views of the other Directors, appraises the performance of the Chairman. The Executive Directors, in consultation with the Chairman, appraise the performance of the Non-Executive Directors.

It is the Board's intention to review its own performance, and that of its Committees, at least once a year. All Directors were subject to shareholder election or re-election at the 2020 AGM, with the exception of Alison Littlely who was appointed just prior to the AGM and whose appointment was confirmed by the Board. All Directors will stand for re-election at the 2021 AGM.

The biographies of the Directors, set out on pages 56 to 57, contain the evaluation of skills and experience beneficial to the Company so that the Board recommends the re-election or election of each Director.

4. Audit, risk and internal control

The role and responsibilities of the Audit Committee are set out in the Audit Committee section on pages 72 to 75.

The Directors' assessment of the Group's internal control environment as required under the UK Corporate Governance Code is set out on page 74 under 'Internal controls and compliance'.

The Audit Committee, led by Chris Morgan, plays a key role in monitoring and evaluating our compliance and risk management processes, providing independent oversight of our external audit and internal control programmes, accounting policies and business transformation projects, and in assisting the Board in reporting in a fair, balanced and understandable manner to our shareholders. The Board has satisfied itself that Chris Morgan has recent and relevant financial experience and that the Audit Committee as a whole has competence relevant to the sectors in which the Company operates.

The significant accounting judgements and estimation uncertainties that the Audit Committee has considered in relation to the financial statements are set out in the Audit Committee section on pages 72 to 73 and in note 2 to the accounts on pages 115 to 116.

All of the Audit Committee members are independent Non-Executive Directors and have financial and/or related business experience due to the senior positions they hold or have held in other listed or publicly traded companies and/or similar large organisations.

The Board has established arrangements to ensure that reports and other information published by the Group are fair, balanced and understandable. The Strategic Report, set out on pages 8 to 31, provides information about the performance of the Group, the business model, the Group's strategy and the risks and uncertainties relating to the Group's future prospects.

The Board has confirmed on page 41 of the Annual Report that it has carried out a robust assessment of the principal and emerging risks facing the Company, including those that could threaten its values, reputation, business model, future performance, solvency or liquidity. Descriptions of those risks and how they are mitigated are set out on pages 42 to 49.

The Group's policies relating to risk management and internal control can be found in the 'Risk management' section of the Strategic Report on pages 40 to 49.

The Board explains on pages 64 and 65 of the Annual Report how it has assessed the prospects of the Company over the longer term and why it considers a three-year period to be appropriate for the purposes of this assessment. The Board confirms that it has a reasonable expectation that the Company will be able to continue in operation and meet its liabilities as they fall due over this period.

The Committee has formally identified the Chief Executive Officer as responsible for health and safety and the Chief Financial Officer as responsible for risk assessment.

5. Remuneration

The Remuneration Committee sets levels of remuneration which are designed to promote the long-term success of the Group and structures remuneration so as to link it to both corporate and individual performance, thereby aligning management's interests with those of shareholders.

The Remuneration Committee's primary role is to recommend to the Board the senior remuneration strategy and framework, giving due regard to the financial and commercial health of the Company and to ensure the Executive Directors and senior management are fairly rewarded for their individual contributions to the Company's overall performance. The remit of the Committee also includes considering the appropriateness of the senior remuneration framework when reviewed against arrangements throughout the rest of the organisation, determining the terms of employment and remuneration for Executive Directors and senior managers, including recruitment and termination arrangements, approving the design, targets and payments for all annual incentive schemes that include Executive Directors and senior managers and agreeing the design, targets and annual awards made for all share incentive plans requiring shareholder approval.

Details of the activities of the Remuneration Committee can be found in the Remuneration Committee section on page 78 and in the Directors' Remuneration report on pages 78 to 96.

Summary of Board meeting attendance in 2020

Eleven Board meetings were held in 2020.

Name	Meetings attended
John Mills	11 (11)
Ian Tichias ¹	11 (11)
Robin Williams ²	3 (3)
Andrew Herbert	11 (11)
Margaret Rice-Jones ³	8 (8)
Alison Littley ⁴	6 (6)
Chris Morgan	11 (11)

¹ Ian Tichias was appointed to the Board on 1 March 2020.

² Robin Williams retired from the Board on 31 March 2020.

³ Margaret Rice-Jones stepped down from the Board on 30 June 2020.

⁴ Alison Littley was appointed to the Board on 1 May 2020, and appointed Senior Independent Director on 1 July 2020.

Board Committees

Summary of Committee membership:

Name	Audit Committee	Remuneration Committee	Nomination Committee
Andrew Herbert	No	Yes	Chair
Alison Littley	Yes	Chair	Yes
Chris Morgan	Chair	Yes	Yes
John Mills ¹	No	No	Yes

¹ The Committee invites the CEO to attend meetings when the subject matter deems their presence appropriate.

Summary of Committee meeting attendance in 2020:

Name	Audit Committee	Remuneration Committee	Nomination Committee
Andrew Herbert	4 (4)	9 (9)	1 (1)
Robin Williams	n/a	3 (3)	n/a
Alison Littley	3 (3)	5 (5)	n/a
Margaret Rice-Jones	1 (1)	5 (5)	1 (1)
Chris Morgan	4 (4)	9 (9)	1 (1)
Ian Tichias	3 (3)	5 (5)	1 (1)
John Mills	4(4)	9 (9)	1 (1)

Figures in brackets denote the maximum number of meetings that could have been attended.

Statement of compliance with the Code

Throughout the year ended 31 December 2020 the Company has followed the provisions set out in the Code, and has either complied with the provisions of the 2018 Code or explained why the provision has not been followed.

The current policy post-employment shareholding do not comply fully with the UK Code, as it doesn't include a minimum two-year post-employment holding. This is partially mitigated through applying the leaver provisions set out on page 84. The Committee will keep this under review and will update the guideline when a new remuneration policy is introduced.

The Board confirms the 2020 Annual Report and Financial Statements, taken as a whole, is fair, balanced and understandable, and provides the information necessary for shareholders to assess the position, performance, strategy, and business model of the Company.

Approval

The Corporate Governance statement was approved by the Board on 27 April 2021 and is signed on its behalf by:



John Mills

Chief Executive Officer

Audit Committee

The Audit Committee (the 'Committee') is appointed by the Board from the Non-Executive Directors of the Company. The Committee's terms of reference were revised and updated in January 2019 and include all matters indicated by Disclosure and Transparency Rule 7.1 and the 2018 UK Corporate Governance Code. The written terms of reference of the Committee are available on request from the Company Secretary.

Audit Committee composition and meetings

Andrew Herbert was Chair of the Audit Committee until 31 March 2020, when he stepped down from the Committee and became Chairman of the Xaar Board on 1 April 2020. Chris Morgan was appointed Chair of the Audit Committee on 1 April 2020, Chris' previous roles have given him senior executive and financial experience working across a number of technology and digital printing sectors and across a number of jurisdictions. Alison Littlely joined the Audit Committee upon appointment to the Board on 1 May 2020. Alison also brings a breadth of experience including executive experience in complex, international business operations. Margaret Rice-Jones retired from the Board and stood down from the Audit Committee on 30 June 2020. Additional information on our skills and experience can be found in the Board biographies set out on pages 56 and 57.

The Audit Committee met formally on four occasions during the year and details of the attendance at meetings by members of the Audit Committee are set out on page 71. Please see the tables on page 71 for details of the Committee members in the year and the number of Committee meetings attended. At the Committee's request, other members of the Board and senior management may be invited to attend the Audit Committee's meetings based on the meeting agenda.

Report from the Committee Chairman

I am pleased to present the Audit Committee's report describing our work during the past year. Ernst & Young LLP (EY) was reappointed as the Group external auditor at the Annual General Meeting and Adrian Bennett is the engagement partner.

The Audit Committee's primary responsibilities are the following:

- To approve and monitor key financial and accounting policies and practices
- To monitor the integrity of the financial statements, announcements and review significant financial reporting judgements contained therein
- To keep under review the adequacy and effectiveness of internal controls
- To review procedures, systems and controls for whistle-blowing, fraud detection and bribery prevention
- To review, approve and monitor internal audit activities
- To monitor and review the Group's external auditor's independence, objectivity and effectiveness
- To monitor and approve any non-audit services provided by the external auditor
- To conduct any tender process and make recommendation to the Board on the appointment, remuneration and terms of engagement of the external auditor.

The Committee is not responsible for the identification of key risks or the review of the adequacy of arrangements to mitigate those risks, which remains the responsibility of the Board. The Committee is required to report its findings to the Board at least annually, identifying any matters on which it considers that action or improvement is needed, to make recommendations on the steps to be taken, and to ensure that the required actions are implemented. For example, the Audit Committee has requested that management present an action plan in early 2021, to remediate certain internal control deficiencies identified within EPS.

The effectiveness of the Audit Committee was reviewed as a part of the overall Board evaluation exercise and no significant issues were identified.

Significant issues considered by the Committee

The Committee has a work plan that is designed to ensure its responsibilities are fully discharged over the annual reporting cycle. Specific items are added to the agenda for individual meetings as required. There were a number of significant accounting matters considered during the year including:

- Going concern/impact of COVID-19/extensive stress testing of cash position
- Revenue recognition
- Consolidation of Xaar 3D Ltd – assessment of control
- Valuation of Xaar 3D Call Option with Stratasys
- Recoverability of receivables
- Impairment of goodwill, intangible assets and PPE
- Inventory valuation and obsolescence
- The Committee also considered the significant deficiencies in internal control identified within EPS as part of the year end audit process, as described in page 74.

Key areas of management judgement

The Committee has reviewed and challenged management judgement in respect of the following areas:

Accounting judgements

- Capitalisation of development costs – note 16

The development of the High Speed Sintering in 3D was completed in December 2020, the cost and accumulated depreciation has been reclassified as part of an asset group held for sale, the Audit Committee reviewed a technical paper in consideration of this treatment.

- Consolidation of Xaar 3D – notes 22,34 and 35

A review was undertaken to consider the requirements of IFRS 10, with a technical report presented to the Audit Committee and external auditors to determine the appropriate treatment of the majority shareholding of Xaar 3D and the significant control interests of Stratasys Solutions Limited.

- Discontinued operations – note 11

The accounting treatment on the closure of Thin Film operations, and the potential disposal of the Xaar 3D business to be reclassified as held for sale and discontinued operations has been considered and presented to the Audit Committee and external auditors.

Estimation uncertainty

- Xaar 3D option – note 22

The Xaar 3D option is a financial liability measured at fair value, which is calculated using the Black-Scholes model, the model uses a number of inputs that require estimation: the underlying price of the shares, the option strikeprice, time until expiration and implied volatility of underlying shares and LIBOR. Third party experts are used to provide these inputs, but the estimates remain uncertain.

- Inventory provision – note 20

A policy is used to calculate the inventory provisions based upon use and ageing of inventory, a significant proportion of the inventory provision relates to discontinued operations.

- Credit provision for the allowance of doubtful debts – note 21

A review has been undertaken to consider the requirements of IFRS 9 and the expected credit loss provision requirements based on historical default and loss experience.

- Impairment of capitalised development costs – note 16

The impairment of capitalised development costs relates to the full impairment of the Thin Film development costs in 2019, the transfer of 3D development costs to asset group held for sale has not led to an impairment valuation.

- Impairment of goodwill in relation to EPS – note 15

The Group tests goodwill annually for impairment. A budget has been prepared for EPS and a cash flow forecast derived to determine a value in use calculation. The recoverable amount is estimated and discounted with regards to a discount rate applicable to EPS, this reflects external third party advice and input estimates of the risk free rate, equity beta and market premium calculated at the year end. Sensitivity analysis is undertaken, but the estimates remain uncertain and rely upon forward guidance.

 **Additional disclosure in relation to key sources of estimation uncertainty and critical accounting judgements is provided in the Group financial statements – note 2 on pages 115 and 116.**

Key activities

In discharging its responsibilities, the Committee has completed the following activities:

Financial statements and reports

- Reviewed the Annual Report, financial statements and the half-yearly financial report including disclosures made therein, and confirms that taken as a whole, they are fair, balanced and understandable, and provide the information necessary for shareholders to assess the position, performance, strategy, and business model of the Company
- Reviewed Going Concern and Viability Statements
- Reviewed reports from the external auditor on their work and findings

Audit Committee (cont.)

- Reviewed the effectiveness of the Group's internal control environment
- Reviewed and challenged the forecasts and scenarios relating to COVID-19 impact on the Going Concern and Viability Statements and reviewed the associated disclosures around COVID-19 and is satisfied that the Group can continue as a going concern and the appropriate disclosures have been made.

Internal controls and compliance

To assist the Board with its responsibilities to effectively determine the nature and extent of the Group's significant risks (as described on pages 41 and 42), the Committee carries out a robust annual assessment of the principal risks and uncertainties facing the Group. The Board remains ultimately responsible for determining the nature and extent of the effectiveness of the risk management and internal controls system which mitigate potential impacts on shareholder investments and the Company's assets.

During the external audit process, significant deficiencies in internal control were identified in the EPS subsidiary in respect of the adequacy of (i) controls in the financial reporting close process to ensure the completeness and accuracy of closing entries, (ii) controls over revenue to ensure amounts recognised at year-end are complete and accurate, specifically management review of inputs and calculations for the valuation of accrued income recognised at year-end (see note 5) and (iii) controls over inventory management and valuation of inventory and work in progress (see note 20). Adjustments were identified and processed as appropriate in the audited results.

The Audit Committee reviewed the work of the external auditors in the relevant areas and determined that further work will be undertaken by management to develop an action plan to implement improved management, financial statement close process and controls within EPS, and to present these improved controls to the Audit Committee for evaluation in 2021.

The Committee undertakes this evaluation having:

- Reviewed the internal audit task list that in 2020 was unable to progress as planned due to the impact of COVID restricting the ability to travel to overseas sites alongside requirements to work from home. A review was undertaken for the approach of internal audit and greater methodology emphasis on management controls
- Reviewed the internal financial controls and risk management systems
- Reviewed fraud detection and the systems and controls for the prevention of bribery including employee confirmation of abiding by the Code of Conduct, Anti-bribery & Corruption, and Whistle-blowing policies
- Reviewed and approved actions for improvements to Treasury Management
- The Committee considered and challenged reports from the internal auditors on the effectiveness of internal controls and noted the material weaknesses identified by the external audit process in financial reporting close and management controls of EPS.

The Committee having performed the annual review of the Group's internal control processes considers the system to be effective and in accordance with the Guidance on Risk Management, Internal Control and Related Financial and Business Reporting as issued by the FRC, with the exception of the EPS internal controls identified above.

The Committee remains of the view that the statement made regarding the Company's viability period continues to be an accurate assessment of the Company's viability as at the date of the report. The Viability Statement can be found in full on page 65.

External audit

- Following the conclusion and sharing of the 2019 audit results, there was an extensive collaborative effort by the Xaar and the EY teams to review the process in detail and identify improvements for future audit efforts including working team adjustments to better handle engagement given the dynamic COVID-19 situation. This process work and the related recommendations were reviewed by the Audit Committee and were instrumental in aiding the planning of the 2020 audit
- The Audit Committee provided a forum for reporting and discussion with the Group's external auditors in respect of the Group's half-year and full-year results. The Committee had dedicated time for these activities and reviewed the audit work with emphasis on significant risk areas identified and discussed by the external auditor in their report
- The scope of the audit work to be undertaken by the auditor was reviewed and agreed on
- The Committee aligned the fees to be paid to the external auditor relating to their services rendered for the annual audit and interim review
- The independence and objectivity of the external auditor was assessed by the Committee.

The Chairman of the Audit Committee will be available at the AGM to answer any questions about the work of the Committee.

FRC's Audit Quality Review

EY's external audit of the Company for the year ending December 2019 was subject to an FRC Audit Quality Review (AQR) during the second half of 2020. The Committee has been kept fully informed of the progress and conclusions of the review with no key findings to report and certain good practices identified. The AQR review focused on a number of key audit matters including revenue recognition, consolidation of Xaar 3D, recoverability of receivables, impairment of goodwill and intangible assets, and the impact of COVID-19. These remain areas of audit focus in the current year, with the Committee continuing to oversee the proposed approach and conclusions.

External auditor

This was the second year for Ernst & Young LLP (EY) as the Company's auditor having first been appointed in July 2019. The Committee has met with the auditor on at least three occasions during the year and it is expected that the Committee will continue to meet with the auditor a minimum of two times each year. The Chief Executive Officer and Chief Financial Officer, and other relevant managers and Board members, attend these sessions by invitation, except for a period of each meeting where the Committee members may meet with the auditor without any member of executive management present.

The Committee is required to assess the qualifications, expertise, resources, and independence of the external auditor, and the objectivity and effectiveness of the audit process. The Committee reviews the type of work, effectiveness of, and level of fees charged by the auditor on an annual basis and recommends to the Board the appointment, reappointment, term, remuneration, and terms of engagement of the external auditor.

The Committee safeguards auditor objectivity and independence through maintaining a dialogue with the auditor and by monitoring all fees paid. It is the policy of the Group not to engage the statutory auditor in any non-audit related services. This includes tax services. Specifically, the policy states that the preparation of tax forms, payroll tax, calculation of indirect tax and the provision of tax advice cannot be provided by the statutory auditor.

Note 8 to the Consolidated financial statements includes disclosure of the auditor's remuneration for the year.

The Committee, taking into consideration relevant UK professional and regulatory requirements, regularly considers the independence and objectivity of the auditor. The Committee receives an annual statement from the auditor detailing their independence policies and safeguards, and confirming their independence, taking into account relevant ethical guidance regarding the provision of non-audit services by the external auditor.

The Committee considers the effectiveness of the external audit and the Group's relationship with the external auditor on an ongoing basis. In completing the review of the effectiveness of the annual audit in 2020, the Committee was able to conclude the audit undertaken by Ernst & Young LLP was effective. This review consisted of considering a number of key points together with the senior financial management of the Group. A similar exercise will be undertaken following completion of audit procedures on the 2021 results and reported on in next year's Annual Report.



Chris Morgan

Chair of the Audit Committee

Nomination Committee

The Nomination Committee is appointed by the Board from the Non-Executive Directors of the Company and the Chief Executive Officer. The Chair of the Committee is Andrew Herbert.

The terms of reference of the Committee require at least two meetings per year. When specific issues or changes need to be addressed, such as the appointment of a new Board member, the Committee may meet on additional occasions. Please see the tables on page 71 for details of the Committee members in the year and the number of Committee meetings attended.

Responsibilities

The Nomination Committee's main responsibilities, as outlined in its terms of reference, are:

- Reviewing the size, structure, composition and independence of the Board and its Committees
- Identifying and nominating candidates to fill Board vacancies as the need arises
- Ensuring adequate succession planning is in place for Executive Directors, Non-Executive Directors and members of the senior management team
- Making recommendations to the Board on the appointment of new Executive and Non-Executive Directors and their reappointment following retirement by rotation
- Reviewing the results of the annual Board performance evaluation process.

The Committee Chair will not chair the Committee when it deals with the appointment of a successor to that role. The Committee shall review its terms of reference annually and may recommend to the Board any amendments. The terms of reference of the Committee are available on written request from the Company Secretary.

The Nomination Committee's role in composition, succession and evaluation of the Board is disclosed in the Corporate Governance Statement.

Boardroom diversity

The Committee is committed to ensuring that recruitment and promotion of individuals throughout the Group, including those at Board and senior management level, always considers relevant skills, experience, knowledge and ability without gender or ethnicity bias. All appointments are made on merit and suitability against objective selection criteria with consideration of, amongst other things, the benefits of diversity, including gender.

The Board has not established a specific diversity policy in respect of its membership but is cognisant of the benefits of a rich mix of backgrounds, experience and skills. The present Board is 20% female versus 80% male (one female and four males). The Board has not set any measurable objectives in respect of a diversity quota but appointments made to the Board in the past three years have demonstrated our inclusive approach, which the Nomination Committee expects to maintain for any and all future appointments.

 **Further disclosure of information in respect of diversity and equal opportunities policies for the Group is in the Sustainable and responsible business report on pages 34 and 35.**

Key issues and activities

This year saw significant changes to Board membership including a new Chair, a new CFO and a new Non-Executive Director.

Following the Strategic Review conducted during 2019 and the appointment of John Mills as CEO in October 2019, further changes to the Board were implemented as described in the Committee's report last year. Ian Tichias was appointed as CFO from 1 March 2020. Andrew Herbert was appointed Chair of the Board on 1 April 2020 and Alison Littlely was appointed as a Non-Executive Director on 1 May 2020. Margaret Rice-Jones, Senior Independent Director and former chair of the Remuneration Committee, stood down as planned on 30 June 2020 leaving the Board comprising two Executive and three independent Non-Executive Directors (see pages 56 and 57).

The Committee has reviewed and concluded that, in the initial period of implementation of the new business strategy, and in the face of stringent cost measures implemented elsewhere in the business, it is appropriate to maintain three rather than the previously four independent Non-Executive Board members. This position remains under review by the Committee to ensure the Board and its Committees maintain appropriate skills and experience and that the majority of the Board remains independent.

The Committee has considered organisational development and succession planning and, in association with the Remuneration Committee, has worked alongside executive management in reviewing senior management development. A number of senior appointments have been made during 2020 to strengthen the executive team as the Company rebuilds competencies appropriate to its new strategy.

Board appointments

The process adopted by the Committee in respect of any appointment to the Board is, firstly, to identify the specific skills and experience sought and then, secondly, to conduct a search to determine whether any external individuals known to the Committee or internal candidates would be suitable for the role. If no compelling candidates can be identified through this process then an external search consultancy is engaged. Even if a suitable internal candidate exists, an external mapping process may be used.

Members of the Committee and other Executive and Non-Executive Directors interview shortlisted candidates, as the Committee deems appropriate. Upon identifying a suitable candidate, the Chair of the Nomination Committee will recommend to the Board that the Company makes a formal offer of employment to the candidate.

In seeking a new Non-Executive Director during 2020, specifically with appropriate experience to take over the role of Chair of the Remuneration Committee, we engaged the services of external search firm Independent Search Partnership to identify appropriate candidates to fill this role. Independent Search Partnership have no other connection with the Group and are independent advisors. The recruitment process concluded in April 2020 with the announcement of Alison Littlely's appointment. Alison took over as Chair of the Remuneration Committee and Senior Independent Director on 1 July 2020 when Margaret Rice-Jones stood down from the Board.

As part of the recruitment process the Committee ensures appropriate disclosure of other demands on Directors' time. The Board of Directors' profiles disclose any external appointments on pages 56 and 57. No Executive Directors have a non-executive role, or other significant appointment. All Directors are required to submit themselves for reappointment every year at the AGM.

Review of the Nomination Committee's effectiveness

The Committee has reviewed and considered the effectiveness of its performance during the year. The review included the views of members of the Committee and of regular attendees at the various meetings (including the Executive Directors).

I am satisfied that the degree of rigour and challenge applied in performing the Committee's responsibilities is appropriate and effective.



Andrew Herbert

Chair of the Nomination Committee

Directors' Remuneration report

Statement from the Chairman of the Remuneration Committee

Dear Shareholder

On behalf of the Board, for the first time as Chair of the Remuneration Committee, I am pleased to present the Directors' Remuneration report for 2020. I would like to extend my gratitude to my predecessor, Margaret Rice-Jones, for her dedicated contribution and service as the previous Chair of the Committee.

The Remuneration report is divided into three sections: the Chair's introduction; a summary of the key elements of the Directors' Remuneration Policy that was approved at the Annual General Meeting in 2020, and the Annual Remuneration Report, which explains how the Remuneration Policy was implemented in 2020 and how it will be applied in 2021.

Performance outcomes for the year ended 31 December 2020

In light of the impact of the COVID-19 pandemic across global economies, 2020 was undoubtedly an extraordinary year for businesses, as well as for us all personally. Whilst Xaar was not immune to the effects of the pandemic, we are pleased to report excellent progress. A strong balance sheet, a well managed cash position and most importantly, the hard work of the team ensured Xaar continues to navigate the current economic climate.

Under new leadership, excellent progress has been made refocusing the business on our core competencies and developing a strategy for growth exploiting the fundamental strength of our bulk piezo inkjet technology. As detailed in the Chairman's introduction implementation of the new strategy continues to deliver positive customer engagement. Our Printhead business has performed strongly this year with consistent wins of new customers and projects following successful shift in go-to-market strategy and focus on markets where products have a competitive advantage. We have been particularly pleased with efficiency gains made in our Printhead operations, which resulted in both improved gross margins and strong cash generation from more efficient use of working capital. Our ImagineX platform successfully launched in September 2020 utilising investment in Thin Film IP, providing a clear product roadmap and compelling market opportunity. Our Product Print Systems business (EPS) was impacted by a fall in demand through the worst of the pandemic, but remains a valuable contributor to the Group with a strong order book and pipeline including several new target markets. The sale of Xaar 3D is at an advanced stage to divest the Xaar 3D investment.

Revenue for the year from continuing operations was £48 million, in line with management expectations. Our balance sheet remains strong with net cash excluding Xaar 3D of £18.1 million and positive net cash inflows (including treasury deposits) from continuing operations of £7.1 million. Our share price has also increased significantly since January 2020. This performance has been delivered whilst primarily operating in a remote working environment. A testament to the pro-active management and leadership of our CEO, John Mills and our CFO, Ian Tichias and the commitment of all our people.

Annual bonus outturn for 2020

For the financial year ended 31 December 2020, the CEO and CFO were eligible for a maximum annual bonus of up to 125% and 100% of base salary respectively. At the start of the year annual bonus targets were set based on performance against adjusted Group profit before tax (50%), cash flow improvement (30%) and 3D revenue targets (20%).

Taking into account the impact of the launch of the new strategy in September 2020, the Committee carefully considered how the performance goals set at the start of 2020 should be assessed:

- No changes were made to the stretching adjusted Group profit before tax targets set at the start of the year to reflect the Group's focus on improving the profitability of the Company and, in particular, the Printhead business unit
- The cash flow targets set reflect the importance of protecting the cash position of the business and improving operational cash flow. Cash flow performance for 2020 bonus purposes was focused on operating cash flow from trading activities. Therefore, the cash performance targets and actual results excluded residual cash payments made during 2020 in respect of commitments outstanding at the end of 2019, following termination of the Thin Film development programme
- Reflecting the change in focus for the Xaar 3D business, from growing revenues, to an alternative ownership structure, the 3D revenue target was replaced with strategic goals for the 3D business linked to working closely with Stratasys to continue to optimise the future of the project.

The resulting overall bonus outcome for 2020 was 43.27% of the maximum bonus opportunity (£162,271 for the CEO and £75,726 for the CFO). The Committee gave careful consideration to this outcome in respect of various internal and external factors including the fact that no employee was furloughed or made redundant as a result of COVID-19 during 2020, and our share price has increased significantly over the course of the year (see page 91 for further details) and concluded that this was consistent with the shareholder and wider workforce experience during the year. Full disclosure of the bonus targets and outcomes is provided on pages 88 and 89.

In line with the new Remuneration Policy approved in 2020, 30% of the bonus earned will be deferred in shares and subject to a two-year deferral period, with the balance delivered in cash. To provide further alignment with shareholders for 2020, the deferred element of bonus earned based on the 3D strategic goals will be forfeited in the event that the Stratasys transaction does not complete and gain shareholder approval by 30 June 2021.

Long-Term Incentive Plan (LTIP) awards for 2020

As detailed in the Remuneration report last year, the LTIP awards granted to John Mills and Ian Tichias during 2020 were set as a fixed number of shares – 365,000 shares and 170,000 shares respectively. Based on the share price at the date of grant, the LTIP grants in 2020 equate to circa. 72% and 48% of salary for the CEO and CFO respectively. The 2020 LTIP grants were based on Adjusted EPS from continuing operations performance for the final year of the three-year performance period (i.e. Adjusted EPS from continuing operations for the year ending 31 December 2022) (60% of the award) and relative TSR performance against the companies in the FTSE SmallCap Index (40% of the award) measured over a three-year performance period to 31 December 2022 (see page 79 for performance conditions). In line with the UK Corporate Governance Code, there is a further two-year holding period following the end of the performance period.

Buy-out awards granted to Ian Tichias as compensation for awards forfeit when he left his previous employer

Ian Tichias joined the Group as CFO on 1 March 2020. In accordance with our recruitment policy, the following awards were made in 2020 in order to compensate him for losses he incurred when he joined Xaar as CFO.

- an annual bonus payment of £65,420 payable in cash on 24 April 2020; and
- an LTIP grant in April 2020 over 50,000 shares with a face value of £20,500 at the date of grant to compensate for options forfeited when he left his previous employer. This award is subject to a performance condition of Xaar achieving an adjusted profit before tax measured over the three-year performance period to 31 December 2022.

Implementation of the Policy in 2021

Base salaries

Executive Directors

The CEO's salary was set at £300,000 on appointment in October 2019 and was not increased in 2020. The CFO's salary was set at £210,000 on appointment in March 2020.

Reflecting the significant progress made during the year and the improved profitability of the Group, the Committee has determined that, with effect from 1 January 2021, the base salary for John Mills will be increased to £315,000 and the base salary for Ian Tichias will be increased to £220,500.

It is intended that future base salary increases that are higher than the general rises for employees will be phased over time and will be subject to their continued performance and contribution in role, Group performance (including profitability) and overall positioning against the market.

Non-Executive Directors

Fees for Non-Executive Directors will be increased by 2.5% with effect from 1 January 2021 which is aligned with the general increase given to all employees.

2021 annual bonus

The maximum opportunity for the CEO and CFO will be unchanged at 125% and 100% of base salary respectively for 2021. The core performance metrics of the bonus for 2021 are profit and cash generated from operations. 30% of any bonus earned will be deferred in shares and subject to a two-year deferral period. The Committee has discretion to amend formulaic outputs such that in addition to overall business performance, circumstances that were unexpected or unforeseen (or any other reasons at the discretion of the Committee) will be considered.

Long-term incentives

Reflecting the strong recovery in our share price, the maximum LTIP award in 2021 will be capped at 150% of base salary for the CEO and 100% of salary for the CFO. 2021 LTIP awards will be based on Cumulative Adjusted EPS performance (60% of the award) and relative TSR performance against the companies in the FTSE SmallCap Index (40% of the award). Cumulative Adjusted EPS and relative TSR performance will be measured over a three-year performance period to 31 December 2023. As noted above, there is a further two-year holding period following the end of the performance period.

TSR will operate as follows against the peer group (FTSE SmallCap Index):

- Threshold – ie 25% – at median performance with respect to peer group
- Target – straight line between threshold and maximum
- Maximum – at upper quartile performance with respect to peer group.

As for 2020, given the turnaround position of the Company, the Board considers that the EPS performance targets for the LTIP awards to be granted in 2021 to be commercially sensitive information at this time but, as in past years, will fully disclose the exact measurements retrospectively. We will revert to publishing any measurement targets in advance as we have done in the past as soon as possible.

Employee engagement

Our employee forum, comprising all three Non-Executive Directors and a group of employees drawn from both the Cambridge and Huntingdon sites, has continued to engage while in a remote working environment. During 2020 a significant portion of time was spent on the wellbeing and health and safety of our employees in addition to the launch of the new strategy for the business. Employees are drawn from a wide range of functions to ensure all views are represented. They continued to meet with the Non-Executive Directors remotely during 2020.

Directors' Remuneration report (cont.)

Shareholder engagement and voting outcomes

The Committee engages directly with major shareholders and their representative bodies, where it considers there to be material changes to the Policy or our executive remuneration framework. The Committee consulted with major shareholders prior to the 2020 AGM on changes to the Policy and was very pleased to receive over 99% of votes in favour of both the Policy and the advisory vote on the Remuneration report. We hope we will again receive your support for the resolutions relating to remuneration at the forthcoming AGM

We remain committed to a responsible approach to executive pay, as I trust this Directors' Remuneration report demonstrates. We believe that the Policy operated as intended and consider that the remuneration received by the Executive Directors in respect of 2020 was appropriate, taking into account Group and personal performance and the experience of shareholders and employees.

As always, I am happy to meet or speak with shareholders if there are any questions or feedback on our approach to executive remuneration, and I hope that we will earn your support at the forthcoming AGM on 16 June 2021.



Alison Littley

Chairman of the Remuneration Committee

27 April 2021

Directors' Remuneration Policy

Our Directors' Remuneration Policy was approved by shareholders at the 2020 AGM held on 2 June 2020, and is set out in full on pages 75 to 85 of the 2019 Annual Report and Accounts, which are available on the Company's website at <https://www.xaar.com/media/2182/xaar-annual-report-2019-online-v2.pdf>. We have set out below a summary of those parts of the Policy that we think shareholders will find the most useful.

The Directors' Remuneration Policy is not audited.

Policy table for Executive Directors

The table below summarises each of the elements of the remuneration package for the Executive Directors.

Base salary	
Objective	Core element of fixed remuneration that provides the basis to recruit and retain talent necessary to deliver the business strategy.
Operation	<p>Normally reviewed annually and any increases generally apply from 1 January (but may be reviewed more frequently if required).</p> <p>When determining base salary levels, consideration is given to the following:</p> <ul style="list-style-type: none"> • Role, responsibility and experience of the individual • Corporate and individual performance • Market conditions including typical pay levels for comparable roles in companies of a similar size and complexity • The range of salary increases awarded across the Group.
Opportunity	<p>No maximum salary opportunity has been set out in this policy report to avoid setting expectations for Executive Directors and employees.</p> <p>The base salaries effective as at 1 January 2021 are shown on page 94.</p>
Performance measure	Not applicable.
Benefits	
Objective	<p>Provide a market-competitive benefits package to recruit and retain Directors of the calibre required for the business.</p> <p>Participation in the Company's Share Incentive Plan (SIP) and Share Save Scheme (SAYE) encourages share ownership and alignment with the wider workforce.</p>
Operation	<p>Executive Directors receive base benefits including car allowance, private medical insurance, and basic levels of other insurances (such as income protection cover).</p> <p>All UK staff, including Executive Directors, are also provided with a benefit allowance which they can apply to a range of benefits, including pension contributions. In some circumstances, and subject to Remuneration Committee approval, the allowance may be paid in cash rather than utilised to purchase benefits.</p> <p>The SIP and SAYE are HMRC approved share plans for all employees facilitating the acquisition of shares in the Company at a discount.</p> <p>Other benefits may be provided based on individual circumstances, such as, but not limited to: housing or relocation allowances, travel allowance or other expatriate benefits.</p>
Opportunity	<p>Whilst the Remuneration Committee has not set an absolute maximum on the level of benefits Executive Directors receive, the value of benefits is set at a level which the Remuneration Committee considers to be appropriately positioned taking into account relevant market levels based on the nature and location of the role and individual circumstances.</p> <p>The flexible benefits allowance is currently up to 5% of base salary.</p> <p>The Remuneration Committee has the authority to review and amend this rate as appropriate. Individuals have the choice to invest all or part of this amount in their pension scheme, in addition to the benefits outlined in the 'Retirement benefits' section of this table.</p> <p>SAYE and SIP limits as permitted in accordance with the relevant tax legislation.</p>
Performance measures	Not applicable.

Directors' Remuneration report (cont.)

Retirement benefits	
Objective	Provide an appropriate level of retirement benefit (or cash allowance equivalent) as part of a market-competitive total remuneration package.
Operation	Executive Directors are eligible to participate in the defined contribution pension scheme (or such other pension plan as may be deemed appropriate). In appropriate circumstances, Executive Directors may take a salary supplement instead of contributions into a pension plan.
Opportunity	Company pension contribution (or cash allowance equivalent) not exceeding the contribution available to the majority of the workforce (currently 6% of base salary).
Performance measures	Not applicable.
Annual bonus	
Objective	Rewards performance against annual targets which support the strategic direction of the Company. The majority of staff participate in the same scheme.
Operation	Targets are set annually and any pay-out is determined by the Remuneration Committee after the period-end, based on performance against those targets. The Remuneration Committee has discretion to vary the bonus pay-out should any formulaic output not produce a fair result for either the Executive Director or the Company, taking account of the Remuneration Committee's assessment of overall business performance. 30% of any bonus will be deferred in shares and subject to a two-year deferral period. The balance is delivered in cash. Additionally, Directors may opt to invest in the Company SIP (refer to note 32 for details).
Opportunity	Overall maximum annual bonus is 125% of salary for Chief Executive Officer and 100% for Chief Financial Officer and Chief Operations Officer. 50% of the maximum bonus can be earned for on-target performance.
Performance measures	The annual bonus is assessed against financial and/or strategic targets which are determined by the Remuneration Committee. Stretching performance targets are set each year reflecting the business priorities that underpin Group strategy. The proposed performance measures for the 2021 annual bonus are adjusted profit before tax (70%) and cash flow (30%). The Committee may vary the weighting of these measures and could add alternative measures in future years.

Long-Term Incentive Plan	
Objective	<p>Drive and reward the achievement of longer-term objectives aligned closely to shareholders' interests.</p> <p>Support the turnaround of the business towards longer-term, sustainable profitability.</p> <p>Provide alignment with shareholders' interests.</p> <p>Support retention and promote share ownership.</p>
Operation	<p>An award of performance shares (zero priced share options) may be granted on an annual basis and will vest after three years subject to the achievement of the applicable performance conditions. There will be a further two-year holding period.</p> <p>Vested LTIP options must be exercised within ten years of the date of grant. Under the rules of the LTIP, the Remuneration Committee has discretion to satisfy vested LTIP awards in cash.</p> <p>On the vesting/exercise of an LTIP award, the Remuneration Committee has the discretion to decide that Executives can receive an amount (in cash or shares) equal to the dividends paid or payable between the date of grant and the vesting of an award on the number of shares which have vested. However, the Committee would only settle dividend equivalents for an Executive Director in cash where the particular circumstances made that appropriate – for example in the event of a regulatory restriction on the delivery of shares, or in respect of the tax arising on the vesting or release of the award.</p> <p>Awards may vest early on a change of control (or other relevant event) subject to the satisfaction of the performance conditions (as determined by the Remuneration Committee) and pro-rating for the LTIP was previously approved by shareholders in April 2007.</p> <p>The Remuneration Committee may at its discretion structure awards as Approved Long-Term Incentive Plan (ALTIP) awards. ALTIP awards enable the participant and Company to benefit from HMRC approved option tax treatment in respect of part of the award, without increasing the pre-tax value delivered to participants. ALTIP awards may be structured either as an approved option for the part of the award up to the HMRC limit (currently £30,000) with an unapproved option for the balance and a 'linked award' to fund the exercise price of the approved option, or as an approved option and an LTIP award, with the vesting of the LTIP award scaled back to take account of any gain made on the exercise of the approved option. Other than to enable the grant of ALTIP awards, the Company will not grant awards to Executive Directors under the Executive Share Option Plan.</p>
Maximum opportunity	<p>The maximum award in respect of any year will be:</p> <ul style="list-style-type: none"> • as regards the Chief Executive Officer, an award over 365,000 shares; and • as regards any other Executive Director, an award over 170,000 shares, <p>subject to an overriding limit in respect of any year of 150% of salary for the Chief Executive Officer and 100% of salary for any other Executive Director.</p> <p>For threshold performance, 25% of award will vest.</p> <p>Straight-line vesting applies between threshold and maximum vesting.</p> <p>These limits do not include the value of shares subject to any approved option granted as part of an LTIP award.</p>
Performance measures	<p>Stretching performance targets are set each year reflecting the business priorities that underpin longer term Group strategy.</p> <p>The 2021 LTIP award will be measured based on:</p> <ul style="list-style-type: none"> • Cumulative Adjusted EPS – 60% • The Company's relative TSR performance against the companies in the FTSE Small Cap All-Share Index – 40% • Cumulative Adjusted EPS and relative TSR performance will be measured over a three-year performance period to 31 December 2023. <p>The Remuneration Committee retains the discretion to alter the weighting of measures and to apply alternative or additional measures in future years.</p>

Directors' Remuneration report (cont.)

Shareholding guideline

To align the interests of Executive Directors with those of shareholders, the Remuneration Committee has adopted formal shareholding guidelines in accordance with which Executive Directors are required to build and maintain a shareholding with a value of at least 200% salary. Executive Directors are required to retain half of the after tax number of shares they acquire pursuant to the LTIP or deferred bonus until this level of holding is achieved.

The Remuneration Committee's policy on post-employment shareholdings is to apply the "leaver" provisions under the Company's share plans as regards both unvested awards and awards which are vested but subject to a holding period.

Malus, clawback and underpin provisions

The Remuneration Committee has the right to:

- Reduce any LTIP awards which have not yet vested (i.e. a malus provision) if an act or omission contributes to a material misstatement of the Group's financial statements or results in material loss or reputational damage for the Company
- Recover cash or shares which have been paid or transferred (i.e. a clawback provision) in the event of a corporate failure, serious misconduct or an act or omission contributes to a material misstatement of the Group's financial statements or results in material loss or reputational damage for the Company, for a period up to two years following determination of the vesting outcome
- Apply an underpin to LTIP vesting and bonus achievement and to flex the weighting of performance measure in the event of early vesting as a result of change of control.

Operation of share plans

The Remuneration Committee may amend the terms of awards and options under its share plans in accordance with the plan rules in the event of a variation of the Company's share capital or a demerger, special dividend or other similar event or otherwise in accordance with the rules of those plans. Awards may be settled, in whole or in part, in cash, although the Remuneration Committee would only settle an Executive Directors' award in cash in exceptional circumstances, such as where there is a regulatory restriction on the delivery of shares. Awards under the Company's share plans may vest in the event of a change of control (or other relevant event) as follows:

- unvested awards under the LTIP will be released to the extent determined by the Remuneration Committee taking into account the relevant performance conditions (and the Remuneration Committee may vary the weightings of the applicable performance measures) and, unless the Remuneration Committee determines otherwise, the extent of vesting so determined shall be reduced to reflect the proportion of the vesting period that has elapsed;
- vested awards under the LTIP which remain subject to a holding period will be released to the extent they vested;
- deferred bonus awards will vest in full; and
- SAYE and SIP awards will vest to the extent determined in accordance with the rules of the relevant plan, to the same extent as for all other participants.

Chairman and Non-Executive Directors

The table below sets out an overview of the remuneration of Non-Executive Directors.

Alignment with strategy/purpose	Approach of the Company
<p>Chairman and Non-Executive Directors' fees Provide an appropriate reward to attract and retain Directors of the calibre required for the business.</p>	<p>The remuneration of the Chairman of the Board is set by the Remuneration Committee and the Chief Executive Officer. Fees are set at a level which reflects the skills, knowledge, and experience of the individual, whilst taking into account appropriate market data.</p> <p>The fee is set as a fixed annual fee and may be paid wholly or partly in cash or Company shares.</p> <p>The Chairman and the Chief Executive Officer are responsible for deciding Non-Executive Directors' fees. Fees are set taking into account several factors, including the size and complexity of the business, fees paid to non-executive directors of UK listed companies of a similar size and complexity, and the expected time commitment and contribution for the role.</p> <p>The fees are set as a fixed annual fee and may be paid wholly or partly in cash or Company shares. Overall fees paid to Directors will remain within the limit stated of £300,000 in our Articles of Association.</p> <p>Non-Executive Directors do not participate in any incentive scheme.</p> <p>Directors may be eligible to benefits such as the use of secretarial support, travel costs or other benefits that may be appropriate.</p>

Pay policy for other employees

The Company values its wider workforce and aims to provide a remuneration package that is market competitive, complies with any statutory requirements, and is applied fairly and equitably across the wider employee population. Where remuneration is not determined by statutory regulation, the key principles of the compensation philosophy are as follows:

- We remunerate people in a manner that allows for stability of the business and the opportunity for sustainable long-term growth
- We seek to remunerate fairly and consistently for each role with due regard to the marketplace, internal consistency and the Company's ability to pay
- The Company operates an HMRC approved SAYE and invites all employees to participate, therefore encouraging wider workforce share ownership.

Service contracts

Executive Directors

It is the Group's policy that Executive Directors should have contracts with an indefinite term, providing for one year's notice.

	Date of contract	Date of appointment	Notice from the Company	Notice from Director
John Mills	31 May 2019	1 August 2019	12 months	12 months
Ian Tichias	26 November 2019	1 March 2020	12 months	12 months

Non-Executive Directors

All Non-Executive Directors are appointed for an initial three-year term, with provision for two further three-year terms, subject to satisfactory performance.

	Date of letter of appointment	Date of appointment	Unexpired term of contract on 31 December 2020
Andrew Herbert	15 April 2016	1 June 2019	18 months
Alison Littley	22 April 2020	1 May 2020	28 months
Chris Morgan	2 December 2015	4 January 2019	12 months

All Directors offer themselves for annual re-election at each AGM in accordance with the UK Corporate Governance Code. Letters of appointment are available for inspection at the registered office address of the Company.

Directors' Remuneration report (cont.)

The table below details how the Remuneration Committee addresses the principles set out in the UK Corporate Governance Code in respect of the Directors' Remuneration Policy.

Provision	Approach
<p>Clarity Remuneration arrangements should be transparent and promote effective engagement with shareholders and the workforce.</p>	<ul style="list-style-type: none"> • The Committee engages directly with major shareholders and their representative bodies where it considers there to be material changes to the Policy or our executive remuneration framework to ensure there is transparency on our Policy and its implementation • Employees have a forum where they can raise questions and give feedback about the Remuneration Policy directly to the Non-Executives.
<p>Simplicity Remuneration structure should avoid complexity and its rationale and operation should be easy to understand.</p>	<ul style="list-style-type: none"> • A core reward principle of our Policy is to operate a simple and transparent framework which can be readily cascaded • The remuneration framework is made up of three key elements: fixed pay (including base salary, retirement and benefits); annual bonus; and a separate long-term incentive • The structure is simple to understand for both participants and shareholders, and is aligned to the strategic priorities for the business.
<p>Risk Remuneration structures should identify and mitigate against reputational and other risks from excessive rewards, as well as behavioural risks that can arise from target-based incentive plans.</p>	<ul style="list-style-type: none"> • Annual bonus and LTIP targets are set at levels which reward high performance, but which do not encourage inappropriate business risk • Both the annual bonus and LTIP are subject to malus and clawback provisions. This allows the Committee to have appropriate regard to risk considerations • Annual bonus deferral and the application of the two-year holding period to awards under the LTIP provide longer-term alignment with shareholders' interests • The Committee also has discretion to override formulaic outcomes, which may not accurately reflect the underlying performance of the Group.
<p>Predictability The range of possible values of rewards to individual Directors and any other limits or discretions should be identified and explained at the time of approving the Policy.</p>	<ul style="list-style-type: none"> • The range of possible pay awards available to Executive Directors under the current Policy were clearly set out in the 2020 Directors' Remuneration report prior to the Policy being voted on.
<p>Proportionality The link between individual awards, the delivery of strategy and the long-term performance of the Group should be clear and outcomes should not reward poor performance.</p>	<ul style="list-style-type: none"> • We believe total remuneration should fairly reflect performance of the Executive Directors and the Group as a whole, taking into account underlying performance and shareholder experience • The Committee considers the approach to wider workforce pay and policies when determining the Directors' Remuneration Policy to ensure that it is appropriate in this context.
<p>Alignment with culture Incentive schemes should drive behaviours consistent with the Company's purpose, values and strategy.</p>	<ul style="list-style-type: none"> • The Board is focused on ensuring a healthy culture exists across the entire Group which supports our focus on delivery of commitments, innovation, continuous improvement and being open and transparent. We believe that the Executive Directors and wider management team set the standards for behaviour and conduct across the Group • Our incentive schemes are aligned with our strategy to return to sustainable long-term growth and profitability.

Annual report on remuneration

This part of the report sets out the actual payments made by the Company to its Directors with respect to the year ended 31 December 2020.

The Remuneration Committee's policy is to attract and retain individuals of the highest calibre by offering remuneration competitive with comparable publicly listed companies, and to drive Company performance by providing arrangements which fairly and responsibly reward individuals for their contribution to the success of the Group. Performance related bonuses and equity-based remuneration represent a substantial proportion of Executive Directors' potential remuneration.

The information provided in this part of the Directors' Remuneration report is subject to audit.

Single figure table

The aggregate remuneration provided to Directors who have served as Directors in the year ended 31 December 2020 is set out below, along with the aggregate remuneration provided to such Directors for the financial year ended 31 December 2019.

Year ended 31 December 2020

	Salary/fees ^(a) £'000	Benefits ^(b) £'000	Performance bonus ^(c) £'000	Bonus ^(d) £'000	Others ^(e) £'000	Pension ^(f) £'000	Total remuneration £'000	Total fixed remuneration £'000	Total variable remuneration £'000
Executive									
John Mills	300	27	162	–	4	18	511	345	166
Ian Tichias ¹	175	36	76	66	4	11	368	288	80
Non-Executive									
Andrew Herbert (Chairman) ²	80	–	–	–	–	–	80	80	–
Alison Littlely ³	32	–	–	–	–	–	32	32	–
Chris Morgan	48	–	–	–	–	–	48	48	–
Robin Williams ⁴	23	–	–	–	–	–	23	23	–
Margaret Rice-Jones ⁵	25	–	–	–	–	–	25	25	–

Year ended 31 December 2019

Director	Salary/fees £'000	Benefits £'000	Bonus £'000	Others £'000	Pension £'000	Total remuneration £'000	Total fixed remuneration £'000	Total variable remuneration £'000
Executive								
John Mills ⁶	67	6	46	–	3	122	122	–
Doug Edwards ⁷	271	59	–	–	27	357	357	–
Non-Executive								
Robin Williams (Chairman)	102	–	–	–	–	102	102	–
Margaret Rice-Jones	48	–	–	–	–	48	48	–
Chris Morgan	44	–	–	–	–	44	44	–
Andrew Herbert	47	–	–	–	–	47	47	–

	Salary/fees ^(a) \$'000	Benefits ^(b) \$'000	Bonus ^(c) \$'000	Others ^(d) \$'000	Pension ^(e) \$'000	Total remuneration \$'000	Total fixed remuneration \$'000	Total variable remuneration \$'000
Shomit Kenkare ⁸	294	32	–	–	29	356	356	–

1 Ian Tichias joined the Board on 1 March 2020.

2 Andrew Herbert became Chairman on 1 April 2020.

3 Alison Littlely joined the Board on 1 May 2020.

4 Robin Williams stepped down as Chairman on 31 March 2020.

5 Margaret Rice-Jones stepped down from the Board on 30 June 2020.

6 John Mills became CEO and joined the Board on 11 October 2019.

7 Doug Edwards stepped down from the Board on 11 October 2019.

8 Shomit Kenkare stepped down from the Board on 31 December 2019 and his salary was paid in US Dollars.

Directors' Remuneration report (cont.)

The figures in the single figure table on page 87 are derived from the following:

(a) Salary/fees	The amount of base salary/fees received in the year.
(b) Benefits	This is the taxable value of benefits and the flexible benefits allowance received in the year. This includes any relocation allowance claimed in 2020.
(c) Performance bonus	The value of the bonus earned in respect of the year. 30% of the bonus earned will be deferred in shares and subject to a two-year deferral period with the balance delivered in cash. To provide further alignment with shareholders, the deferred element of bonus earned based on the 3D strategic goals will be forfeited in the event that the transaction does not complete by 30 June 2021.
(d) Bonus	The value of any other bonus; for Ian Tichias, this is a bonus payment of £65,420 to compensate him for remuneration forfeit when he joined Xaar as CFO.
(e) Others (LTIPs and SAYE)	The value of performance related incentives vesting in respect of the financial year and the value of SAYE options granted based on the fair value of the options/shares at grant. The Performance Share Awards granted under the LTIP in April 2018 to former Executive Directors have lapsed. The current Executive Directors did not hold LTIPs that would have vested in respect of the financial year ending 31 December 2020.
(f) Pension	The value of the employer contribution to the defined contribution pension plan in the UK or the 401k plan in US (or the value of a salary supplement paid in lieu of a contribution to this pension plan).

Individual elements of remuneration

Base salary and fees

The CEO's salary was set at £300,000 on appointment in October 2019 and was not increased in 2020. The CFO's salary was set at £210,000 on appointment in March 2020.

Benefits

UK benefits principally comprise a car allowance, private medical insurance and basic levels of other insurances (such as income protection cover). In addition, UK Executive Directors are provided with an allowance of 5% of base salary which they can apply to a range of benefits such as life insurance and critical illness insurance.

Benefits include any relocation allowance claimed in 2020. Ian Tichias was given relocation cost assistance to the value of £18,000.

Pension

The Company operates a self-administered, defined contribution, HMRC approved pension scheme. UK Executive Directors participate in this scheme. In appropriate circumstances, Executive Directors may take a salary supplement instead of contributions into a pension plan. This salary supplement does not form part of salary for the purposes of calculating any other entitlement under the policy. Non-Executive Directors do not receive pension contributions.

Annual bonus

For the financial year ended 31 December 2020, the CEO and CFO were eligible for a maximum annual bonus of up to 125% of base salary and 100% of base salary respectively. Annual bonus targets were set based on performance against adjusted Group profit before tax (50%), cash flow improvement (30%) and 3D revenue targets (20%).

As discussed in the statement from the Chairman of the Remuneration Committee, taking into account the impact of the launch of the new strategy in September 2020, the Committee carefully considered how the performance goals set at the start of 2020 should be assessed. Reflecting the change in focus for the Xaar 3D business from growing revenues to an alternative ownership structure, the 3D revenue target was replaced with strategic goals of the 3D business. Details of the bonus targets and outcomes are shown in the table below.

	Weighting	Threshold (0% of maximum vests)	Target (50% of maximum vests)	Maximum (100% vesting)	Actual	% of maximum vesting
Adjusted Group PBT*	50%	(£12.3m)	(£8.2m)	(£2.7m)	(£10.6m)	25.13%
Cash flow from operations**	30%	(£3.3m)	–	£4.4m	£1.7m	69.03%
Strategic goals for Xaar 3D	20%	Performance out-turn based on Committee's assessment of progress with product development and testing in Xaar 3D and working closely with Stratasys to optimise the approach to commercialisation of the product range. The Committee determined that an on-target performance against these strategic goals for the 3D business was merited.				50%
Overall out-turn						43.27%

* The Adjusted Group PBT target is the adjusted loss before tax from continuing operations as defined in note 4, plus the adjusted loss before tax for Xaar 3D.

** The cash performance targets and actual results excluded residual cash payments made during 2020 in respect of commitments outstanding at the end of 2019, following termination of the Thin Film development programme.

The bonus out-turns for 2020 are detailed in the table below.

	% of maximum opportunity vesting	% of salary	Total	Cash	Deferred shares**
John Mills	43.27%	54.09%	£162,271	£113,588	£48,680
Ian Tichias	43.27%	43.27%	£75,725	£53,008	£22,718

** In line with the new Remuneration Policy approved in 2020, 30% of the bonus earned will be deferred in shares and subject to a two-year deferral period with the balance delivered in cash. To provide further alignment with shareholders, the deferred element of bonus earned based on the 3D strategic goals will be forfeited in the event that the transaction does not complete by 30 June 2021.

The Committee gave careful consideration to this outcome in respect of various internal and external factors including the fact that no employee was furloughed or made redundant as a result of COVID-19 during 2020, our share price has increased significantly over the course of the year, revenue for the year was £48 million in line with management expectations and excellent progress has been made refocusing the business on our core competencies and developing a strategy for growth exploiting the fundamental strength of our bulk piezo inkjet technology

Long-term incentives awarded during the financial year

The table below outlines awards made under the LTIP to Executive Directors in 2020:

	Award basis	Performance condition	Number of shares	Face value of the award ² £'000	Vesting at threshold	Performance period	Vesting date
4 June 2020	John Mills	Performance Share Plan awards	EPS & TSR	365,000	215	25% of award 1 January 2020 to 31 December 2022	4 June 2023
29 April 2020 ¹		Performance Share Plan awards	aPBT	50,000	21	25% of award 1 January 2020 to 31 December 2022	29 April 2023
4 June 2020	Ian Tichias	Performance Share Plan awards	EPS & TSR	170,000	100		4 June 2023

1 LTIP awards were granted to Ian Tichias in April 2020 over 50,000 shares at £0.41 (being the mid-market price on the preceding day) with a face value of £20,500 at the date of grant. This was to compensate for options forfeited when he left his previous employer. This award is subject to a performance condition of Xaar achieving an adjusted profit before tax measured over the three-year performance period to 31 December 2022.

2 The share price used to calculate the face value of the Performance Share award granted on 4 June 2020 was £0.59 being the mid-market price on the day prior to award date.

As detailed in the Remuneration report last year, the LTIP awards granted to John Mills and Ian Tichias during 2020 were set as a fixed number of shares – 365,000 shares and 170,000 shares respectively. Based on the share price of £0.59 at the date of grant, the LTIP grants in 2020 equate to circa. 72% and 48% of salary for the CEO and CFO respectively. The 2020 LTIP grants were based on Adjusted EPS performance for the final year of the three-year performance period (i.e. Adjusted EPS for the year ending 31 December 2022) (60% of the award) and relative TSR performance against the companies in the FTSE SmallCap Index (40% of the award) measured over a three-year performance period to 31 December 2022 (performance conditions disclosed on page 79). In line with the UK Corporate Governance Code, there is a further two-year holding period following the end of the performance period. Given the turnaround position of the Company, the Board considers the EPS performance targets for the LTIP awards granted in 2020 to be commercially sensitive information at this time but, as in past years, will fully disclose the exact measurements retrospectively.

Directors' Remuneration report (cont.)

Shareholding guidelines and total shareholdings of Directors

On 16 May 2017, the Remuneration Committee introduced a shareholding guideline of 200% salary. Executive Directors are required to retain half of the after tax number of shares they acquire pursuant to the LTIP or deferred bonus until this level of holding is achieved. The extent to which each Executive Director has met the shareholding guideline is shown in the table below:

Name	Shareholding guidelines	Current shareholdings (% of salary)	Type	Owned outright	Vested	Unvested		Total as at 31 December 2020
						Subject to performance conditions	Not subject to performance conditions	
Executive Directors								
John Mills	200% of salary	(74%)	Shares LTIP options	125,000 –	– –	– 545,328	– 5,294	125,000 550,622
Ian Tichias	200% of salary	(42%)	Shares LTIP options	50,000 –	– –	– 220,000	– 5,294	50,000 225,294
Non-Executive Directors								
Andrew Herbert			Shares	100,000	–	–	–	100,000
Robin Williams (Resigned 31 March 2020)			Shares	10,000	–	–	–	10,000
Margaret Rice-Jones (Resigned 30 June 2020)			Shares	5,700	–	–	–	5,700

Shares valued at closing price on 31 December 2020 (£1.78) and salaries at 31 December 2020 (CEO £300,000 and CFO £210,000).

There have been no changes in the Directors' holdings in the share capital of the Company, as set out in the table above, between 31 December 2020 and 27 April 2021. Chris Morgan and Alison Littlely hold no shares or options in Xaar plc. These figures do not include the 30% of the bonus earned that will be deferred in shares and subject to a two-year deferral period with the balance delivered in cash.

Outstanding Directors' share awards

The awards held by Executive Directors of the Company under the LTIP are shown below:

LTIP

The outstanding awards granted to each Executive Director of the Company under the Xaar plc 2017 LTIP are as follows. All options under the LTIP are nil-cost options such that no exercise price is payable. The performance conditions for these LTIP awards are described in full in this report.

Name	As at 1 January 2020 (1)	Granted during the year	Exercised during the year	Lapsed during the year	As at 31 December 2020	Grant date	Share price at date of grant	Earliest date of exercise	Expiry date
John Mills	180,328	–	–	–	180,328	4 October 2019	£0.452	4 October 2022	4 October 2029
		365,000	–	–	365,000	4 June 2020	£0.59	4 June 2025	4 June 2030
	180,328	365,000	–	–	545,328				
Ian Tichias	–	50,000	–	–	50,000	29 April 2020	£0.41	29 April 2023	29 April 2030
	–	170,000	–	–	170,000	4 June 2020	£0.59	4 June 2025	4 June 2030
	–	220,000	–	–	220,000				

(1) These options carry the performance criteria of an Absolute EPS requirement and TSR relative to the FTSE SmallCap (50/50 weighting) which must be achieved on conclusion of a three-year vesting period.

All employee share plans

The Executive Directors may participate in the Company's all employee share plans, the Xaar plc SAYE Scheme (SAYE Scheme) and the Xaar SIP, on the same basis as other employees. The SAYE Scheme provides an opportunity to save a set monthly amount (up to £500) over three years towards the exercise of a discounted share option, which is granted at the start of the three years. The SIP scheme has not been used since 2017 but may be used at an appropriate point in the future. Options and awards under these plans are not subject to performance conditions.

The outstanding awards granted to each Executive Director under the SAYE Scheme at 31 December are as follows:

Name	As at 1 January 2020	Granted during the year	Lapsed during the year	Exercised during the year	As at 31 December 2020	Grant date	Exercise price	Earliest date of exercise	Expiry date
John Mills	–	5,294	–	–	5,294	2 November 2020	£1.02	2 November 2023	2 May 2024
Ian Tichias	–	5,294	–	–	5,294	2 November 2020	£1.02	2 November 2023	2 May 2024

Payments for loss of office made during the year

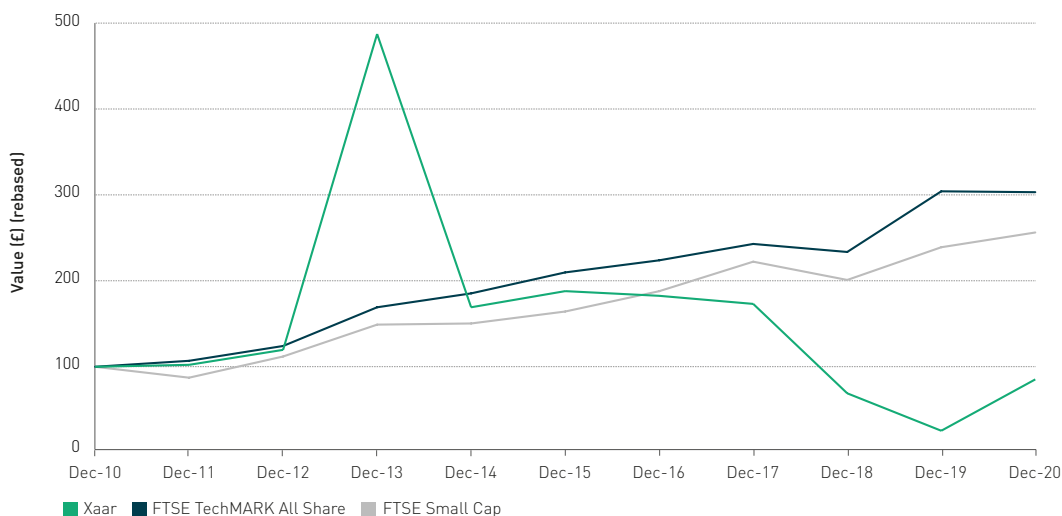
No payments for loss of office were made in 2020.

The information provided in this part of the Directors' Remuneration report is not subject to audit.

Performance graph and table

The graph on this page shows the Company's performance measured by total shareholder return (TSR), compared with the performance of the FTSE TechMARK All Share Index and FTSE SmallCap Index (of which Xaar is now a member), which the Remuneration Committee considers to be the most appropriate indices for comparison because they illustrate the Company's TSR performance against a broad equity market index of similar UK companies.

Total Shareholder Return



This graph shows the value, by 31 December 2020, of £100 invested in Xaar on 31 December 2010, compared with the value of £100 invested in the FTSE TechMARK All Share and FTSE SmallCap Indices on the same date.

The other points plotted are the values at intervening financial year-ends.

Source: Datastream (Thomson Reuters).

This graph shows the value, by 31 December 2020, of £100 invested in Xaar on 31 December 2010, compared with the value of £100 invested in the FTSE TechMARK All Share and FTSE Small Cap Indices on the same date on a yearly basis. The other points plotted are the values at intervening financial year-ends.

The table below shows details of the total remuneration, annual bonus (as a percentage of maximum opportunity) and LTIP vesting percentage for the Chief Executive Officer over the last ten financial years.

	Total remuneration	Annual bonus as a % of maximum opportunity	LTIP as a % of maximum opportunity
Year ended 31 December 2020	511	43.27%	n/a
Year ended 31 December 2019 – John Mills	122	0%	0%
Year ended 31 December 2019 – Doug Edwards	357	0%	0%
Year ended 31 December 2018	502	12%	0%
Year ended 31 December 2017	594	0%	50%
Year ended 31 December 2016	429	12.5%	0%
Year ended 31 December 2015	571	48%	0%
Year ended 31 December 2014	562	0%	100%
Year ended 31 December 2013	1,379	83%	100%
Year ended 31 December 2012	649	53%	100%
Year ended 31 December 2011	1,244	100%	100%

1. Doug Edwards was CEO from 1 January until 10 October 2019, and John Mills was CEO from 11 October to 31 December 2019.

2. John Mills did not earn a performance bonus in respect of 2019. He received a buy-out bonus to compensate him for loss of income to join Xaar.

Directors' Remuneration report (cont.)

Percentage change in Directors' remuneration

The table below shows the percentage change in each Director's salary/fees, benefits and bonus and average remuneration of full-time employees on a full-time equivalent basis between the year ended 31 December 2019 and the year ended 31 December 2020, and the average percentage change in the same remuneration over the same period in respect of the employees of the Company on a full-time equivalent basis.

Ian Tichias and Alison Littlely were appointed to the Board during 2020 and, accordingly, have been excluded from the table below.

For the purposes of the table below, the average employee has been defined as being within the UK employees of the Group. This comparator group was chosen because it is the most relevant sub-set of employees and can be used consistently.

Year	Salary/Fees			Benefits			Bonus		
	2020	2019	% increase	2020	2019	% increase	2020	2019	% increase
John Mills	300,000	300,000	-	27,000	27,000	-	162,271	205,970	(21%)
Andrew Herbert	80,000	47,000	70%	-	-	-	-	-	-
Robin Williams (Chairman)	90,000	102,000	(12%)	-	-	-	-	-	-
Margaret Rice-Jones	49,000	48,000	2%	-	-	-	-	-	-
Chris Morgan	48,250	44,000	10%	-	-	-	-	-	-
Comparator employee group	38,779	37,833	2.5%	1,163	1,135	2.5%	2,675	-	n/a

1. John Mills – became CEO on 11 October 2019, therefore 2019 salary, benefits and bonus figures have been annualised to provide comparison.
2. Andrew Herbert became Chairman on 1 April 2020 and received an annual fee of £90,000 from this date. Remuneration prior to this date and during 2019 was as a Non-Executive Director.
3. Robin Williams stepped down in March 2020. His fees have been annualised to provide comparison (and reflect the agreement that the Chairman fees would be reduced to £90k p.a. in 2020).
4. Margaret Rice Jones stepped down on 30 June 2020. Her 2020 fees have been annualised to provide a comparison.
5. Average employee – Full-time equivalent median employee of Xaar plc. Zero bonus in 2019.
6. Ian Tichias – joined Xaar as CEO on 1 March 2020. No comparison is possible to 2019.
7. Alison Littlely joined the Board on 1 May 2020 so there is no 2019 data to compare.

CEO pay gap ratio

The following table sets out the ratio of the CEO's total remuneration in respect of FY20 (taken from the single figure table on page 87) to the 25th percentile, 50th percentile (i.e. the median) and the 75th percentile full-time equivalent (FTE) of the Group's UK employees. In line with the applicable regulations, the corresponding ratios for 2019 are also included. The basis for the 2019 CEO total remuneration was based on the sum of the two CEOs that served during that year.

Year	Method	25th percentile	Median pay ratio	75th percentile
2020	Option A	15:1	11:1	8:1
2019	Option A	17:1	12:1	8:1

The median and quartile figures have been determined based on Option A as this was stated in government guidance as the most statistically accurate method. Remuneration for other employees for the purposes of the calculations was as at 31 December in each year.

In line with the applicable regulations, we have set out below for the same employee percentiles (and for the CEO) their total remuneration in respect of 2019 and 2020 and the salary component of that remuneration.

Year	CEO total remuneration (salary component of total remuneration)	25th percentile employee total remuneration (salary component of total remuneration)	Median employee total remuneration (salary component of total remuneration)	75th percentile employee total remuneration (salary component of total remuneration)
2020	£511k (£300k)	£33k (£29k)	£46k (£34k)	£64k (£50k)
2019	£479k (£338k)	£28k (£26k)	£39k (£33k)	£57k (£52k)

The reduction in the 2020 pay ratios relative to the 2019 pay ratios is attributable to a change in the remuneration of the CEO and the employees receiving a bonus for the 2020 performance. The Committee believes the median pay ratio is consistent with the pay, reward and progression policies for the UK employees taken as a whole.

Spend on pay

The table below sets out the Group's distributions to shareholders by way of dividends and total Group-wide expenditure on pay for all employees (including employer social security, pension contributions and share-based payments), as reported in the audited financial statements for the financial year ended 31 December 2020.

	2020 £'000	2019 £'000	Change %
Dividends paid to shareholders	–	–	–
Group-wide expenditure on pay for all employees (note 9)	21,629	25,416	(15%)

Directors' Remuneration report (cont.)

Implementation of Directors' Remuneration Policy for the financial year commencing 1 January 2021

Information on how the Company intends to implement the Policy for the financial year commencing 1 January 2021 is set out in the statement from the Chairman of the Remuneration Committee and is summarised below.

Basic salary and fees

The proposed base salary increases for the Executive Directors are shown below:

	Review date	2020	2021	% increase
John Mills	1 Jan 2021	£300,000	£315,000	5%
Ian Tichias	1 Jan 2021	£210,000	£220,500	5%

As explained in the statement from the Chairman of the Remuneration Committee these increases reflect the significant progress made during the year under the leadership of John Mills and Ian Tichias, the improved profitability of the Group and the increased size of the Group.

Fees for Non-Executive Directors will be increased by 2.5% with effect from 1 January 2021 which is aligned with the general increase given to all employees.

	Additional duties	Additional fees	Review date	2020	2021	% increase
Andrew Herbert	Chairman		1 Jan 2021	£90,000	£92,250	2.5%
Alison Littlely	Rem Com & SID	£4,000	1 Jan 2021	£45,000	£46,125	2.5%
Chris Morgan	Audit Committee & 3D	£4,000	1 Jan 2021	£45,000	£46,125	2.5%

Annual bonus

The maximum opportunity for the CEO and CFO will be unchanged at 125% and 100% of base salary respectively for 2021. The performance metrics for the bonus for 2021 are adjusted Group profit before tax (70%) and cash generated from operations (30%).

30% of any bonus earned will be deferred in shares and subject to a two-year deferral period. The Committee has discretion to amend formulaic outputs such that in addition to overall business performance, circumstances that were unexpected or unforeseen (or any other reasons at the discretion of the Committee) will be considered.

The Board considers the Group profit and cash targets for 2021 to be matters that are commercially sensitive and should therefore remain confidential to the Company. It provides our competitors with insight into our business plans, expectations and our strategic actions. However, the Remuneration Committee will disclose on a retrospective basis how the Company's performance relates to any annual bonus payments made.

Long-term incentives

Reflecting the strong recovery in our share price, the maximum LTIP award in 2021 will be capped at 150% of base salary for the CEO and 100% of salary for the CFO. 2021 LTIP awards will be based on:

1. Cumulative Adjusted EPS performance (60% of the award); and
2. Relative TSR performance against the companies in the FTSE SmallCap Index (40% of the award).

Cumulative Adjusted EPS and relative TSR performance will be measured over a three-year performance period to 31 December 2023 with a further two-year holding period following the end of the performance period.

As for 2020, given the turnaround position of the Company, the Board considers the EPS performance targets for the LTIP awards to be granted in 2021 to be commercially sensitive information at this time but, as in past years, will fully disclose the exact measurements retrospectively. We will revert to publishing any measurement targets in advance as we have done in the past as soon as possible. The performance conditions in relation to the TSR benchmark and performance are disclosed on page 79.

Consideration by the Directors of matters relating to Directors' remuneration

Membership

The Company has established a Remuneration Committee which is constituted in accordance with the recommendations of the UK Corporate Governance Code. The terms of reference of the Remuneration Committee can be obtained by contacting the Company Secretary. Please see the tables on page 71 for details of the Committee members in the year and the number of Committee meetings attended.

The Remuneration Committee is currently chaired by Alison Littlely. The other members during the year ended 31 December 2020 were Andrew Herbert and Chris Morgan. All members of the Remuneration Committee are considered independent within the meaning of the UK Corporate Governance Code.

Role and responsibilities of the Remuneration Committee

The Remuneration Committee's primary responsibilities are:

- To make recommendations to the Board on the Group's policy for executive remuneration, and review the ongoing appropriateness and relevance of the policy taking into account workforce related pay and policies and the alignment of incentives and rewards with culture
- To determine, on behalf of the Board, the specific remuneration and other benefits of Executive Directors, senior management and the Company Secretary (including pension contributions, bonus arrangements, long-term incentives and service contracts)
- To review the design of all share incentive plans and oversee any major changes in employee benefit structures
- To ensure appropriate stakeholder input into the work of the Committee with specific focus on employees through regular employee engagement.

The fees paid to the Non-Executive Directors are determined by the Chief Executive Officer and the Chairman. The fees paid to the Chairman are determined by the Chief Executive Officer and the Non-Executive Directors.

The members of the Remuneration Committee have no personal financial interest, other than as shareholders, in the matters to be decided, no actual or potential conflicts of interest arising from other directorships and no day to day operational responsibility within the Company. Executive Directors are not entitled to accept more than one non-executive directorship outside the Group.

Key issues and activities

The key activities of the Remuneration Committee during 2020 are shown below:

Remuneration Committee's key activities in 2020

Executive Directors' and senior management remuneration	<ul style="list-style-type: none"> Assess 2019 bonus and LTIP outcomes Set the remuneration for the Executive Directors, senior management and the Company Secretary Agree the remuneration package for Ian Tichias on his appointment as CFO on 1 March 2020 Finalise and approve 2020 bonus and 2020 LTIP targets Review update on market practice and corporate governance Review of Executive Director shareholdings against shareholding guidelines Review the impact of the launch of the new strategy and consider how the performance goals set at the start of 2020 should be assessed
Share incentives plans	<ul style="list-style-type: none"> Review eligibility for LTIP awards Approve grant of LTIP awards Approve grant of SAYE awards
Governance	<ul style="list-style-type: none"> Engagement with shareholders on the new Remuneration Policy approved by shareholders at the 2020 AGM Consider and approved the Annual Report on Remuneration Consider the background of COVID-19 and its impact on remuneration
Wider workforce	<ul style="list-style-type: none"> Review proposed annual pay increases for the wider workforce Review proposed bonus payments for the wider workforce Agree improved processes for the Remuneration Committee to monitor wider workforce pay and policies

Directors' Remuneration report (cont.)

Advisors to the Remuneration Committee

The Remuneration Committee is assisted in its work by Xaar's human resources department. The Chief Executive Officer is consulted on the remuneration of those who report directly to him and also of other senior executives. No Executive Director or employee is present or takes part in discussions in respect of matters relating directly to their own remuneration.

During the financial year, the Committee received independent advice from Deloitte LLP, which was appointed by the Committee, in relation to the Committee's consideration of matters relating to Directors' remuneration. Deloitte LLP was appointed in 2019 following a formal tender process. Fees for advice provided to the Remuneration Committee during the year were £8,000. Fees were charged on a time and disbursements basis.

Deloitte LLP is a member of the Remuneration Consultants Group and voluntarily operates under its code of conduct in its dealing with the Remuneration Committee. The Remuneration Committee continued to review the appointment of Deloitte LLP and is satisfied that all advice received was objective and independent.

Deloitte also provide advice to the Company on the operation of its employee share plans.

Shareholder voting

The following table sets out actual voting in respect of the resolution to approve the Directors' Remuneration report for the year ended 31 December 2019 and in respect of the resolution to approve the Directors' Remuneration Policy approved at the 2020 AGM.

Number of votes	For (including discretion)	Against	Withheld
Resolution 8 – Directors' Remuneration report for the year ended 31 December 2019	50,592,544 (99.88%)	58,713 (0.12%)	261,809
Resolution 13 – Directors' Remuneration Policy	50,592,544 (99.41%)	299,077 (0.59%)	21,445

Approval

This report was approved by the Board on 27 April 2021 and signed on its behalf by:



Alison Littley

Remuneration Committee Chairperson

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 Accounting Standards in conformity with the requirements of the Companies Act 2006 ('IFRSs') and have also chosen to prepare the parent Company financial statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards and applicable law), including Financial Reporting Standard 101 Reduced Disclosure Framework ('FRS 101'). Under company law the Directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the Group and the Company and of the profit or loss of the Group for that period.

In preparing the parent Company financial statements, the Directors are required to:

- Select suitable accounting policies and then apply them consistently
- Make judgements and accounting estimates that are reasonable and prudent
- State whether FRS 101 has been followed, subject to any material departures disclosed and explained in the financial statements
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Company will continue in business.

In preparing the Group financial statements, International Accounting Standard 1 requires that Directors:

- Select and apply accounting policies in accordance with IAS 8
- 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
- Make an assessment of the Group'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 Group's and Company's transactions and disclose with reasonable accuracy at any time the financial position of the Group and 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 Group and the Company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Under applicable law and regulations the Directors are also responsible for preparing a strategic report, Directors' report, and Directors' remuneration report that comply with that law and those regulations.

Website publication

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 the relevant financial reporting framework, 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.

The Directors of Xaar plc are listed on pages 56 and 57.

This responsibility statement was approved by the Board of Directors and is signed on its behalf by:



John Mills
Chief Executive Officer

27 April 2021

Independent auditor's report to the members of Xaar plc

Opinion

In our opinion:

- Xaar plc's group financial statements and parent company financial statements (the 'financial statements') give a true and fair view of the state of the group's and of the parent company's affairs as at 31 December 2020 and of the group's loss for the year then ended;
- the group financial statements have been properly prepared in accordance with International Accounting Standards in conformity with the requirements of the Companies Act 2006 and International Financial Reporting Standards adopted pursuant to Regulation (EC) No. 1606/2002 as it applies in the European Union;
- the parent company financial statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements of Xaar plc (the 'parent company') and its subsidiaries (the 'group') for the year ended 31 December 2020 which comprise:

Group	Parent company
Consolidated statement of financial position as at 31 December 2020	Balance sheet as at 31 December 2020
Consolidated income statement for the year then ended	Statement of changes in equity for the year then ended
Consolidated statement of comprehensive income for the year then ended	Related notes 1 to 11 to the financial statements including a summary of significant accounting policies
Consolidated statement of changes in equity for the year then ended	
Consolidated cash flow statement for the year then ended	
Related notes 1 to 38 to the financial statements, including a summary of significant accounting policies	

The financial reporting framework that has been applied in the preparation of the group financial statements is applicable law and International Accounting Standards in conformity with the requirements of the Companies Act 2006 and International Financial Reporting Standards adopted pursuant to Regulation (EC) No. 1606/2002 as it applies in the European Union. The financial reporting framework that has been applied in the preparation of the parent company financial statements is applicable law and United Kingdom Accounting Standards, including FRS 101 "Reduced Disclosure Framework" (United Kingdom Generally Accepted Accounting Practice).

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) 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 in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard as applied to listed public interest 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.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the directors use of the going concern basis of accounting in the preparation of the financial statements is appropriate. Our evaluation of the directors' assessment of the group and parent company's ability to continue to adopt the going concern basis of accounting included:

- We understood the process undertaken by management to perform the going concern assessment, including the evaluation of the ongoing impact of COVID-19 on the Group and the Group's access to available sources of liquidity;
- We obtained management's going concern assessment, including the cash flow forecasts for the going concern period to 30 April 2022. The Group has modelled a base case which is consistent with the assumptions used in the Group's impairment assessments (adjusted to exclude the consideration expected to be received on the 3D disposal); a downside scenario which assumes the proposed sale of the Xaar 3D business doesn't go ahead; and a reverse stress test based on liquidity in order to determine how much additional downside in trading could be absorbed before the cash and cash equivalents run out. No debt facilities are in place, nor required in any of these scenarios.
- We evaluated the key assumptions underpinning the Group's forecasts. In particular, we compared the trading projections in management's base case and downside scenario to the Group's performance including contracted order book and pipeline since the onset of the COVID-19 pandemic;
- We considered the results of management's reverse stress test scenario and independently calculated what changes to key assumptions would result in the Group having insufficient cash and cash equivalents. We also considered mitigating actions such as reducing non-essential capital expenditure, assessing whether they were within management's control and whether they were supported by the actual mitigation achieved in response to COVID-19, to date. We considered whether the combination of changes to key assumptions could plausibly lead to the Group's liquidity being eliminated within the period assessed;
- We tested the clerical accuracy of the models used to prepare the Group's going concern assessment; and
- We assessed the appropriateness of the Group's disclosures concerning the going concern basis of preparation.

We observed that whilst the Group reported a loss after tax for the year ended 31 December 2020 of £14.7m (2019: £71.7m), a significant portion of this was the loss from discontinued operations after tax of £10.3m (2019: £57.3m). As set out in Note 37 and the Strategic Update (page 11), the Group are expecting to sell their remaining stake in Xaar 3D, which is the rationale for the two going concern scenarios noted above. The consideration for this transaction has been excluded from both scenarios. The net decrease in cash and cash equivalents for the year ended 31 December 2020 was £4.7m (2019: net increase of £0.3m), resulting in a closing cash and cash equivalents at 31 December 2020 of £20.1m (2019: £24.8m). The Group were debt free at the Balance Sheet date and across the forecast period.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group and parent company's ability to continue as a going concern over the period to 30 April 2022.

In relation to the group and parent company's reporting on how they have applied the UK Corporate Governance Code, we have nothing material to add or draw attention to in relation to the directors' statement in the financial statements about whether the directors considered it appropriate to adopt the going concern basis of accounting.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report. However, because not all future events or conditions can be predicted, this statement is not a guarantee as to the group's ability to continue as a going concern.

Overview of our audit approach

Audit scope	<ul style="list-style-type: none"> • We performed an audit of the complete financial information of four components and audit procedures on specific balances for a further seven components. • The components where we performed full or specific audit procedures accounted for 100% of Revenue, 100% of adjusted Loss before tax, and 100% of Total assets.
Key audit matters	<ul style="list-style-type: none"> • Revenue recognition • Carrying value of goodwill and intangible assets • Recoverability of receivables • Consolidation of Xaar 3D • Valuation of inventory • EPS significant deficiencies
Materiality	<ul style="list-style-type: none"> • Overall group materiality of £240,000 which represents 0.5% of revenue.

Independent auditor's report (cont.)

An overview of the scope of the parent company and group audits

Tailoring the scope

Our assessment of audit risk, our evaluation of materiality and our allocation of performance materiality determine our audit scope for each company within the group. Taken together, this enables us to form an opinion on the consolidated financial statements. We take into account size, risk profile, the organisation of the group and effectiveness of group-wide controls, changes in the business environment and other factors when assessing the level of work to be performed at each company.

In assessing the risk of material misstatement to the group financial statements, and to ensure we had adequate quantitative coverage of significant accounts in the financial statements, of the 14 reporting components of the group, we selected 11 components covering entities within the UK, US and Denmark, which represent the principal business units within the group.

Of the 11 components selected, we performed an audit of the complete financial information of four components ("full scope components") which were selected based on their size or risk characteristics. For the remaining seven components ("specific scope components"), we performed audit procedures on specific accounts within that component that we considered had the potential for the greatest impact on the significant accounts in the financial statements either because of the size of these accounts or their risk profile.

The reporting components where we performed audit procedures accounted for 100% (2019: 100%) of the Group's Revenue, 100% (2019: 100%) of the Group's adjusted Loss before tax and 100% (2019: 100%) of the Group's Total assets. For the current year, the full scope components contributed 93% (2019: 98%) of the Group's Revenue, 95% (2019: 99%) of the Group's adjusted Loss before tax and 97% (2019: 100%) of the Group's Total assets. The specific scope components contributed 7% (2019: 2%) of the Group's Revenue, 5% (2019: 1%) of the Group's adjusted Loss before tax and 3% (2019: 0%) of the Group's Total assets. The audit scope of these components may not have included testing of all significant accounts of the component but will have contributed to the coverage of significant accounts tested for the Group.

The remaining three components were not revenue generating. For these components, we performed other procedures, including analytical review, testing of consolidation journals and intercompany eliminations and foreign currency translation recalculations to respond to any potential risks of material misstatement to the Group financial statements.

Changes from the prior year

There is no significant change in the overall coverage from full and specific scope components. Five components that were designated as full scope in the prior year have been designated as specific scope in the current year. These were designated as full scope in the prior year given we were also engaged as statutory auditor, however as detailed in note 38, the subsidiary audit exemption has been taken in the current year, hence we have only performed the procedures on these components necessary to support the Group audit opinion.

Involvement with component teams

All audit work performed for the purposes of the audit was undertaken by the Group audit team.

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 our opinion thereon, and we do not provide a separate opinion on these matters.

Risk	Our response to the risk	Key observations communicated to the Audit Committee
<p>Revenue recognition (£48.0 million – continuing operations, 2019: £49.4 million – continuing operations)</p> <p>Refer to the Audit Committee Report (page 73); Accounting policies (page 116); and note 5 of the Consolidated Financial Statements (page 127).</p> <p>Given the difficult trading environment and investor focus on the group's revenue we consider there to be a risk in relation to the manipulation by group management of the amount of revenue recorded. Management reward and incentive schemes based on achieving profit targets may also place pressure on management to manipulate revenue recognition.</p> <p>As part of the financial statement close process, certain manual adjustments are required to account for contracts with customers. There is risk that the manual adjustments are incorrectly recorded in the period.</p> <p>Further, in the product print segment, judgement is required to determine whether revenue should be recognised over time or at a point in time. Where revenue is recognised over time, estimation is required to establish how much of the performance obligation has been satisfied and how much is recorded as a contract liability.</p>	<p>We understood the group's revenue recognition policies and how they are applied, including the relevant controls, and performed a walkthrough to validate our understanding.</p> <p>In respect of the main UK trading entity, which comprised 60% of the group's revenue, we analysed the whole population of transactions from invoicing to cash collection, including adjustments to arrive at revenue recognised in the year. Where the postings did not follow our expectation, we investigated and understood the characteristics of these entries and tested a sample to assess their validity by agreeing the transactions back to source documentation.</p> <p>We performed tests of detail for a sample of revenue transactions to confirm the transactions had been appropriately recorded in the income statement with reference to IFRS 15 and corroborated that control of the products had been transferred to the customer by:</p> <ul style="list-style-type: none"> • analysing the contract and terms of the sale to determine that the group had fulfilled the requirements of the contract; • confirming revenue could be reliably measured by reference to underlying documentation; and • confirming collectability of the revenue was reasonably assured by considering recent collection history and the ageing of receivables. <p>We performed cut-off testing by tracing a sample of revenue items recorded either side of year-end to delivery note to determine whether revenue was recognised in the same period in which the performance obligations have been fulfilled.</p> <p>We selected a sample of post year-end credit notes to assess whether, where the credit note relates to the audit period, these credit notes were appropriately provided for in the financial statements.</p> <p>We tested journal entries posted to revenue accounts, applying parameters designed to identify entries that were not in accordance with our expectations. This included analysing and selecting journals for testing which appeared unusual in nature either due to size, preparer or being manually posted. To assess their validity, we verified the journals to originating documentation.</p>	<p>Revenue was recognised in accordance with the Group's accounting policies following the correction of audit adjustments identified in the EPS business and we identified no evidence of management override in respect of inappropriate manual journals recorded in revenue.</p> <p>In respect of the EPS business and revenue recognised over time we identified a significant deficiency in internal control as summarised in the related Key Audit Matter below.</p>

Independent auditor's report (cont.)

Risk	Our response to the risk	Key observations communicated to the Audit Committee
<p>Revenue recognition (£48.0 million – continuing operations, 2019: £49.4 million – continuing operations) continued</p>	<p>We performed full and specific scope audit procedures over this risk area in 4 locations which covered 100% of the risk amount.</p> <p>Revenue recognised over time For a sample of items, we reviewed the respective sales contract to determine whether the customer:</p> <ul style="list-style-type: none"> • Simultaneously receives and consumes the benefits; or • Controls the asset that is being created or enhanced; or • Has an enforceable requirement to pay for performance to date. <p>Where any of these criteria are fulfilled, revenue should be recognised over time in accordance with IFRS 15. For these items, we evaluated judgements made by management regarding the expected costs to complete and the timing and recognition of variation orders, by obtaining and reviewing the variation order and comparing the cost assumptions to similar projects. We also verified a sample of actual costs incurred to date through to purchase invoice or timesheet records. Where the criteria have not been fulfilled we confirmed management has recognised revenue at a point in time, when the performance obligation has been achieved.</p> <p>We performed full scope audit procedures over this risk area in 1 location which covered 100% of the risk amount.</p>	

Risk	Our response to the risk	Key observations communicated to the Audit Committee
<p>Carrying value of goodwill and intangible assets (£5.4 million, 2019: £10.9 million)</p> <p>Refer to the Audit Committee Report (page 73); Accounting policies (page 121); and note 15 of the Consolidated Financial Statements (page 137).</p> <p>IFRS requires impairment testing to be undertaken when there are indicators that an impairment may exist, and in the case of goodwill at least annually. Given the significant balances in respect of goodwill and recent trading losses, there is a risk that the Group's cash generating units ('CGUs') may not achieve the anticipated business performance to support their respective carrying values.</p> <p>Judgement is required in estimating the recoverable value of each CGU, including the determination of the future cash flows, long-term growth rates applied to these cash flows, together with the rate at which they are discounted.</p>	<p>We examined management's methodology together with their model for assessing the valuation of goodwill and intangible asset balance to understand the composition of management's future cash flow forecasts, and the process and related controls undertaken to prepare them. This included confirming the underlying cash flows were consistent with the Board approved budget and strategic plan, did not include reorganisations and enhancements not committed at the balance sheet date and assessing the identified CGUs for appropriateness. We also re-performed the calculations in the model to test the mathematical integrity.</p> <p>We assessed the robustness of the budgeting process and cash flow forecasting models, including consistency with the strategic plans for the group and assessment of historical forecast accuracy and impact of COVID-19 to date and over the forecast period.</p> <p>We tested the key inputs to management's impairment models by:</p> <ul style="list-style-type: none"> • analysing the historical accuracy of budgets to actual results to determine whether forecast cash flows are reliable based on past experience; • assessing the discount rate used by obtaining the underlying data used in the calculation and benchmarking it against an EY range derived from comparable organisations and market data, involving EY internal specialists to assist us with this assessment; and • comparing the forecast growth rates to observable market data and challenging whether the forecast growth rates have been appropriately adjusted to reflect the changes in the group's strategy. <p>We calculated the degree to which the key inputs and assumptions would need to fluctuate before an impairment was triggered and considered the likelihood of this occurring. We performed our own sensitivities on the group's forecasts and determined whether adequate headroom remained.</p> <p>We assessed whether there were any other indicators of impairment, which would give rise to the impairment of an individual asset.</p> <p>We audited the related disclosures with reference to the requirements of IAS 36 and confirmed their consistency with the audited impairment models.</p>	<p>We agree with management's conclusion that no impairment of goodwill is required in the current year.</p> <p>We have concluded that the methodology applied is reasonable, that the forecast period is appropriate and that management's models are mathematically accurate.</p> <p>The additional sensitivity disclosures in note 14 of the Group financial statements adequately reflect that a reasonably possible change in certain key assumptions could lead to a different conclusion in respect of the recoverability of goodwill.</p>

Independent auditor's report (cont.)

Risk	Our response to the risk	Key observations communicated to the Audit Committee
<p>Recoverability of receivables (£6.2 million net of provisions of £0.6 million, 2019: £6.4 million net of provisions of £8.0 million)</p> <p>Refer to the Audit Committee Report (page 73); Accounting policies (page 122); and note 21 of the Consolidated Financial Statements (page 141).</p> <p>Whilst the majority of aged open balances are fully provided, given the extended credit terms that were provided to customers in previous periods, judgement is required to establish how much of the open receivables balance is recoverable. There is a risk that management's judgements and estimates over recoverability are inappropriate, when considering the specific balances and the requirements of IFRS 9.</p>	<p>We understood the group's process for estimating the expected credit loss provision under IFRS 9 and other specific provisions and how they are applied, including the relevant controls, and performed a walkthrough to validate our understanding.</p> <p>We requested and obtained confirmation of receivables balances from key customers and compared their return to the amounts recorded in the ledger as at 31 December 2020, investigating any differences and agreeing reconciling items to relevant supporting documentation. For any of these customers that did not provide a return, we performed alternative procedures by obtaining proof of payment or evidence of delivery of the product/service.</p> <p>We selected a sample of receivable balances and verified them to cash received post year-end, reflecting either full settlement or payments against an agreed payment plan.</p> <p>We discussed with the credit control team the status of account balances with key customers and the steps being taken to recover overdue balances and assessed whether the accounting provision appropriately reflects the facts and circumstances.</p> <p>We analysed the historical accuracy of the receivables provisions to actual results to determine whether management's forecasting is reliable based on past experience.</p> <p>We assessed the adequacy of management's provision for expected credit losses by reviewing recent historical losses with consideration given to current trading conditions and potential future losses. We recalculated managements provision, testing related inputs as appropriate.</p> <p>We reviewed publicly available information for key customers to identify and evaluate any matters relating to their financial viability that might result in a recoverability risk to the related receivable balance.</p>	<p>We did not identify any evidence of material misstatement related to the carrying value of receivables. Management continue to apply an appropriate expected credit loss provision, plus specific provisions for aged balances where there is additional doubt over the recoverability of the remaining balance.</p>

Risk	Our response to the risk	Key observations communicated to the Audit Committee
<p>Consolidation of Xaar 3D</p> <p>Refer to the Audit Committee Report (page 73); Accounting policies (page 116); and note 22 of the Consolidated Financial Statements (page 144).</p> <p>Management judgement is required as to whether the Group still controls Xaar 3D Limited and consequently whether the Group should continue to consolidate Xaar 3D in accordance with IFRS 10, given that Stratasys has a 45% shareholding and a call option to purchase the remaining share capital at any point over a three-year period to December 2022.</p> <p>Further consideration was required as to whether the held for sale classification at the year end impacts upon the control conclusion.</p> <p>As detailed in note 2, management concluded that the Group continues to control Xaar 3D and should therefore continue to consolidate the business in the Group financial statements.</p>	<p>We have obtained and reviewed management's accounting paper and the signed shareholder agreement setting out their control conclusion as at the year end. We have compared the content of this paper against the requirements of IFRS 10, namely whether Xaar continues to:</p> <ul style="list-style-type: none"> • retain power over Xaar 3D; • be exposed to and have the right to variable returns; and • have the ability to use its power to affect these returns. <p>As part of these procedures, we considered whether there have been any changes to the relevant activities, including specifically the following areas:</p> <ul style="list-style-type: none"> • Whether the written call option was in the money and likelihood of exercise; • The make-up of the Xaar 3D board; • The process to make key strategic and operational decisions over the relevant activities; and • Who the key decision makers are. <p>We confirmed there were no changes to the supply agreement between Xaar/Xaar 3D and distribution agreement between Xaar 3D/Stratasys.</p>	<p>We agree with management's judgement that Xaar continues to control the 3D business as at 31 December 2020.</p>
<p>Valuation of inventory (£10.4 million including provision of £24.6 million, 2019: £16.2 million including provision of £21.3 million)</p> <p>Refer to the Audit Committee Report (page 73); Accounting policies (page 122); and note 20 of the Consolidated Financial Statements (page 141).</p> <p>Given the level of slow moving finished goods, judgement is required to assess the future uptake of new products by customers, the price for which products can be sold, overall success of the sales and marketing strategy and the resulting carrying value recorded in the financial statements. There is a risk that the provision recorded by management does not accurately reflect the level of exposure and that inventory is incorrectly valued.</p>	<p>We understood the group's policies on inventory provisions and how they are applied, including the relevant controls, and performed a walkthrough to validate our understanding.</p> <p>We obtained calculations to support the standard costs used and performed procedures to assess whether only normal production variances had been capitalised in the year-end inventory balance and material abnormal inefficiencies had been appropriately expensed. We checked that inventory was appropriately revalued to actual cost at the period end.</p> <p>We performed tests of clerical and mathematical accuracy on management's inventory provision calculations.</p> <p>We performed procedures to validate the appropriateness of any management judgements applied in calculating inventory provisions.</p> <p>For a sample of inventory lines, we reviewed post year-end selling prices in comparison to the values assumed in the book values recorded. Where the book value exceeded realisable value, we considered whether management had recorded an appropriate provision.</p>	<p>The inventory provisions have been appropriately updated to reflect the impact of the latest strategic review and resulting future recoverable amount.</p> <p>In respect of the EPS business and inventory management, we identified a significant deficiency in internal control as summarised in the related Key Audit Matter below.</p>

Independent auditor's report (cont.)

Risk	Our response to the risk	Key observations communicated to the Audit Committee
<p>Valuation of inventory (£10.4 million including provision of £24.6 million, 2019: £16.2 million including provision of £21.3 million) continued</p>	<p>We discussed the latest sales and marketing strategies and considered the implications for the level of provision recorded. This included comparing forecast product usage to customer orders, considering historical usage, historical accuracy of provisioning and understanding management's future plans to utilise the inventory.</p>	
<p>EPS business</p> <p>As disclosed within the Corporate Governance Statement on page 70 and Audit Committee Report on page 74, three significant deficiencies were identified in relation to the EPS business and its controls over:</p> <ul style="list-style-type: none"> • Inventory management and valuation • Revenue recognised over time and the valuation of accrued income at year end • The financial statement close process <p>These deficiencies were identified as part of the external audit process and manifested themselves in a significant number of audit differences. Adjustments were made to correct for the financial impact of the issues arising from these deficiencies and management have disclosed the deficiencies in accordance with the UK Corporate Governance Code, however further action is required in 2021 to remediate the underlying process and control issues.</p>	<p>We executed our planned audit approach over the EPS business. As a result of the audit differences identified we performed additional procedures to understand the root cause of the issues and to establish whether the audit differences reflected the total error within the account balances impacted. These procedures were supplemented by additional sample testing and audit procedures to test the appropriateness of the revisions made by management to reconciliations.</p> <p>We reassessed the materiality applied in our audit of the EPS business and re-assessed the associated aggregation risk.</p> <p>We increased the level of Partner oversight and review of our work over the EPS business to further mitigate the additional risk presented by the identified control deficiencies</p> <p>We met with the Board of Directors to understand the process they had undertaken to assess the effectiveness of the risk management and internal control systems and their remediation plans.</p> <p>We reviewed the disclosures made within the Annual Report and Accounts for compliance with the UK Corporate Governance Code and consistency with the findings from the audit process.</p>	<p>We reported and discussed the deficiencies we identified at EPS with the Audit Committee and made a number of related internal control recommendations.</p> <p>The sections of the annual report that describe the review of the effectiveness of the entity's risk management and internal control system and related significant deficiencies in EPS, are materially consistent with the financial statements and our knowledge obtained in the course of performing the audit.</p>

In the prior year, our auditor's report included a key audit matter in relation to capitalised development costs and COVID-19. Given there were no further capitalised development costs in the current year, this was removed as a key audit matter. Given the continued impact of COVID-19, we have embedded this within the other key audit matters listed above, such as the impairment of goodwill and intangible assets, as opposed to it being a separate key audit matter.

Our application of materiality

We apply the concept of materiality in planning and performing the audit, in evaluating the effect of identified misstatements on the audit and in forming our audit opinion.

Materiality

The magnitude of an omission or misstatement that, individually or in the aggregate, could reasonably be expected to influence the economic decisions of the users of the financial statements. Materiality provides a basis for determining the nature and extent of our audit procedures.

We determined materiality for the Group to be £240,000 (2019: £247,000), which is 0.5% (2019: 0.5%) of revenue. We believe that revenue provides us with the most appropriate basis given it is the main KPI for the Group, whilst the Group reports an adjusted loss before tax.

We determined materiality for the parent Company to be £240,000, which we capped at the group materiality.

During the course of our audit, we reassessed initial materiality and updated for the final result for the year.

Performance materiality

The application of materiality at the individual account or balance level. It is set at an amount to reduce to an appropriately low level the probability that the aggregate of uncorrected and undetected misstatements exceeds materiality.

On the basis of our risk assessments, together with our assessment of the Group's overall control environment, our judgement was that performance materiality was 50% (2019: 50%) of our materiality, being £120,000 (2019: £124,000). We have maintained performance materiality at this percentage reflecting our observations of the Group's systems and processes, susceptibility of the financial statements to management override and historical audit findings.

Audit work at component locations for the purpose of obtaining audit coverage over significant financial statement accounts is undertaken based on a percentage of total performance materiality. The performance materiality set for each component is based on the relative scale and risk of the component to the Group as a whole and our assessment of the risk of misstatement at that component. In the current year, the range of performance materiality allocated to components was £24,000 to £91,000 (2019: £25,000 to £93,000).

Reporting threshold

An amount below which identified misstatements are considered as being clearly trivial.

We agreed with the Audit Committee that we would report to them all uncorrected audit differences in excess of £12,000 (2019: £12,000), which is set at 5% of planning materiality, as well as differences below that threshold that, in our view, warranted reporting on qualitative grounds.

We evaluate any uncorrected misstatements against both the quantitative measures of materiality discussed above and in light of other relevant qualitative considerations in forming our opinion.

Other information

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

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

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 course of 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 themselves. If, based on the work we have performed, we conclude that there is a material misstatement of the other information, we are required to report that fact.

We have nothing to report in this regard.

Independent auditor's report (cont.)

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, the part of the directors' remuneration report to be audited has been properly prepared in accordance with 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 those reports have been prepared in accordance with applicable legal requirements;
- the information about internal control and risk management systems in relation to financial reporting processes and about share capital structures, given in compliance with rules 7.2.5 and 7.2.6 in the Disclosure Rules and Transparency Rules sourcebook made by the Financial Conduct Authority (the FCA Rules), is consistent with the financial statements and has been prepared in accordance with applicable legal requirements; and
- information about the company's corporate governance statement and practices and about its administrative, management and supervisory bodies and their committees complies with rules 7.2.2, 7.2.3 and 7.2.7 of the FCA Rules.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the group and the parent company and its environment obtained in the course of the audit, we have not identified material misstatements in:

- the strategic report or the directors' report; or
- the information about internal control and risk management systems in relation to financial reporting processes and about share capital structures, given in compliance with rules 7.2.5 and 7.2.6 of the FCA Rules.

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 requires us to report to you if, in our opinion:

- 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 and the part of the Directors' Remuneration Report to be audited are not in agreement with the accounting records and returns; or
- certain disclosures of directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit; or
- a Corporate Governance Statement has not been prepared by the company.

Corporate Governance Statement

The Listing Rules require us to review the directors' statement in relation to going concern, longer-term viability and that part of the Corporate Governance Statement relating to the group and company's compliance with the provisions of the UK Corporate Governance Code specified for our review.

Based on the work undertaken as part of our audit, we have concluded that each of the following elements of the Corporate Governance Statement is materially consistent with the financial statements or our knowledge obtained during the audit:

- Directors' statement with regards to the appropriateness of adopting the going concern basis of accounting and any material uncertainties identified set out on page 64;
- Directors' explanation as to their assessment of the company's prospects, the period this assessment covers and why the period is appropriate set out on page 65;
- Directors' statement on fair, balanced and understandable set out on page 51;
- Board's confirmation that it has carried out a robust assessment of the emerging and principal risks set out on page 41;
- The section of the annual report that describes the review of effectiveness of risk management and internal control systems set out on pages 41 and 74; and
- The section describing the work of the Audit Committee set out on page 72.

Responsibilities of directors

As explained more fully in the directors' responsibilities statement set out on page 97, 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 and 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.

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 (UK) 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.

Explanation as to what extent the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect irregularities, including fraud. The risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

However, the primary responsibility for the prevention and detection of fraud rests with both those charged with governance of the company and management.

Our approach was as follows:

- We obtained an understanding of the legal and regulatory frameworks that are applicable to the group and determined that the most significant are those that relate to the reporting framework (IFRS, FRS 101, the Companies Act 2006 and the UK Corporate Governance Code) and the relevant tax compliance regulations in the jurisdictions in which the Group operates. In addition, we concluded that there are certain significant laws and regulations which may have an effect on the determination of the amounts and disclosures in the financial statements being the Listing Rules of the UK Listing Authority, and those regulations relating to health and safety and employee matters.
- We understood how Xaar plc is complying with those frameworks by making enquiries of management, the Company Secretary, and those responsible for legal and compliance procedures. We corroborated our enquiries through our review of board minutes, papers provided to the Audit Committee, discussion with the Audit Committee and any correspondence received from regulatory bodies.
- We assessed the susceptibility of the Group's financial statements to material misstatement, including how fraud might occur by reviewing the Group's risk register, enquiry with management and the Audit Committee during the planning and execution phases of our audit. We also considered performance targets and their influence on efforts made by management to manage earnings or influence the perceptions of analysts. We considered the programmes and controls that the Group has established to address risks identified, or that otherwise prevent, deter and detect fraud and how senior management monitors those programmes and controls. Where the risk was considered to be higher, we performed audit procedures to address each identified fraud risk including revenue recognition as discussed above. These procedures included testing manual journals and were designed to provide reasonable assurance that the financial statements were free from fraud or error.
- Based on this understanding we designed our audit procedures to identify non-compliance with such laws and regulations. Our procedures involved journal entry testing, with a focus on manual consolidation journals and journals indicating large or unusual transactions based on our understanding of the business; enquiries of the Company Secretary, head of legal, management; and focussed testing, as referred to in the key audit matters section above. In addition, we completed procedures to conclude on the compliance of the disclosures in the Annual Report and Accounts with the requirements of the relevant accounting standards, UK legislation and the UK Corporate Governance Code.

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

Independent auditor's report (cont.)

Other matters we are required to address

- Following the recommendation from the Audit Committee we were appointed by the company on 2 June 2020 to audit the financial statements for the year ending 31 December 2020 and subsequent financial periods.
- The period of total uninterrupted engagement including previous renewals and reappointments is 2 years, covering the years ending 2019 and 2020.
- The non-audit services prohibited by the FRC's Ethical Standard were not provided to the group or the parent company and we remain independent of the group and the parent company in conducting the audit.
- The audit opinion is consistent with the additional report to the Audit Committee.

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.

Adrian Bennett

Senior statutory auditor
for and on behalf of Ernst & Young LLP, Statutory Auditor
Cambridge

27 April 2021

Consolidated income statement for the year ended 31 December 2020

	Notes	2020 £'000	Restated 2019 £'000
Revenue	5	47,984	49,379
Cost of sales		(34,974)	(37,089)
Gross profit		13,010	12,290
Research and development expenses		(4,535)	(3,081)
Research and development expenditure credit		142	29
Sales and marketing expenses		(5,970)	(8,104)
General and administrative expenses		(8,022)	(7,718)
Impairment reversal / (losses) on financial assets		946	(2,715)
Restructuring costs		(754)	(1,519)
Other operating income		819	-
Gain on derivative financial liabilities	22, 36	77	(87)
Operating loss		(4,287)	(10,905)
Investment income	10	47	65
Finance costs for leases	18, 36	(82)	(97)
Loss before tax		(4,322)	(10,937)
Income tax expense	12, 36	(52)	(3,497)
Loss for the year from continuing operations		(4,374)	(14,434)
Loss from discontinued operations after tax	11	(10,295)	(57,297)
Loss for the year		(14,669)	(71,731)
Attributable to:			
Owners of the Company		(11,685)	(71,308)
Non-controlling interest	35	(2,984)	(423)
Loss for the year		(14,669)	(71,731)
Loss per share – Total			
Basic	14	(15.2p)	(92.5p)
Diluted	14	(15.2p)	(92.5p)
Loss per share – Continuing operations			
Basic	14	(5.7p)	(18.7p)
Diluted	14	(5.7p)	(18.7p)

Dividends paid in the year amounted to Enil (2019: Enil).

Consolidated statement of comprehensive income for the year ended 31 December 2020

	Notes	2020 £'000	Restated 2019 £'000
Loss for the year		(14,669)	(71,731)
Items that may be reclassified subsequently to profit or loss:			
Exchange differences on retranslation of net investment		240	(258)
Tax on items taken directly to equity		(5)	-
Other comprehensive income/(loss) for the year		235	(258)
Total comprehensive loss for the year		(14,434)	(71,989)
Total comprehensive loss attributable to:			
Owners of the Company		(11,466)	(71,531)
Non-controlling interests	35	(2,968)	(458)
		(14,434)	(71,989)

Consolidated statement of financial position as at 31 December 2020

	Notes	2020 £'000	Restated 2019 £'000
Non-current assets			
Goodwill	15	5,152	5,333
Other intangible assets	16	207	5,543
Property, plant and equipment	17	17,147	20,908
Right of use asset	18	2,078	3,561
Deferred tax asset	23	139	130
		24,723	35,475
Current assets			
Inventories	20	10,355	16,530
Trade and other receivables	21	9,751	9,109
Current tax asset	21	425	1,788
Treasury deposits	21	161	522
Cash and cash equivalents	21	17,956	24,800
Derivative financial instruments	22	160	–
Assets held for sale	17	43	–
		38,851	52,749
Disposal group assets held for sale	11	9,968	–
		48,819	52,749
Total assets			
		73,542	88,224
Current liabilities			
Trade and other payables	24	(9,940)	(7,973)
Provisions	25	(357)	(2,947)
Derivative financial instruments	22	(2,919)	(2,996)
Lease liabilities	18	(1,064)	(1,450)
		(14,280)	(15,366)
Liabilities associated with the disposal group	11	(1,589)	–
		(15,869)	(15,366)
Net current assets			
		32,950	37,383
Non-current liabilities			
Lease liabilities	18	(1,515)	(2,521)
Total non-current liabilities			
		(1,515)	(2,521)
Total liabilities			
		(17,384)	(17,887)
Net assets			
		56,158	70,337
Equity			
Share capital	26	7,833	7,833
Share premium	27	29,328	29,328
Own shares	28	(1,957)	(2,676)
Translation reserve	29	818	594
Other reserves	30	21,167	20,921
Retained earnings	30	(4,802)	7,598
Equity attributable to owners of the Company			
		52,387	63,598
Non-controlling interest	35	3,771	6,739
Total equity			
		56,158	70,337

The financial statements of Xaar plc, registered number 3320972, were approved by the Board of Directors and authorised for issue on 27 April 2021. They were signed on its behalf by:

John Mills
Chief Executive Officer



Ian Tichias
Chief Financial Officer



Consolidated statement of changes in equity as at 31 December 2020

	Notes	Share capital £'000	Share premium £'000	Own shares £'000	Other reserves £'000	Translation reserve £'000	Retained earnings £'000	Total £'000	Non-controlling interest £'000	Total equity £'000
Balance at 1 January 2019		7,833	29,328	(3,113)	15,144	817	79,343	129,352	2,026	131,378
Loss for the year		-	-	-	-	-	(71,051)	(71,051)	(423)	(71,474)
Exchange differences on retranslation of net investment		-	-	-	-	(157)	-	(157)	(35)	(192)
Total comprehensive income for the year as reported		-	-	-	-	(157)	(71,051)	(71,208)	(458)	(71,666)
Correction of error	36	-	-	-	-	(66)	(257)	(323)	-	(323)
Total comprehensive income for the year as restated		-	-	-	-	(223)	(71,308)	(71,531)	(458)	(71,989)
Own shares sold in the year	28	-	-	437	-	-	(437)	-	-	-
Credit to equity for equity-settled share-based payments	9	-	-	-	1,111	-	-	1,111	-	1,111
Adjustment arising from change in non-controlling interest		-	-	-	4,666	-	-	4,666	5,171	9,837
Restated total equity at the beginning of the financial year		7,833	29,328	(2,676)	20,921	594	7,598	63,598	6,739	70,337
Loss for the year		-	-	-	-	-	(11,685)	(11,685)	(2,984)	(14,669)
Tax on items taken directly to equity		-	-	-	-	-	(5)	(5)	-	(5)
Exchange differences on retranslation of net investment		-	-	-	-	224	-	224	16	240
Total comprehensive income for the year		-	-	-	-	224	(11,690)	(11,466)	(2,968)	(14,434)
Own shares sold in the year	28	-	-	719	-	-	(710)	9	-	9
Credit to equity for equity-settled share-based payments	9	-	-	-	246	-	-	246	-	246
Balance at 31 December 2020		7,833	29,328	(1,957)	21,167	818	(4,802)	52,387	3,771	56,158

The nature of retained earnings and other reserves in equity is described in note 30.

Consolidated cash flow statement for the year ended 31 December 2020

	Notes	2020 £'000	2019 £'000
Net cash used in operating activities	31	(2,807)	(9,828)
Investing activities			
Investment income	10	64	103
Treasury deposits withdrawn	21	361	2,755
Purchase of derivative financial instrument		(130)	-
Purchases of property, plant and equipment		(1,098)	(1,071)
Proceeds on disposal of property, plant and equipment		167	-
Expenditure on software		-	(90)
Expenditure on capitalised product development		-	(2,255)
Net cash used in investing activities		(636)	(558)
Financing activities			
Proceeds from non-controlling interest transactions		-	12,003
Payment of lease liabilities and related interest	18	(1,224)	(1,274)
Net cash provided by / (used in) financing activities		(1,224)	10,729
Net increase / (decrease) in cash and cash equivalents		(4,667)	343
Effect of foreign exchange rate changes on cash balances		(57)	(212)
Cash and cash equivalents at beginning of year		24,800	24,669
Cash and cash equivalents at end of year		20,076	24,800
Cash and cash equivalents attributable to assets held for sale	11	2,120	-
Cash and cash equivalents	21	17,956	24,800

Cash and cash equivalents (which are presented as a single class of asset on the face of the consolidated statement of financial position) comprise cash at bank and other short-term highly liquid investments with a maturity of three months or less. The carrying amount of these assets is approximately equal to their fair value.

Notes to the consolidated financial statements for the year ended 31 December 2020

1. General information

Xaar plc ('the Group') is incorporated in England and Wales under the Companies Act 2006. The address of the registered office is given on the inside back cover. The nature of the Group's operations and its principal activity is set out in the Strategic Report starting on pages 8 to 31.

 The Strategic Report can be found on pages 8 to 31.

2. Key sources of estimation uncertainty and critical accounting judgements

The key assumptions concerning the future and other sources of estimation uncertainty at the date of the statement of financial position that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are as follows:

Accounting judgements – The Group applies judgement in how it applies its accounting policies, which do not involve estimation, which could materially affect the numbers disclosed in these financial statements. The key judgements, without estimation, that could have the most significant effect on the amounts recognised in these financial statements are as follows:

Capitalisation of development costs (accounting judgement) – note 16

As described in note 3, the Group capitalises development expenditure as an intangible asset where the criteria under IAS 38 'Intangible Assets' is met. This requires management to make judgement on when all of the criteria for capitalisation are met and when to cease capitalisation and start amortising the asset. In 2020, total capitalised development additions amounted to £nil (2019: £2,255,000) given capitalisation ceased on Xaar 3D in the prior year and no projects have met the capitalisation criteria in the current year.

Consolidation of Xaar 3D (accounting judgement) – notes 22, 34 and 37

The Group considered the application of IFRS 10 Consolidated Financial Statements. Following this review the Group concluded that it has retained power over the investee, it is both exposed, and has the right, to variable returns, and it has the ability to use its power to affect these returns. This conclusion was drawn on the basis of the current share ownership (55% Xaar), the make-up of the Board (Xaar has a majority position), the terms of the call option that Stratasy's holds over the Xaar 3D shares, and the process used to make key strategic and operational decisions including who the key decision makers are.

Based on the option valuation, the Board has concluded that the currently exercisable call option that Stratasy's holds over the remaining 45% of Xaar 3D is not substantive as at the reporting date. While certain matters require the consent of Stratasy's, management have assessed that these only give protective rights over the relevant activities, which are judged at this time to be the development and commercialisation of the 3D product for it to be produced by a contract manufacturer, an area in which Xaar plc has the expertise.

The proposed amendment of the call option (see note 37 – Non-adjusting post balance sheet event) is subject to shareholder approval, and does not alter the contractual terms in place as at the year end, Xaar plc retains and is exposed to the rights and obligations associated with its shareholding as at that date. As such, the Group has concluded it continues to retain control and should therefore continue to consolidate Xaar 3D at the year end.

Discontinued operations (accounting judgement) – note 11

Following the Board decision in December 2020 to amend the terms of the call option in relation to Xaar 3D the Group considered the application of IFRS 5 'Non-current Assets Held for Sale and Discontinued Operations'.

The 3D business meets the criteria of a discontinued operation per IFRS 5 given it has been previously been reported as a major line of business and the disposal is highly probable in the next 12 months. The Group has a commitment to a plan to sell the asset with an active programme in place to complete the sale, which is expected to achieve a reasonable sale price in relation to its current fair value.

Significant estimates – The preparation of financial statements in conformity with adopted IFRSs requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting year. Although these estimates are based on management's best knowledge of the amount, events or actions, actual results ultimately may differ from those estimates. The estimates and underlying assumptions are reviewed on an ongoing basis. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances. 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.

The Directors consider the following to be the key estimates applicable to the financial statements, which have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year or in the longer term:

Xaar 3D option – (estimation uncertainty) – note 22

In December 2019 Xaar 3D Holdings granted Stratasy's Solutions Limited an option to acquire the remaining shares in Xaar 3D Limited. This financial liability is measured at fair value. In order to calculate the fair value the Group uses the Black Scholes model. The Black Scholes model uses a number of inputs that require estimation. Whilst the Group uses third party experts to provide these inputs the estimates remain uncertain.

Inventory provision (estimation uncertainty) – note 20

The Group's inventory provision at 31 December 2020 of £24,621,000 (2019: £20,935,000) includes £21,256,000 relating to discontinued operations (2019: £17,815,000) and £3,365,000 from continuing operations (2019: £3,120,000). All assets, including inventory, that relate to the discontinued operations have been valued at the lower of the carrying amount and fair value less cost to sell. Provisions in relation to continued operations have been made based on management's assessment of customer sell through, market conditions, current and potential competitors, and the ageing profile and quantity of the inventory on hand. Furthermore, management has assessed the likely

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

time period to sell the inventory and the ability to decrease prices to drive sales.

2. Key sources of estimation uncertainty and critical accounting judgements (cont.)

Credit provision for the allowance of doubtful debts (estimation uncertainty) – note 21

The Group's provision for doubtful debts of £622,000 (2019: £7,959,000) relates to management's assessment of the ageing profile of receivables and the risk of collecting unpaid overdue balances. In making the estimate, management has taken steps to assess the ongoing viability of the customers, the probability and timing of repayment, external factors which may affect the customers' ability to pay and historical data relating to settlement of aged debts.

Impairment of capitalised development costs (estimation uncertainty) – note 16

The Group determines whether capitalised development costs, and all other non-current assets, are impaired at least on an annual basis. This requires an estimation of the 'value-in-use' of the cash-generating units to which the capitalised development costs are allocated. Estimating a value-in-use amount requires management to make an estimate of the expected future cash flows from the cash-generating unit and also to choose a suitable discount rate in order to calculate the present value of those cash flows. The carrying amount of capitalised development costs at 31 December 2020 was £76,000 (2019: £5,166,000).

The value of capitalised development costs in relation to Xaar 3D has been transferred into Assets held for sale.

Impairment of goodwill – Engineered Print Solutions (EPS) (estimation uncertainty) – note 15

The Group tests goodwill annually for impairment or more frequently if there are indications that goodwill might be impaired. Having performed impairment testing, no impairment has been identified and therefore no impairment loss has been recognised in 2020 (2019: £nil). Management has performed sensitivity analysis on its reasonable worst case scenario for the EPS business and it been completed on each key assumption in isolation. This analysis indicates that reasonable changes in the key assumptions on which we have based our determination of the recoverable amount would not cause the carrying amount of goodwill to exceed its recoverable amount.

Revenue recognition – Engineered Print Solutions (EPS) (estimation uncertainty) – note 5

Engineered Print Solutions recognises revenue on the stage of completion of the customer contract and performance obligations in the manufacture of bespoke machinery and equipment for delivery to the customer.

Each month an assessment is undertaken of the work in progress and stage of completion in both supply of individual components and labour hours allocated to the project against the expected project manufacture costs. The revenue determined is recognised upon the proportion and stage of completion of the performance obligations.

This assessment enables an estimate to be undertaken for the expected profitability of the customer contract, costs incurred to date, and costs to complete, but are subject to a level of uncertainty until the work in progress is finalised and the completed machinery is available for final delivery and acceptance by the customer.

The transaction price allocated to partially satisfied and unsatisfied obligations at 31 December 2020 are set out in note 5.

3. Significant accounting policies

Basis of accounting

The Group financial statements have been prepared in accordance with International Accounting Standards (IAS) in conformity with the requirements of the Companies Act 2006 and in accordance with International Financial Reporting Standards (IFRS) adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the European Union. The financial information has been prepared on the basis of all applicable IFRS, including all International Accounting Standards (IAS), Standing Interpretations Committee (SIC) interpretations and International Financial Reporting Interpretations Committee (IFRIC) interpretations issued by the International Accounting Standards Board (IASB) that are applicable to the financial period.

The financial statements have been prepared on the historical cost basis, except for the revaluation of financial instruments. The Group financial statements are presented in Sterling and all values are rounded to the nearest thousand pounds (£'000) except when otherwise indicated. The principal accounting policies adopted are set out below.

Basis of consolidation

The consolidated financial statements incorporate the financial statements of the Company and entities controlled by the Company ('its subsidiaries') made up to 31 December each year. Control is achieved where the Company has the power to govern the financial and operating policies of an investee entity so as to obtain benefits from its activities. An investor controls another entity, an investee, if and only if the investor has all of the following: it has power over the investee, exposure or rights to variable returns from its involvement with the investee, and the ability to use its power over the investee to affect the amount of the investor's returns. To have power, an investor must have existing substantive rights that give it the current ability to direct the relevant activities. The investor reassesses whether it controls an entity if facts and circumstances indicate changes to one or more of the elements of control.

The results of subsidiaries acquired or disposed of during the year are included in the consolidated income statement from the date of acquisition or up to the date of disposal, as appropriate. Where necessary, adjustments are made to the financial statements of subsidiaries to bring the accounting policies used in line with those used by the Group.

All intra-group transactions, balances, income and expenses are eliminated on consolidation. Foreign exchange gains and losses arising on the retranslation of trading balances with subsidiaries with different functional currencies are reported in the income statement.

3. Significant accounting policies (cont.)

Basis of consolidation (cont.)

Non-controlling interests in subsidiaries are identified separately from the Group's equity therein. Those interests of non-controlling shareholders that are present ownership interests entitling their holders to a proportionate share of net assets upon liquidation may initially be measured at fair value or at the non-controlling interests' proportionate share of the fair value of the acquiree's identifiable net assets. The choice of measurement is made on an acquisition-by-acquisition basis.

Profit or loss and each component of other comprehensive income are attributed to the owners of the Company and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

Changes in the Group's interests in subsidiaries that do not result in a loss of control are accounted for as equity transactions. The carrying amount of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognised directly in equity and attributed to the owners of the Company.

Going concern

The Group's business activities, together with the factors likely to affect its future development, performance and position, are set out in the Strategic Report on pages 6 to 19. The Group reported a loss after tax for the year ended 31 December 2020 of £14.7 million, of which £10.3 million related to discontinued operations, being the final costs relating to Thin Film and the Xaar 3D business which is expected to be sold. Notes 21 and 22 include a description of the Group's objectives, policies and processes for managing its capital; its financial risk management objectives; details of its financial instruments and hedging activities; and its exposure to credit risk and liquidity risk. The Group's day to day working capital requirements are expected to be met through the current cash and cash equivalent resources (including Treasury deposits) at the balance sheet date of 31 December 2020 of £18.1 million. The Group was debt free as at 31 December 2020 and across each of the going concern scenarios described below.

Whilst the impact of COVID-19 on the performance of the business over the last year has been not been significant the long-term implications of the spread of the virus remain uncertain making it difficult to determine the impact on the 2021 financial performance. The Board has therefore considered the performance of the different businesses across the Group and each of their funding requirements before performing a number of stress tests. The base going concern case assumes that the disposal of Xaar 3D completes as described in note 37 and the Strategic update on page 11, however excludes the anticipated consideration. Conservatively, a second case which excludes the disposal of Xaar 3D has been applied. In both cases the downturn in revenue across the entire Group required to prevent the business continuing as a going concern would have to be severe and is not plausible given the nature and size of the order book and the trading experience of the Printhead and EPS segments during COVID-19 conditions to date. Notwithstanding this, the Group has further options to mitigate a cash shortfall which have not been factored into the above forecasts, such as staffing reductions, further delaying/stopping capital and research and development expenditure and aligning performance related pay to actual results.

The Group continues to enjoy a strong cash position and is well positioned to cope with the current situation. The Board remains confident in the long-term future prospects for the Group and its ability to continue as a going concern for the foreseeable future.

The Directors have a reasonable expectation that the Group has adequate resources to continue in operational existence for the foreseeable future, based on the Group's forecasts and projections for the period to 30 April 2022, taking account of reasonably possible changes in trading performance. For this reason, we continue to adopt the going concern basis in preparing the financial statements.

Adjusted financial measures

Adjusted financial measures relate to continuing operations and comprise adjusted profit / (loss) before tax, and adjusted diluted earnings per share. These measures are alternative performance measures ('APMs') which are not defined or specified under the requirements of IFRS. These APMs adjust for recurring and non-recurring items which management consider to have a distorting effect on the underlying results of the Group. These APMs are used in evaluating management's performance and in determining management and executive remuneration. Items adjusted for include share-based payment charges, exchange differences on intra-group transactions, gains and losses on derivative financial instruments, restructuring and investment expenses, other income and the research and development expenditure credit.

Recurring items are adjusted each year irrespective of materiality to ensure consistent treatment, and allow for variation that can occur e.g. due to volatility in share prices in respect of share-based payment charges, or the significant impact of restructuring costs. Net cash includes cash, cash equivalents and treasury deposits. Gross R&D investment represents the cost of research and development on continuing operations in the year. No amounts have been capitalised in the current year, as the criteria have not been achieved.

Business combinations

The acquisition of subsidiaries is accounted for using the acquisition method.

Goodwill arising on acquisition is recognised as an asset and initially measured at cost, being the excess of the sum of consideration transferred, the amount of any non-controlling interests in the acquiree over the net of the acquisition-date fair values of the identifiable assets, liabilities and contingent liabilities recognised. If after reassessment, the Group's interest in the net fair value of the acquiree's identifiable assets, liabilities and contingent liabilities exceeds the cost of the business combination, the excess is recognised immediately in the income statement.

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

3. Significant accounting policies (cont.)

Goodwill

Goodwill arising on consolidation is initially recognised as an asset at cost and is subsequently measured at cost less any accumulated impairment losses. Goodwill which is recognised as an asset is reviewed for impairment at least annually. Any impairment is recognised immediately in the income statement and is not subsequently reversed.

For the purposes of impairment testing, goodwill is allocated to each of the Group's cash-generating units expected to benefit from the synergies of the combination. Cash-generating units to which goodwill has been allocated are tested for impairment annually, or more frequently when there is an indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than the carrying amount of the unit, the impairment loss is allocated first 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.

On disposal of the cash-generating unit, the attributable amount of goodwill is included in the determination of the profit or loss on disposal.

Goodwill arising on acquisitions before the date of transition to IFRS has been retained at the previous UK GAAP amounts subject to being tested for impairment at that date. Goodwill written off to reserves under UK GAAP prior to 1998 has not been reinstated and is not included in determining any subsequent profit or loss on disposal.

Revenue recognition

Revenue is measured based on the consideration to which the Group expects to be entitled in a contract with a customer and excludes amounts collected on behalf of third parties. The Group determines whether to recognise revenue, following a five-step process:

1. Identifying the contract with a customer;
2. Identifying the performance obligations;
3. Determining the transaction price;
4. Allocating the transaction price to the performance obligations; and
5. Recognising revenue when/as performance obligation(s) are satisfied.

Revenue arises from a number of sources but mainly the manufacture and sale of printheads and engineered printing solutions. The Group also licenses intellectual property to third parties as part of royalty based revenue. Revenue is shown net of value-added tax, returns, rebates and discounts and after eliminating sales within the Group.

Revenue from goods and services is recognised in accordance with IFRS 15 when control has been transferred to the customer. For sale of goods and services revenue is recognised at a point in time, unless specific conditions have been satisfied allowing revenue to be recognised over a period of time as identified in the five-step process (above), e.g. where the asset produced doesn't have an alternative use and the Group has an enforceable right to payment for performance completed to date. An input methodology (based on estimated costs) is used when recognising revenue over time. Use has been made of the practical expedient not to recognise a significant financing component where the period between transfer of the good or service and payment is one year or less.

Royalties are recognised on an accruals basis, based on quarterly statements received from each licensee. The royalties arise from the licensee's use of their printheads and our related intellectual property installed in equipment developed by original equipment manufacturers ('OEMs').

A receivable is recognised when the performance obligations are satisfied (e.g. upon shipment, upon delivery as services are rendered or upon completion of service) as this is the point in time that the consideration is unconditional because only the passage of time is required before the payment is due, there will be a reservation of title until payment has been received, but control has been transferred.

Investment income

Investment income is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable, which is the rate that discounts estimated future cash receipts through the expected life of the financial asset to that asset's net carrying amount.

Interest expense

Interest expense on lease liabilities is a component of finance costs which requires to be presented separately in the income statement.

Foreign currencies


The individual financial statements of each Group company are presented in the currency of the primary economic environment in which it operates (its functional currency). For the purpose of the consolidated financial statements, the results and financial position of each Group company are expressed in Sterling, which is the functional currency of the Company and the presentation currency for the consolidated financial statements.

3. Significant accounting policies (cont.)

Foreign currencies (cont.)

Exchange differences arising on the settlement of monetary assets and liabilities, and on the retranslation of monetary assets and liabilities, are included in the income statement for the period.

In order to hedge its exposure to certain foreign exchange risks, the Group may enter into forward contracts (see page 143 for details of the Group's accounting policies in respect of such derivative financial instruments).

 Further information can be found **on page 143**.

For the purposes of presenting consolidated financial statements, the assets and liabilities of the Group's foreign operations are translated at the exchange rates prevailing on the date of the statement of financial position. Income and expense items are translated at the average exchange rates for the period.

Exchange differences arising are recognised in other comprehensive income and taken to the translation reserve. Exchange differences on the translation of net investments are taken to the translation reserve.

When the Group's foreign operations are liquidated or disposed, exchange differences previously recognised through other comprehensive income and the translation reserve will be recycled and recognised through the income statement.

Goodwill and fair value adjustments arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity and translated at the closing rate.

Government and EU grants

Government and EU grants are not recognised until there is reasonable assurance that the Group will comply with the conditions attached to them and that the grant will be received. Government and EU grants relating to research and development are treated as income over the periods necessary to match them with the related costs, or in the case of the Payment Protection Program (PPP) for COVID-19 support provided by the US Government, that it meets the criteria for the loan to be waived and recognised as grant income.

Operating profit/(loss)

Operating profit/(loss) is stated after charging restructuring costs but before investment income and finance costs.

Restructuring costs

Restructuring cost refers to the one-time expenses or infrequent expenses which are incurred by the Company in the process of reorganising its business operations with the motive of the overall improvement of the long-term profitability and working efficiency of the Company.

Retirement benefit costs

Payments to defined contribution retirement benefit schemes are charged as an expense as they fall due. Payments made to state managed retirement benefit schemes are dealt with as payments to defined contribution schemes where the Group's obligations under the schemes are equivalent to those arising in a defined contribution retirement benefit scheme.

Taxation

The tax expense represents the sum of the tax currently payable and deferred tax, including UK corporation tax and foreign tax.

The tax currently payable is based on taxable profit for the year. Taxable profit differs from net profit as reported in the income statement because it excludes items of income or expense that are taxable or deductible in other years and it further excludes items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the date of the statement of financial position.

Deferred tax is the tax expected to be payable or recoverable on differences between the carrying amounts 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 statement of financial position 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 (other than in a business combination) of other assets and liabilities in a transaction that affects neither the tax 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 carrying amount of deferred tax assets is reviewed at the date of each statement of financial position and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax is calculated at the enacted or substantively enacted tax rates 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 when it relates to items charged or credited directly to equity, in which case the deferred tax is also dealt with in equity.

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

3. Significant accounting policies (cont.)

Taxation (cont.)

To the extent that the Group receives a tax deduction relating to share-based payment transactions, a deferred tax asset is recognised at the appropriate tax rate on the difference in value between the market price of the underlying equity as at the date of the financial statements and the exercise price of the outstanding share options multiplied by the expired portion of the vesting period. As a result, the deferred tax impact of share options will not be derived directly from the expense reported in the consolidated income statement. Where the deductible difference exceeds the cumulative charge to the consolidated income statement the excess of the associated tax benefit is recorded directly to equity rather than in profit or loss.

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

Property, plant and equipment

All property, plant and equipment is shown at original historical cost less accumulated depreciation and any recognised impairment loss.

Assets in the course of construction for production or administrative purposes are carried at cost, less any recognised impairment loss. Depreciation of these assets, on the same basis as other assets in the same class, commences when the assets are ready for their intended use.

Freehold land is not depreciated.

Depreciation is charged so as to write off the cost or valuation of assets, less their residual values, other than assets in the course of construction, over their estimated useful lives, using the straight-line method, on the following bases:

Leasehold property improvements	Shorter of the lease term and 20 years
Plant and machinery	Three to 20 years
Furniture, fittings and equipment	Three to 20 years
Buildings	Up to 40 years

Assets held under finance leases are depreciated over their expected useful lives on the same basis as owned assets or, where shorter, over the term of the relevant lease.

The gain or loss arising on the disposal of an asset is determined as the difference between the sales proceeds and the carrying amount of the asset and is recognised in income.

Internally generated intangible assets – research and development expenditure

Expenditure on research activities is recognised as an expense in the period in which it is incurred.

In accordance with IAS 38, an internally generated intangible asset arising from the Group's development is recognised only if all of the following conditions are met:

- an asset is created that can be identified (such as software and new processes);
- it is probable that the asset created will generate future economic benefits;
- the development cost of the asset can be measured reliably;
- the project is technically and commercially feasible;
- the Group intends to and has sufficient resources to complete the project; and
- the Group has the ability to use or sell the services and product developed.

Internally generated intangible assets are amortised on a straight-line basis over three to 20 years. Where no internally generated intangible asset can be recognised, development expenditure is recognised as an expense in the period in which it is incurred.

Other intangible assets

Costs incurred in maintaining the patent and trademark portfolio are written off to the income statement as incurred.

Payments in respect of software, and licence rights acquired are capitalised at cost and amortised on a straight-line basis over their estimated useful lives.

Licence	Shorter of the licence term and 20 years
Software	Three to 15 years

3. Significant accounting policies (cont.)

Impairment of tangible and intangible assets excluding goodwill

At the date of each statement of financial position, 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 in order 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. In assessing value-in-use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset (or cash-generating unit) is estimated to be less than its carrying amount, the carrying amount of the asset (cash-generating unit) is reduced to its recoverable amount. An impairment loss is recognised as an expense immediately.

Where an impairment loss is subsequently reversed, the carrying amount of the asset (or cash-generating unit) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset (or cash-generating unit) in prior years. A reversal of an impairment loss is recognised as income immediately.

Leases

The Group assesses whether a contract is or contains a lease, at inception of the contract. The Group recognises a right-of-use asset and a corresponding lease liability with respect to all lease arrangements in which it is the lessee, except for short-term leases (defined as leases with a lease term of 12 months or less) and leases of low-value assets. For these leases, the Group recognises the lease payments as an operating expense on a straight-line basis over the term of the lease unless another systematic basis is more representative of the time pattern in which economic benefits from the leased assets are consumed.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate. Generally an incremental borrowing rate approach is applied.

Lease payments included in the measurement of the lease liability comprise:

- fixed lease payments (including in substance fixed payments), less any lease incentives;
- variable lease payments that depend on an index or rate, initially measured using the index or rate at the commencement date;
- the amount expected to be payable by the lessee under residual value guarantees;
- the exercise price of purchase options, if the lessee is reasonably certain to exercise the options;
- payments of penalties for terminating the lease, if the lease term reflects the exercise of an option to terminate the lease.

The lease liability is presented as a separate line in the consolidated statement of financial position.

The lease liability is subsequently measured by increasing the carrying amount to reflect interest on the lease liability (using the effective interest method) and by reducing the carrying amount to reflect the lease payments made.

The Group re-measures the lease liability (and makes a corresponding adjustment to the related right-of-use asset) whenever:

- the lease term has changed or there is a change in the assessment of exercise of a purchase option, in which case the lease liability is re-measured by discounting the revised lease payments using a revised discount rate;
- the lease payments change due to changes in an index or rate or a change in expected payment under a guaranteed residual value, in which cases the lease liability is re-measured by discounting the revised lease payments using the initial discount rate (unless the lease payments change is due to a change in a floating interest rate, in which case a revised discount rate is used);
- a lease contract is modified and the lease modification is not accounted for as a separate lease, in which case the lease liability is re-measured by discounting the revised lease payments using an incremental borrowing rate at the effective date of the modification.

The Group did not make any such adjustments during the periods presented.

The right-of-use assets comprise the initial measurement of the corresponding lease liability, lease payments made at or before the commencement day and any initial direct costs. They are subsequently measured at cost less accumulated depreciation and impairment losses.

Whenever the Group incurs an obligation for costs to dismantle and remove a leased asset, restore the site on which it is located or restore the underlying asset to the condition required by the terms and conditions of the lease, a provision is recognised and measured under IAS 37.

The costs are included in the related right-of-use asset, unless those costs are incurred to produce inventories.

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

3. Significant accounting policies (cont.)

Leases (cont.)

Right-of-use assets are depreciated over the shorter period of lease term and useful life of the underlying asset. If a lease transfers ownership of the underlying asset or the cost of the right-of-use asset reflects that the Group expects to exercise a purchase option, the related right-of-use asset is depreciated over the useful life of the underlying asset. The depreciation starts at the commencement date of the lease. The Group does not have any leases that transfer ownership of the underlying asset. The Group does not have any leases with a purchase option where there is a reasonable expectation that the option will be exercised.

For short-term leases (lease term of 12 months or less) and leases of low-value assets (such as personal computers and office furniture), the Group has opted to recognise a lease expense on a straight-line basis as permitted by IFRS 16. This expense is presented within the consolidated income statement.

Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is calculated using the first in, first out ('FIFO') cost formula, by applying the standard cost methodology, with costs including direct materials, direct labour costs and an attributable proportion of manufacturing overheads based on normal levels of activity that have been incurred in bringing the inventories to their present location and condition. Net realisable value represents the estimated selling price less all estimated costs of completion and costs to be incurred in marketing, selling and distribution. Provision is made for obsolete, slow-moving or defective items where applicable.

Financial instruments

Financial assets and financial liabilities are recognised in the Group's statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

Financial assets and financial liabilities are initially measured at fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognised immediately in profit or loss.

Financial assets

All regular way purchases or sales of financial assets are recognised and derecognised on a trade date basis. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the time frame established by regulation or convention in the marketplace.

All recognised financial assets are measured subsequently in their entirety at either amortised cost or fair value, depending on the classification of the financial assets.

In order for a financial asset to be classified and measured at amortised cost or fair value through OCI, it needs to give rise to cash flows that are 'solely payments of principal and interest ('SPPI')' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level. Financial assets with cash flows that are not SPPI are classified and measured at fair value through profit or loss, irrespective of the business model.

Effective interest method

The effective interest method is a method of calculating the amortised cost of a debt instrument and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts through the life of the debt instrument, or, where appropriate, a shorter period, to the net carrying amount on initial recognition.

Impairment of financial assets

The Group recognises an allowance for expected credit losses ('ECLs') for all debt instruments not held at fair value through profit or loss. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

ECLs are recognised in two stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12 months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL). Trade receivables are recognised using a lifetime ECL approach.

For financial assets carried at amortised cost, the amount of the impairment is the differences between the asset's carrying amount and the present value of the estimated future cash flows, discounted at the financial asset's original effective interest rate.

Derecognition of financial assets

The Group derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognises its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognise the financial asset and also recognises a collateralised borrowing for the proceeds received.

3. Significant accounting policies (cont.)

Derecognition of financial assets (cont.)

On derecognition of a financial asset, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss that had been recognised in other comprehensive income and accumulated in equity is recognised in profit or loss.

Financial liabilities and equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangement.

Financial liabilities

All financial liabilities are measured subsequently at amortised cost using the effective interest method or at fair value through profit or loss (FVTPL).

However, financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies, and financial guarantee contracts issued by the Group, are measured in accordance with the specific accounting policies set out below:

Financial liabilities are classified at FVTPL when the financial liability is (i) contingent consideration of an acquirer in a business combination, (ii) held for trading or (iii) it is designated as at FVTPL.

Financial liabilities at FVTPL are measured at fair value, with any gains or losses arising on changes in fair value recognised in profit or loss to the extent that they are not part of a designated hedging relationship. The net gain or loss recognised in profit or loss incorporates any interest paid on the financial liability and is included within 'other gains and losses' in profit or loss.

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) through the expected life of the financial liability, or (where appropriate) a shorter period, to the amortised cost of a financial liability.

Derecognition of financial liabilities

The Group derecognises financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognised and the consideration paid and payable is recognised in profit and loss.

Derivative financial instruments

The Group's activities expose it primarily to the financial risks of changes in foreign currency exchange rates and interest rates and liquidity risk.

The Group uses derivative financial instruments (primarily foreign currency forward contracts) to hedge its risks associated with foreign currency fluctuations relating to certain firm commitments and forecast transactions.

Derivatives are recognised initially at fair value at the date a derivative contract is entered into and are subsequently remeasured to their fair value at each reporting date. The resulting gain or loss is recognised in profit or loss immediately unless the derivative is designated and effective as a hedging instrument, in which event the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

The written call option that Xaar 3D Holdings granted Stratasys to acquire its remaining 55% shareholding in Xaar 3D in 2019 is a financial liability measured subsequently at fair value at Level 3 fair value measurement. The valuation technique used is the Black-Scholes model. Further detail is included in note 22 - Financial instruments.

A derivative with a positive fair value is recognised as a financial asset whereas a derivative with a negative fair value is recognised as a financial liability. Derivatives are not offset in the financial statements unless the Group has both legal right and intention to offset.

A derivative is presented as a non-current asset or a non-current liability if the remaining maturity of the instrument is more than 12 months and it is not expected to be realised or settled within 12 months. Other derivatives are presented as current assets or current liabilities.

Embedded derivatives

An embedded derivative is a component of a hybrid contract that also includes a non-derivative host with the effect that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative.

Derivatives embedded in hybrid contracts with a financial asset host within the scope of IFRS 9 are not separated. The entire hybrid contract is classified and subsequently measured as either amortised cost or fair value as appropriate.

Derivatives embedded in hybrid contracts with hosts that are not financial assets within the scope of IFRS 9 (e.g. financial liabilities) are treated as separate derivatives when they meet the definition of a derivative, their risks and characteristics are not closely related to those of the host contracts and the host contracts are not measured at FVTPL.

If the hybrid contract is a quoted financial liability, instead of separating the embedded derivative, the Group generally designates the whole hybrid contract at FVTPL.

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

3. Significant accounting policies (cont.)

Embedded derivatives (cont.)

An embedded derivative is presented as a non-current asset or non-current liability if the remaining maturity of the hybrid instrument to which the embedded derivative relates is more than 12 months and is not expected to be realised or settled within 12 months.

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 with a maturity of three months or less and are subject to an insignificant risk of changes in value.

Treasury deposits

Treasury deposits comprise demand deposits that are convertible to a known amount of cash with an original maturity of between three months and 12 months and are subject to an insignificant risk of changes in value.

Interest-bearing loans and borrowings

Interest-bearing loans and bank overdrafts are measured initially at fair value, net of direct issue costs. Finance charges, including premiums payable on settlement or redemption and direct issue costs, are accounted for on an accrual basis in the income statement using the effective interest rate method and are added to the carrying amount of the instrument to the extent that they are not settled in the period in which they arise.

Equity instruments

Equity instruments issued by the Company are recorded as the proceeds received, net of direct issue costs.

Provisions

Provisions are recognised when the Group has a present obligation as a result of a past event and it is probable that the Group will be required to settle that obligation. Provisions are measured at the Directors' best estimate of the expenditure required to settle the obligation at the date of the statement of financial position and are discounted where the effect of the time value of money is material.

A restructuring provision is recognised when the Group has developed a detailed formal plan for the restructuring and has raised a valid expectation in those affected that it will carry out the restructuring by starting to implement the plan or announcing its main features to those affected by it, and the plan has reached a stage where the decision is unlikely to be reversed. The measurement of a restructuring provision includes only the direct expenditures arising from the restructuring, which are those amounts that are both necessarily entailed by the restructuring and not associated with the ongoing activities of the entity.

Provisions for the expected cost of warranty obligations under contracts with customers and local sale of goods legislation are recognised in the month of sale of the relevant products, at the Directors' best estimate of the expenditure required to settle the Group's obligation.

Share-based payments

The Group has applied the requirements of IFRS 2 'Share-based Payment'. The Group issues equity-settled share-based payments to certain employees. These payments are measured at fair value (excluding the effect of non-market based vesting conditions) at the date of grant. The fair value determined at the grant date of the equity-settled share-based payments is expensed on a straight-line basis over the vesting period, based on the Group's estimate of the shares that will eventually vest based on the satisfaction of non-market based vesting and service conditions.

The fair value of options issued under the Group's Long-Term Incentive Plan is measured using a stochastic (Monte Carlo binomial) model for grants made with market based vesting conditions since 2007. The fair value of all other equity-settled share-based payments is measured using the Black-Scholes pricing model. The expected life used in these models has been adjusted, based on management's best estimate, for the effects of non-transferability, exercise restrictions and behavioural considerations.

SAYE share options granted to employees are treated as cancelled when employees cease to contribute to the scheme. This results in accelerated recognition of the expenses that would have arisen over the remainder of the original vesting period.

3. Significant accounting policies (cont.)

Own shares

Own shares are deducted from equity. No gain or loss is recognised in the income statement on the purchase, sale, issue or cancellation of the Group's own shares.

Non-controlling interests

The transactions with non-controlling interests are accounted for as equity transactions. For purchases of non-controlling interests, the difference between any consideration paid and the relevant share acquired of the carrying value of the net assets of the subsidiary is deducted from equity. Gains or losses on disposals to non-controlling interests are also recorded in equity.

Non-current assets (or disposal groups) held for sale

Non-current assets (or disposal groups) are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. They are measured at the lower of their carrying amount and fair value less costs to sell, except for assets such as deferred tax assets, assets arising from employee benefits, financial assets and investment property that are carried at fair value and contractual rights under insurance contracts, which are specifically exempt from this requirement.

An impairment loss is recognised for any initial or subsequent write-down of the asset (or disposal group) to fair value less costs to sell. A gain is recognised for any subsequent increases in fair value less costs to sell of an asset (or disposal group), but not in excess of any cumulative impairment loss previously recognised. A gain or loss not previously recognised by the date of the sale of the non-current asset (or disposal group) is recognised at the date of derecognition.

Non-current assets (including those that are part of a disposal group) are not depreciated or amortised while they are classified as held for sale. Interest and other expenses attributable to the liabilities of a disposal group classified as held for sale continue to be recognised.

Non-current assets classified as held for sale and the assets of a disposal group classified as held for sale are presented separately from the other assets in the balance sheet. The liabilities of a disposal group classified as held for sale are presented separately from other liabilities in the balance sheet.

Discontinued operations

A discontinued operation is a component of the Group that has been disposed of and that represents a separate major line of business and is part of a single co-ordinated plan to dispose of such a line of business. The results of discontinued operations are presented separately in the income statement and are shown net of tax.

Where an operation is classified as discontinued, the post-tax results of that operation will be presented as a single line item on the face of the income statement and the cash flows from the discontinued operations will be split between continuing and discontinued operations on the face of the cash flow statement. Comparatives are restated to distinguish between continuing and discontinued operations.

New standards and interpretations not yet adopted

Certain new accounting standards and interpretations have been published that are not mandatory for 31 December 2020 reporting periods and have not been early adopted by the Group. These standards do not have a material impact on the entity in the current or future reporting periods and on foreseeable future transactions.

Other standards

The following new standards, amended standards and interpretations became effective as at 1 January 2020 but did not have a significant impact on the Group's financial statements.

Amendments to IAS 1 and IAS 8 – Definition of material

Amendments to IFRS 3 – Definition of a Business

Amendments to IFRS 7, IFRS 9 and IAS 39 – Interest Rate Benchmark Reform

Revised Conceptual Framework for Financial Reporting

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

4. Reconciliation of adjusted financial measures

	Note	2020 £'000	Restated 2019 £'000
Loss before tax from continuing operations		(4,322)	(10,937)
Share-based payment charges	9	348	910
Exchange differences on intra-group transactions		347	499
(Gain) / Loss on derivative financial liabilities	22, 36	(77)	87
Restructuring costs		754	1,519
Other operating income	7	(819)	–
Research and development expenditure credit		(142)	(29)
Adjusted loss before tax from continuing operations		(3,911)	(7,952)
Interest income	10	(47)	(65)
Interest charge arising from IFRS 16	18	82	97
Depreciation of property, plant and equipment	17, 18	3,856	2,970
Amortisation of intangible assets	16	82	93
Adjusted EBITDA from continuing operations		62	(4,857)

EBITDA is calculated as statutory operating profit before depreciation, amortisation and impairment of property, plant and equipment, intangible assets and goodwill. Adjusted EBITDA is calculated as EBITDA excluding other adjusting items as defined.

Adjusted financial measures are alternative performance measures, which adjust for recurring and non-recurring items that management consider to have a distorting effect on the underlying results of the Group.

Share-based payment charges include the IFRS 2 charge for the period of £242,000 (2019: £1,109,000) and the debit relating to National Insurance on the outstanding potential share option gains of £106,000 (2019: credit £199,000). These costs were included in the general and administrative expenses in the consolidated income statement and exclude the Xaar 3D charge of £5,000 (2019: 2,000).

Exchange differences relating to the United States, Danish and Swedish operations represent exchange gains or losses recorded in the consolidated income statement as a result of intragroup transactions in the United States, Denmark and Sweden. These costs were included in general and administrative expenses in the Consolidated income statement.

Gain/loss on derivative financial instruments relate to gains and losses made on call option contracts. These amounts are included on the consolidated income statement under (Gain)/loss on derivative financial liabilities.

Restructuring costs of £754,000 (2019: £1,519,000) relate to costs incurred and provisions made in relation to reorganisation. In the prior year, it relates mainly to the 2019 redundancy programme. The calculated impact of the restructuring at corporation tax rate of 19% would be £143,000 (2019: £289,000). The cash related to restructuring is £518,000 (2019: £896,000).

Other operating income of £819,000 (2019: £nil) relates to a forgivable \$1 million loan between Engineered Print Solutions (EPS) and TD bank and is backed by the US Federal Government (Small Business Administration); further details are provided under note 7. The loan was taken out as part of the government backed scheme. The Company considers that it has met the requirements of the waiver, and therefore expects it to be waived the loan has therefore been treated as a government grant under IAS 20. A cash receipt of the same amount was received.

The research and development expenditure credit relates to the corporation tax relief receivable relating to qualifying research and development expenditure.

This item is shown on the face of the consolidated income statement. Cash receipts of £1,460,000 (2019: £1,587,334) were received in relation to 2018 and 2019 RDEC claims submitted.

	Note	2020 Pence per share	2019 Restated Pence per share
Basis and Diluted earnings (loss) per share from continuing operations	14	(5.7p)	(18.7p)
Share-based payment charges		0.5p	1.2p
Exchange differences on intra-group transactions		0.5p	0.6p
(Gain) / Loss on derivative financial asset		(0.1p)	0.1p
Restructuring costs		1.0p	2.0p
Other operating income		(1.1p)	–
Tax effect of adjusting items		(0.3p)	(0.3p)
Basic and Adjusted diluted earnings (loss) per share from continuing operations	14	(5.2p)	(15.1p)

This reconciliation is provided to enable a better understanding of the Group's results.

5. Revenue

The Group derives its revenue from contracts with customers for the transfer of goods and services over time and at a point in time in the following major segments. This is consistent with the revenue information that is disclosed for each reportable segment under IFRS 8 Operating Segments in note 6.

Continuing operations	2020 £'000	2019 £'000
Printhead	35,283	33,681
Product Print Systems	12,701	15,698
	47,984	49,379

Product Print Systems has contracts with customers where the performance obligations are partially unsatisfied at 31 December 2020. The transaction price allocated to partially satisfied and unsatisfied performance obligations at 31 December 2020 are as set out below. The transaction price allocated to partially satisfied performance obligations have been recognised in the year while the transaction price allocated to partially unsatisfied performance obligations has not been recognised.

Continuing operations	2020 £'000	2019 £'000
Transaction price allocated to partially satisfied performance obligations	950	647
Transaction price allocated to partially unsatisfied performance obligations	956	754
Total transaction price for partially completed contracts	1,906	1,401

Management expects that 100% of the transaction price allocated to the unsatisfied contracts as at 31 December 2020 totalling £956,000 will be recognised during the 2021 financial year (2019: £754,000 recognised in 2020).

6. Business and geographical segments

For management reporting purposes, the Group's operations are analysed according to the three operating segments of 'Printhead', 'Product Print Systems', and '3D Printing'. These three operating segments are the basis on which the Group reports its primary segment information and on which decisions are made by the Group's Chief Executive Officer and Board of Directors, and resources allocated. Each business unit is run independently of the others and headed by a general manager. The Group's chief operating decision maker is the Chief Executive Officer. There is no aggregation of segments for disclosure purposes.

The Xaar 3D business which we expect to divest in the first half of 2021 has been reclassified as held for sale and discontinued operations, hence the 3D Printing is presented separately in note 11 and the 2019 comparatives has been restated accordingly.

Segment information for continuing operations is presented below:

Year ended 31 December 2020	Printhead £'000	Product Print Systems £'000	Unallocated £'000	Consolidated £'000
Revenue				
Total segment revenue	35,283	12,701	-	47,984
Result				
Adjusted loss from continuing operations before tax	(3,431)	(480)	-	(3,911)
Share-based payment charges	-	-	(348)	(348)
Exchange differences relating to intra-group transactions	(347)	-	-	(347)
Restructuring	(754)	-	-	(754)
Gain on financial instrument	77	-	-	77
Research and development expenditure credit	142	-	-	142
Other operating income	-	819	-	819
Profit / (loss) before tax from continuing operations	(4,313)	339	(348)	(4,322)

Share-based payment charges include the IFRS 2 charge for the period and the charge or credit relating to National Insurance on the outstanding potential share options, excluding the charge attributable to Xaar 3D as discontinued operations £5,000 (2019: £2,000).

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

6. Business and geographical segments (cont.)

Year ended 31 December 2019	Printhead £'000	Product Print Systems £'000	Unallocated £'000	Restated Consolidated £'000
Revenue				
Total segment revenue	33,681	15,698	–	49,379
Result				
Adjusted loss from continuing operations before tax	(8,019)	67	–	(7,952)
Share-based payment charges	–	–	(910)	(910)
Exchange differences relating to intra-group transactions	(499)	–	–	(499)
Restructuring	(1,574)	55	–	(1,519)
Loss on financial instrument	(87)	–	–	(87)
Research and development expenditure credit	29	–	–	29
Profit / (Loss) before tax from continuing operations	(10,150)	122	(910)	(10,938)

Segment assets – Continuing operations

	2020 £'000	2019 £'000
Printhead	48,816	58,118
Product Print Systems	14,487	14,776
Total assets	63,303	72,894

Assets are allocated to the segment which has responsibility for their control.

No information is provided for segment liabilities as this measure is not provided to the chief operating decision maker.

Other segment information – Continuing operations

Year ended 31 December 2020	Notes	Printhead £'000	Product Print Systems £'000	Unallocated £'000	Consolidated £'000
Depreciation and amortisation	16, 17, 18	4,302	367	–	4,669
Impairment of PPE		158	115	–	273
Share-based payment charges	9	–	–	348	348
Capital expenditure	16, 17, 18	957	574	–	1,531

Year ended 31 December 2019	Notes	Printhead £'000	Product Print Systems £'000	Unallocated £'000	Consolidated £'000
Depreciation and amortisation	16, 17, 18	3,701	386	–	4,087
Impairment of PPE		–	–	–	–
Share-based payment charges	9	–	–	910	910
Capital expenditure	16, 17, 18	2,091	198	–	2,289

6. Business and geographical segments (cont.)

Revenues from major products and services – Continuing operations

	2020 £'000	Restated 2019 £'000
Printhead	35,283	33,681
Product Print Systems	12,701	15,698
Consolidated revenue (excluding investment income)	47,984	49,379

Geographical information

The Group operates in three principal geographical areas: EMEA, the Americas and Asia. The Group's revenue from external customers and information about its segments (non-current assets excluding deferred tax assets and other financial assets) by geographical location is detailed below:

	Revenue from external customers Continuing operations	
	2020 £'000	2019 £'000
EMEA	18,113	18,473
Asia		
– China	7,936	5,101
– Japan	1,235	1,338
– Other	420	530
The Americas (including USA)	20,280	23,937
	47,984	49,379

Revenues are attributed to geographical areas on the basis of the customer's operating location.

	Non-current assets	
	2020 £'000	2019 £'000
EMEA	16,755	27,266
Asia	38	6
The Americas (including USA)	7,791	8,073
	24,584	35,345

Non-current assets, being Goodwill, Other intangible assets, Property, plant and equipment and Right of use assets are attributed to the location where they are situated.

Information about major customers

There are no customers whose revenue exceeds 10% of total revenues from continuing operations during the current and preceding year. No other single customer contributed 10% or more to the Group's revenue in either 2020 or 2019.

Revenue from the top five customers represents 26% of revenues (2019: 23%).

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

7. Government grants

The accounting policy in relation to the adopted and applicable treatment of government grants is disclosed in note 3, in accordance with IAS 20 Accounting for Government Grants and Disclosure of Government Assistance.

Xaar plc and its UK based subsidiaries have decided not to take part in any of the Government support schemes arising from the COVID-19 crisis.

- No employees have been placed on furlough and no claims made via the Coronavirus Job Retention Scheme (CJRS)
- No submissions have been made for financial support via either the Coronavirus Business Interruption Loan Scheme (CBILS) or Bounce Back Loan Scheme (BBLs)
- The UK entities operate primarily under a VAT repayment position due to the significant level of export sales, so do not utilise the government scheme in deferring VAT payments
- Xaar 3D Aps based in Denmark has also not taken part in any government support measures in response to COVID-19
- No submission has been made for salary compensation, which could arise due to employees that could otherwise have been fired. No employees have left the business
- Xaar 3D Aps operates in a repayment position for Danish VAT, and like the UK has not utilised the extension available for repayments.

A Xaar group company based in the USA, Engineered Print Solutions (EPS), has taken part in the US Government Loan scheme which has provided a \$1 million Loan (£819k), which under certain provisions linked to maintaining employment and avoiding redundancy can be waived. The company considers that it has met the requirements of the waiver, and therefore expects it to be waived, the Loan has therefore been treated as a government grant. The Group has presented this amount as exceptional income in the consolidated income statement. Government support grants are recognised in the consolidated income statement on a systematic basis over the periods in which the related revenue or expense for which the grants are intended to compensate. Further details are provided under note 4.

8. Loss for the year

Loss for continuing operations in the year has been arrived at after charging/(crediting):

	2020 £'000	Restated 2019 £'000
Research and development expenses (net of capitalised development costs)*	4,535	3,081
Grants towards research and development including the research and development expenditure credit	(142)	(29)
Depreciation of property, plant and equipment	3,400	2,946
Depreciation of right of use asset	1,107	962
Amortisation of capitalised development costs (included in research and development expenses)	82	94
Amortisation of software (included in general and administrative expenses)	81	85
Amortisation of licence (included in general and administrative expenses)	-	-
Loss/(profit) on disposal of property, plant and equipment	99	(18)
Cost of inventories recognised as expense	31,467	34,392
Impairment of other financial assets	946	2,715
Total fees payable to the Company's auditor and its associates	402	213

* Total spend on research and development in 2020, before capitalised and amortised development costs included in note 16, was £4,535,000 (2019: £3,081,000).

Grant income includes £142,000 (2019: £29,000) in respect of the research and development expenditure credit.

Auditor's remuneration

	2020 £'000	2019 £'000
Fees payable to the Company's auditor for the audit of the Company's annual accounts	20	20
Fees payable to the Company's auditor and its associates for other services to the Group		
– The audit of the Company's subsidiaries	272	163
– Prior year overrun	70	-
Total audit fees	362	183
– Interim review	40	30
Total non-audit fees	40	30
Total fees payable for the continuing operations	402	213
Total fees payable for the discontinued operations	38	12
Total fees payable to the Company's auditors and its associates	440	225

8. Loss for the year (cont.)

The Audit Committee has considered the independence of the auditor in relation to non-audit services throughout the year. A description of the work of the Audit Committee is set out in the Corporate Governance statement on pages 72 to 75 and includes an explanation of how auditor's objectivity and independence is safeguarded when non-audit services are provided by the auditor.

9. Staff costs

The average monthly number of persons employed by the Group including Executive Directors was as follows:

	2020 Number	2019 Number
Research and development	78	77
Sales and marketing	47	53
Manufacturing and engineering	193	247
Administration	47	60
	365	437

Their aggregate remuneration comprised:

	Notes	2020 £'000	2019 £'000
Wages and salaries		18,784	21,518
Social security costs		1,752	2,035
Pension costs	33	740	951
Share-based payments		353	912
		21,629	25,416

Share-based payment charges comprise the IFRS 2 charge for the period £246,000 (2019: £1,111,000) and a charge relating to National Insurance on the outstanding potential share option gains £107,000 (2019: £199,000 credit), of which a charge of £5,000 (2019: £2,000) relates to discontinued operations in Xaar 3D.

10. Investment income

	Group £'000	3D £'000	2020 Total £'000	Group £'000	3D £'000	Restated 2019 Total £'000
Interest receivable on cash and bank balances, and treasury deposits	47	24	72	65	38	103

Group interest accrued receivable of £8,000 at year end (2019: Nil), Cash interest received at year end was £64,000 (2019: £103,000).

11. Discontinued operations

On 26 September 2019, Xaar announced the cessation of all Thin Film activities. This resulted in an impairment charge of £39,000,000 in the interim 2019 financial statements which is made up of £28,500,000 of intangible assets, £5,400,000 of property, plant and equipment and £5,100,000 of working capital.

The Thin Film business which was discontinued in 2019 incurred costs in 2020 which mainly related to supplier liabilities and inventory for last time buy sales. All liabilities have now been settled and we maintain a small level of inventory which we expect to sell in the first half of 2021. Of the total Group net assets, £271,000 is related to Thin Film which is not included in net assets held for sale.

As detailed in the strategic and financial update the Xaar 3D business which we plan to divest in the first half of 2021 has been reclassified as held for sale and a discontinued operation given the disposal has been assessed as highly probable.

The results of Thin Film and 3D related activities for the year are shown below:

	Thin Film 2020 £'000	3D 2020 £'000	Total 2020 £'000	Thin Film 2019 £'000	3D 2019 £'000	Restated Total 2019 £'000
Revenue	258	734	992	1,586	18	1,604
Expenses	(3,922)	(7,175)	(11,097)	(61,587)	(1,228)	(62,815)
Loss before income tax	(3,664)	(6,441)	(10,105)	(60,001)	(1,210)	(61,211)
Income tax credit	-	(190)	(190)	3,918	(4)	3,914
Loss after income tax from discontinued operation	(3,664)	(6,631)	(10,295)	(56,083)	(1,214)	(57,297)

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

11. Discontinued operations (cont.)

	Thin Film 2020 £'000	3D 2020 £'000	Total 2020 £'000	Thin Film 2019 £'000	3D 2019 £'000	Restated Total 2019 £'000
Attributable to:						
Owners of the Company	(3,664)	(3,647)	(7,311)	(56,083)	(791)	(56,874)
Non-controlling interest	-	(2,984)	(2,984)	-	(423)	(423)
	(3,664)	(6,631)	(10,295)	(56,083)	(1,214)	(57,297)

The major classes of assets and liabilities of 3D classified as held for sale as at 31 December 2020 are as follows:

	2020 £'000
Assets	
Property, plant and equipment	1,041
Intangible assets	4,649
Deferred tax asset	68
Right of use asset	440
Inventory	919
Debtors	737
Cash and cash equivalents	2,120
Assets held for sale	9,974
Liabilities	
Creditors	(1,115)
Corporate income tax	(6)
Provisions (Warranty & Restructuring)	(11)
IFRS 16 lease liability	(463)
Liabilities associated with the assets held for sale	(1,595)
Net assets associated with disposal group	8,379

The net cash flows incurred by Thin Film and 3D are as follows.

	Thin Film 2020 £'000	3D 2020 £'000	Total 2020 £'000	Thin Film 2019 £'000	3D 2019 £'000	Restated Total 2019 £'000
Net cash outflow from operating activities	(5,058)	(6,213)	(11,271)	(17,647)	(2,434)	(20,081)
Net cash outflow from investing activities	(25)	(645)	(670)	(321)	(2,299)	(2,620)
Net cash inflow/(outflow) from financing activities	-	(160)	(160)	-	5,511	5,511
Net decrease in cash generated from discontinued operations	(5,083)	(7,018)	(12,101)	(17,968)	778	(17,190)

	2020 Pence per share	2019 Restated Pence per share
Earnings (loss) per share		
Basic, loss for the year from discontinued operations	(9.5p)	(73.8p)
Diluted, loss for the year from discontinued operations	(9.5p)	(73.8p)

12. Tax

Total tax calculation:

	Notes	2020 £'000	2019 Restated £'000
Current tax – UK		159	153
Current tax – overseas		125	113
		284	266
Amounts under provided in previous years		41	281
Total current income tax charge		325	547
Deferred tax – origination and reversal		(18)	(1,054)
Adjustment in respect of prior years		(64)	90
Total deferred tax credit	23	(82)	(964)
Total tax expense / (credit) for the year		242	(417)

The rate of tax for the year, based on the UK standard rate of corporation tax, is 19% (2019: 19%). Taxation for other jurisdictions is calculated at the rates prevailing in the respective jurisdictions.

The Finance Act 2020, which was substantively enacted on 22 July 2020, did not amend the main rate of UK corporation tax, and this remains at 19%. 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 2020 have been calculated at the rate at which the relevant balance is expected to be recovered or settled.

Following the UK Budget on 2 March 2021, the government has announced that the main rate of corporation tax will remain unchanged until 2023. The impacts of this budget have not been reflected in these financial statements, as they were not substantively enacted at the year end.

The note to the cash flow statement (note 31) shows repayments of tax for £1,466,000 during the year (2019: £3,392,000).

The closing deferred tax liability at 31 December 2019 has been calculated at 19% reflecting the tax rate at which the deferred tax liability is expected to be reversed in future periods. Details on deferred tax assets are disclosed in note 23.

In addition to the amount charged to the income statement and other comprehensive income, the following amounts relating to tax have been recognised directly in equity:

	Notes	2020 £'000	2019 £'000
Current tax			
Foreign exchange movement		–	13
		–	13
Deferred tax			
Arising on transactions with equity participants:			
Foreign exchange movement		4	4
		4	4
Total income tax recognised directly in equity		4	17

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

12. Tax (cont.)

The charge for the year can be reconciled to the profit per the income statement as follows:

	Notes	2020 £'000	Restated 2019 £'000
(Loss) / profit before tax from continuing activities		(4,322)	(10,937)
Loss before tax from discontinuing activities		(10,105)	(61,211)
Loss before income tax		(14,427)	(72,148)
Tax on ordinary activities at standard UK rate of 19% (2019: 19.00%)		(2,741)	(13,708)
Effect of:			
Expenses not deductible for tax purposes		883	606
(Non-taxable) income		(171)	-
Effect of different tax rates of subsidiaries operating overseas		(15)	43
Effect of change in UK corporation tax rate on deferred tax		7	65
Current year losses not recognised		2,303	8,364
Derecognition of previously recognised deferred tax balances		-	3,842
Prior year adjustments		(24)	371
Total tax expense / (credit) for the year		242	(417)
Income tax expense / (credit) reported in the statement of profit and loss	36	52	3,497
Income tax expense / (credit) attributable to discontinued operations		190	(3,914)
		242	(417)

The expenses not deductible for tax purposes include depreciation on non-qualifying assets, share-based payments, the cessation of operations in Sweden, certain RDEC adjustments and restructuring costs.

The effective tax rate for the year is -1.7% (2019: 0.6%).

13. Dividends

No interim or final dividend was proposed or paid for the year ended 31 December 2020 (31 December 2019: Nil).

14. Earnings per share – basic and diluted

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

	2020 £'000	2019 Restated £'000
Earnings		
Earnings for the purposes of basic earnings per share being net (Loss) attributable to equity holders of the parent	(11,685)	(71,308)
from continuing operations	(4,374)	(14,434)
from discontinued operations	(7,311)	(56,874)
Number of shares		
Weighted average number of ordinary shares for the purposes of basic earnings per share	77,103,593	77,116,331
Effect of dilutive potential ordinary shares:		
Share options	-	-
Weighted average number of ordinary shares for the purposes of diluted earnings per share	77,103,593	77,116,331
	2020 Pence per share	2019 Restated Pence per share
Basic	(15.2p)	(92.5p)
Diluted	(15.2p)	(92.5p)
Continuing operations:		
Basic	(5.7p)	(18.7p)
Diluted	(5.7p)	(18.7p)
Discontinued operations:		
Basic	(9.5p)	(73.8p)
Diluted	(9.5p)	(73.8p)

Potential ordinary shares are treated as dilutive if their conversion to ordinary shares would decrease earnings per share or increase loss per share. Therefore in 2020 and 2019, the diluted earnings per share is not impacted by the effect of dilutive potential ordinary shares.

The weighted average number of ordinary shares for the purposes of basic earnings per share is calculated after the exclusion of ordinary shares in Xaar plc held by Xaar Trustee Ltd, the Xaar plc ESOP Trust and the matching shares held in trust for the Share Incentive Plan.

For 2020, there were share options granted over 310,100 shares that would not have been included in the diluted earnings per share calculation because they were anti-dilutive at the period end (2019: 978,915 shares that would not have been included).

The performance conditions for LTIP awards over 510,482 shares (2019: 1,733,172 shares) have not been met in the current financial period or are not expected to be met in future financial periods, and therefore the dilutive effect of those shares has not been included in the diluted earnings per share calculation.

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

14. Earnings per share – basic and diluted (cont.)

Adjusted earnings per share

This adjusted earnings per share information is considered to provide a fairer representation of the Group's trading performance year on year, as it removes items which, in the Board's opinion, do not reflect the underlying performance of the Group and is a measure used in establishing remuneration.

The calculation of adjusted EPS excluding share-based payment charges, exchange differences relating to intra-group transactions, other operating income and restructuring expenses, is based on the loss on continuing operations of:

	2020 £'000	2019 Restated £'000
Earnings / (loss) on continuing operations for the purposes of basic earnings per share being Net profit / (loss) attributable to equity holders of the parent	(4,374)	(14,434)
Share-based payment charges	348	910
Exchange differences relating to intra-group transactions	347	499
(Gain) / loss on derivative financial assets	(77)	87
Restructuring costs	754	1,519
Other operating income	(819)	–
Tax effect of adjusting items	(217)	(214)
Adjusted (loss) / profit after tax – continuing operations	(4,038)	(11,633)

Tax effect of adjusting items is calculated at current corporation tax rate (19%) less any disallowed tax items.

The denominators used are the same as those detailed above for both basic and diluted earnings per share.

Adjusted earnings per share on continuing operations is earnings per share excluding the items adjusted for as detailed above:

	2020 Pence per share	2019 Restated Pence per share
Adjusted basic	(5.2p)	(15.1p)
Adjusted diluted	(5.2p)	(15.1p)

Adjusted EPS on continuing operations is considered to provide a fairer representation of the Group's trading performance year on year.

15. Goodwill

The carrying amount of goodwill at 31 December 2020 was £5,152,000 (2019: £5,333,000).

Goodwill acquired in a business combination is allocated, at acquisition, to the cash-generating units (CGUs) that are expected to benefit from that business combination. Goodwill arose from the acquisition of Engineered Print Solutions (EPS) in July 2016.

	2020 £'000	2019 £'000
Product Print Systems (a single CGU)		
Balance at the beginning of the year	5,333	5,522
Foreign currency translation	(181)	(189)
Balance at the end of the year	5,152	5,333

Goodwill relates to the acquisition of Engineered Print Solutions in July 2016 (a company incorporated in the USA). As part of the changes to the reportable segments in the prior year, the goodwill stated above is now wholly attributed to Product Print Systems (a single CGU).

The Group tests goodwill annually for impairment or more frequently if there are indications that goodwill might be impaired. Having performed impairment testing, no impairment has been identified and therefore no impairment loss has been recognised in 2020 (2019: £nil).

The recoverable amount of the CGU is determined from a value-in-use calculation. The key assumptions to which the value-in-use calculation is most sensitive are those regarding the expected change in sales, the discount rate used, and the growth rate used as part of the terminal value.

A cash flow forecast was prepared for a period of five years based upon the strategic plan for the business and a terminal value determined using a 2% growth rate in Engineered Print Solutions, based on OECD growth rates.

To evaluate the risk of impairment, the Group risk adjusted its cash flows over the five-year period to reflect the risk that the market recovery may be slower than expected and/or that the Group does not achieve the growth objectives set out in its strategic plan. These risk adjusted cash flows have then been used in the value-in-use calculation. The discount rate applied to the cash flow projections is 10.25% (2019: 12.1%) and reflects external third party advice on the discount rate associated with Engineered Print Solutions. This discount rate is higher than the Group discount rate of 7.70%. The discount rate reflects the risk free rate, equity beta and local market premium as calculated at the year-end. This has reduced year on year, based upon reductions in the risk free rate and to reflect the risk that has already been incorporated in the cash flows. A terminal value was determined using a 2% growth rate in Engineered Print Solutions, based on OECD growth rates.

The recoverable amount calculated on the basis set out above exceeds the carrying value of the EPS CGU by £1.5 million. Sensitivity analysis has been completed on each key assumption (Revenue, Discount Rate and Terminal Value) for the EPS business.

The carrying amount of goodwill would exceed its recoverable amount, when compared to the risk adjusted cash flows, if:

- revenue were to decline by a further \$2 million meaning revenues would not recover to pre-COVID levels until later in 2024/25; or
- the discount rate would need to increase by 0.77%; or
- the terminal value growth rate would need to fall to 0.81% (a reduction of 60%).

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

16. Other intangible assets

	Capitalised development costs £'000	Licences acquired £'000	Software £'000	Total £'000
Cost				
At 1 January 2019	41,465	716	3,383	45,564
Additions	2,255	-	90	2,345
Transfer	17	(3)	(2)	12
Exchange movements	-	(4)	-	(4)
Disposals	-	-	(18)	(18)
At 1 January 2020	43,737	709	3,453	47,899
Exchange movements	-	-	(6)	(6)
Assets held for sale	(5,050)	(177)	(10)	(5,237)
At 31 December 2020	38,687	532	3,437	42,656
Amortisation				
At 1 January 2019	9,128	540	3,099	12,767
Charge for the year	923	14	87	1,024
Transfers	26	-	62	88
Disposals	-	-	(17)	(17)
Impairment	28,494	-	-	28,494
At 1 January 2020	38,571	554	3,231	42,356
Charge for the year	587	13	85	685
Exchange movements	-	-	(4)	(4)
Assets held for sale	(547)	(35)	(6)	(588)
At 31 December 2020	38,611	532	3,306	42,449
Carrying amount:				
At 31 December 2020	76	-	131	207
At 31 December 2019	5,166	155	222	5,543

Internally generated product development costs relate to the Platform 2, Platform 3 and Platform 4 ranges of printheads and technology. They also include the capitalisation of the product development costs that relate to the High Speed Sintering 3D printer developed by Xaar 3D. Platform 2 and Platform 3 are fully amortised.

Amortisation of Platform 4 commenced in August 2017 and was being amortised over a period of 20 years prior to the decision to cease all Thin Film activities. Following the decision in 2019 to discontinue the Thin Film operation the Platform 4 range has been fully impaired (an impairment of £28,494,000) based on its fair value less costs to sell.

The development of the High Speed Sintering 3D printer was completed in December 2019 at total cost of £5,050,000 and amortisation commenced over a ten-year period. Following the decision to sell the 3D business the cost, and accumulated amortisation of £547,000, have been reclassified as part of an asset group held for sale.

Licences acquired are amortised over their estimated useful lives which is the shorter of the licence term and 20 years.. The majority of the remaining licences belong to the 3D business and have been reclassified as part of the asset group held for sale.

The amortisation period for software is three to 15 years and for other product development costs incurred on the Group's product development is three to 20 years.

As at 31 December 2020 the Group had not entered into any contractual commitments for the acquisition of intangible assets.

17. Property, plant and equipment

	Land and buildings £'000	Leasehold property £'000	Plant and machinery £'000	Furniture, fittings and equipment £'000	Assets in the course of construction £'000	Total £'000
Cost						
At 1 January 2019	1,192	13,421	70,734	3,765	2,122	91,234
Additions	–	50	1,421	83	96	1,650
Transfers	532	628	1,111	(182)	(2,102)	(13)
Exchange movements	(41)	(29)	(46)	(16)	(5)	(137)
Disposals	1	(25)	(5,059)	(16)	(3)	(5,102)
At 1 January 2020	1,684	14,045	68,161	3,634	108	87,632
Additions	–	199	1,654	382	16	2,251
Transfer	184	(171)	(737)	–	(69)	(793)
Exchange movements	(57)	(2)	12	(18)	(4)	(69)
Disposals	–	–	(492)	–	–	(492)
Assets held for sale	–	(551)	(1,766)	(6)	(2)	(2,325)
At 31 December 2020	1,811	13,520	66,832	3,992	49	86,204
Depreciation						
At 1 January 2019	64	8,222	52,016	2,888	–	63,190
Charge for the year	17	576	3,089	94	–	3,776
Transfer	242	(480)	(293)	444	–	(87)
Exchange movements	(3)	(1)	(47)	(2)	–	(53)
Disposals	–	(18)	(5,122)	(16)	–	(5,156)
Impairment	–	5	5,049	–	–	5,054
At 1 January 2020	320	8,304	54,692	3,408	–	66,724
Charge for the year	48	569	3,506	101	–	4,224
Transfer	34	(21)	(702)	–	–	(689)
Exchange movements	(14)	(2)	(1)	(17)	–	(34)
Disposals	–	–	(275)	–	–	(275)
Impairment	–	–	391	–	–	391
Assets held for sale	–	(65)	(1,216)	(3)	–	(1,284)
At 31 December 2020	388	8,785	56,395	3,489	–	69,057
Carrying amount						
At 31 December 2020	1,423	4,735	10,437	503	49	17,147
At 31 December 2019	1,364	5,741	13,469	226	108	20,908

Impairments in 2019 of £5,054,000 are almost all in relation to the Thin Film discontinued operation; these assets have been valued at fair value, less costs of disposal of nil. In 2020 the impairments of £391,000 related to the Printhead and EPS businesses with associated assets written down to nil.

The transfer of assets out of property, plant and equipment includes assets belonging to the Printhead business that were reclassified as held for sale. These assets had a net book value (NBV) of £104,000. As at 31 December 2020 machinery with a NBV of £43,000 remained unsold.

Assets with a NBV of £1,041,000 (a cost value of £2,325,000 and depreciation of £1,284,000) belonging to the 3D business have been reclassified as part of the asset group held for sale.

As at 31 December 2020 the Group had entered into contractual commitments for the acquisition of property, plant and equipment amounting to £218,000 (2019: £71,000).

18. Leases

The Group has lease contracts for various items of buildings, equipment and vehicles used in its operations. The Group's obligations under its leases are secured by the lessor's title to the leased assets. Generally, the Group is restricted from assigning and subleasing the leased assets and some contracts require the Group to maintain certain financial ratios.

The Group also has certain leases of machinery with lease terms of 12 months or less and leases of office equipment with low value. The Group applies the 'short-term lease' and 'lease of low-value assets' recognition exemptions for these leases.

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

18. Leases (cont.)

Set out below are the carrying amounts of right-of-use assets recognised and the movements during the period:

	Buildings £'000	Equipment £'000	Vehicles £'000	Total £'000
Cost				
At 1 January 2019	12,204	99	16	12,319
Additions	1,494	20	–	1,514
Disposals	(1,692)	–	–	(1,692)
Exchange movements	(28)	–	–	(28)
At 31 December 2019	11,978	119	16	12,113
Additions	183	–	–	183
Disposals	(172)	(36)	(16)	(224)
Assets held for sale	(885)	–	–	(885)
Exchange movements	18	1	–	19
At 31 December 2020	11,122	84	–	11,206
Depreciation				
At 1 January 2019	9,159	25	8	9,192
Charge for the year	1,025	31	5	1,061
Disposals	(1,686)	–	–	(1,686)
Exchange movements	(15)	–	–	(15)
At 31 December 2019	8,483	56	13	8,552
Charge for the year	1,204	29	3	1,236
Disposals	(167)	(35)	(16)	(218)
Assets held for sale	(445)	–	–	(445)
Exchange movements	3	–	–	3
At 31 December 2020	9,078	50	–	9,128
Carrying amount				
At 31 December 2020	2,044	34	–	2,078
At 31 December 2019	3,495	63	3	3,561

Set out below are the carrying amounts of lease liabilities (included under current and non-current liabilities on the statement of financial position) and the movements during the period:

	2020 £'000	2019 £'000
At 1 January	3,971	3,639
Additions	183	1,507
Accretion of interest	98	110
Payments	(1,224)	(1,274)
Exchange movement	14	(11)
Lease liabilities associated with assets held for sale	(463)	–
At 31 December	2,579	3,971
Current	1,064	1,450
Non-current	1,515	2,521
	2,579	3,971

18. Leases (cont.)

The table below summarises the maturity profile of the Group's lease liabilities based upon the contractual undiscounted payments as at 31 December 2020.

	2020 £'000	2019 £'000
On demand	–	–
Less than three months	222	292
Four to twelve months	645	1,250
One to five years	1,945	2,530
More than five years	–	97
	2,812	4,169

The following are the amounts recognised in profit or loss:

	2020 £'000	2019 £'000
Depreciation expense of right-of-use assets	1,235	1,061
Interest expense on lease liabilities	98	110
Expense relating to short-term leases (included in administrative expenses)	152	53
Total amount recognised in profit or loss	1,485	1,224

Interest expense on lease liabilities consists of £82,000 (2019: £97,000) reported under continuing operations and £16,000 (2019: £13,000) relating to Xaar 3D business reported under discontinued operations.

19. Subsidiaries

A list of the investments in subsidiaries, including the name, country of incorporation and proportion of ownership interest, is given in note 11 to the Company's separate financial statements.

20. Inventories

	2020 £'000	Restated 2019 £'000
Raw materials and consumables	6,356	8,938
Work in progress	1,687	3,258
Finished goods	2,312	4,334
	10,355	16,530

The cost of inventories recognised as an expense includes £3,895,000 (2019: £18,801,000) in respect of inventory write-downs.

Gross stock was £34,976,000 (2019: £37,465,000) with inventory provisions of £24,621,000 (2019: £20,935,000). The provision of £24,621,000 included £21,256,000 in relation to discontinued operations. Inventory for discontinued operations has been recorded at the lower of carrying amount and fair value.

21. Other financial assets

The fair value of all financial assets and financial liabilities approximates their carrying value.

Trade and other receivables

	2020 £'000	2019 £'000
Amount receivable for the sale of goods	6,791	14,407
Allowance for doubtful debts	(622)	(7,959)
	6,169	6,448
Other debtors	2,760	1,634
Prepayments	822	1,027
	9,751	9,109
Current tax asset	425	1,788

No amounts are expected to be settled in more than 12 months.

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

21. Other financial assets (cont.)

Trade receivables

The average credit period taken on sales of goods is 47 days (2019: 48 days). No interest is charged on the receivables for the period agreed in the Requirements Contract or, if not specified or applicable, the first 30 days from the date of the invoice. Thereafter, the Group reserves the right to charge interest at a daily rate of the greater of either 3% per annum above the base rate of the Bank of England from time to time, or the maximum rate of interest allowable under the Late Payment of Commercial Debts (Interest) Act 1998, on all sums outstanding until payment in full is received. Trade receivables over 120 days are provided for based on estimated irrecoverable amounts from the sale of goods, determined by reference to past default experience.

The maximum exposure to credit risk is the carrying amount of the financial assets as disclosed on page 129. Before accepting any new customer, the Group uses an external credit scoring system to assess the potential customer's credit quality and defines credit limits by customer. Credit limits are reviewed at least once per year. Of the trade receivables balance at the end of the year, four customers each represented greater than 5% of the total receivables balance, totalling £1.1 million (2019: £7.5 million). The total due from these customers represents 2% (2019: 15%) of the Group's revenue.

Included in the Group's trade receivables balance are debtors with a carrying amount of £1.8 million (2019: £2.1 million) at the reporting date for which the Group has not provided:

	2020 £'000	2019 £'000
1–30 days overdue	1,168	801
30–60 days overdue	233	434
60–90 days overdue	85	228
90–120 days overdue	266	61
Over 120 days overdue	91	570
Total receivables	1,843	2,094

Movement in the allowance for doubtful debts:

	2020 £'000	2019 £'000
Balance at the beginning of the year	7,959	5,178
Impairment (reversal) / losses increased	(929)	2,781
Amounts written off as uncollectible	(6,408)	-
Balance at the end of the year	622	7,959

The Group always measures the loss allowance for trade receivables at an amount equal to lifetime ECL. The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience of the debtor and an analysis of the debtor's current financial position, adjusted for factors 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 Group has recognised a loss allowance of 1.0% against all receivables, excluding those with a specific provision against them. Most of the debt over 120 days has been provided in full and relates to a small number of customers where none of the debt is expected to be recovered through normal trading. A provision is made against trade receivables until such time as the Group believes the amount to be irrecoverable (such as the bankruptcy of a customer or emerging market risks, which would render the receivable irrecoverable), after which the trade receivable balance is written off. Amounts written off in the year relate to distributor balances. There is no current enforcement activity on the remaining balance.

Ageing of impaired trade receivables:

	2020 £'000	2019 £'000
Current	19	132
1–30 days overdue	3	45
30–60 days overdue	-	25
60–90 days overdue	-	15
90–120 days overdue	-	361
Over 120 days overdue	600	7,381
Total	622	7,959

The Directors have considered the sensitivity of doubtful debts and a 1% increase on the ECL percentage would equate to an additional £59,000 allowance. The Directors consider that the carrying amount of trade and other receivables approximates their fair value.

21. Other financial assets (cont.)

Treasury deposits

Treasury deposits comprise bank deposits with an original maturity of between three months and 12 months. The carrying amount of these assets approximates their fair value.

	2020 £'000	2019 £'000
Treasury deposits	161	522

Cash and cash equivalents

Cash and cash equivalents comprise cash held by the Group and short-term bank deposits with an original maturity of three months or less. The carrying amount of these assets approximates their fair value.

The analysis of cash and short-term bank deposits is as follows:

	2020 £'000	2019 £'000
Cash	17,956	24,800

The credit risk on liquid funds and derivative financial instruments is limited because the counterparties are banks with high credit ratings assigned by international credit-rating agencies.

22. Financial instruments

Fair value measurements

The following table combines information about:

- classes of financial instruments based on their nature and characteristics;
- the carrying amounts of financial instruments;
- fair values of financial instruments (except financial instruments when carrying amount approximates their fair value); and
- fair value hierarchy levels of financial assets and financial liabilities for which fair value was disclosed.

Fair value hierarchy Levels 1 to 3 are based on the degree to which the fair value is observable:

- Level 1 fair value measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2 fair value measurements are those derived from inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and
- Level 3 fair value measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data (unobservable inputs).

	Financial assets			Financial liabilities		Total £'000
	FVTPL – designated £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	
2020						
Trade and other receivables	-	-	8,928	-	-	8,928
Treasury deposits	-	-	161	-	-	161
Cash and bank balances	-	-	17,956	-	-	17,956
Trade and other payables	-	-	-	-	(9,940)	(9,940)
Derivative financial instrument	160	-	-	(2,919)	-	(2,759)

Additional disclosure for lease liabilities is reported in note 18.

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

22. Financial instruments (cont.)

2019	Financial assets			Financial liabilities		Total £'000
	FVTPL – designated £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	FVTPL – mandatorily measured £'000	Amortised cost £'000	
Trade and other receivables	–	–	8,082	–	–	8,082
Treasury deposits	–	–	522	–	–	522
Cash and bank balances	–	–	24,800	–	–	24,800
Trade and other payables	–	–	–	–	(7,973)	(7,973)
Derivative financial instrument	–	–	–	(2,996)	–	(2,996)

Fair value of the Group's financial assets and financial liabilities that are measured at fair value on a recurring basis

Some of the Group's financial assets and financial liabilities are measured at fair value at the end of each reporting period. The following table gives information about how the fair value of these financial assets and financial liabilities are determined (in particular, the valuation technique(s) and inputs used).

Financial asset/ financial liabilities	Valuation technique(s) and key input(s)	Significant unobservable input(s)	Relationship and sensitivity of unobservable inputs to fair value
Derivative financial instrument (Level 3)	Black-Scholes model. The following variables were taken into consideration: current underlying price of the underlying share, options strikeprice, time until expiration (expressed as a percent of a year), implied volatility of the underlying share and LIBOR.	Underlying price of the share. Volatility of the underlying share.	8% increase / (decrease) would result in a £549,000 increase in the fair value and a £509,000 decrease. 10% increase / (decrease) would result in £301,000 increase in the fair value and £286,000 decrease.

There were no transfers between Level 1 and 2 during the current or prior year.

The only financial liabilities measured subsequently at fair value on Level 3 fair value measurement represent written call options relating to a business combination. In July 2018 Xaar signed an investment agreement with Stratasys Solutions Limited ('Stratasys') which granted Stratasys a 15% share of Xaar 3D Limited ('Xaar 3D') and two written call options to acquire a further 10% and 5%. These options gave Stratasys the right, but not the obligation, to acquire GBP denominated shares in Xaar 3D for a fixed price which was denominated, and to be settled, in USD. At 1 January 2019 the fair value of these options was £936,000. On 4 December 2019 Stratasys exercised the first of the two options granting them a further 10% share in Xaar 3D. At the same time Xaar 3D and Stratasys agreed to extinguish the second option, thereby settling both options in the year. On 4 December 2019 Xaar 3D Holdings sold to Stratasys a 20% share in Xaar 3D. As a consequence Stratasys now owns 45% of Xaar 3D with the remaining 55% owned by Xaar 3D Holdings. As part of the agreement between Xaar 3D Holdings and Stratasys, Xaar 3D Holdings granted Stratasys a written call option to acquire its remaining 55% shareholding in Xaar 3D. As with the original option agreement between Xaar 3D and Stratasys the new options are USD denominated giving rise to a new derivative financial liability. This liability was valued at a fair value of £2,996,000 at 31 December 2019. During 2020 no further issues or settlements took place. The only movement in the year represents the revaluation of the existing option at 31 December 2020. Additional disclosure information is provided in note 35 Non-controlling interest and note 34 Related party transactions.

	2020 £'000	2019 £'000
Balance at 1 January 2020	(2,996)	(936)
Issues	–	(2,908)
Settlements	–	742
Total gains or losses – in profit or loss	77	106
Balance at 31 December 2020	(2,919)	(2,996)

22. Financial instruments (cont.)

Fair value of the Group's financial assets and financial liabilities that are measured at fair value on a recurring basis (continued)

The use of financial derivatives is governed by the Group's policies approved by the Board of Directors, which provides written principles on the use of financial derivatives consistent with the Group's risk management strategy. The Group does not use derivative financial instruments for speculative purposes.

Financial risk management objectives

The Group's policy is to manage the Group's financial risk, secure cost effective funding for the Group's operations and to minimise the adverse effects of fluctuations in the financial markets on the value of the Group's financial assets and liabilities, on reported profitability and on the cash flows of the Group.

The Group finances its activities with a combination of cash and treasury deposits. Other financial assets and liabilities, such as trade debtors and trade creditors, arise directly from the Group's operating activities.

Financial instruments give rise to foreign currency, interest rate, credit and liquidity risk. The Group's management of its exposure to credit risk is discussed in note 21.

The Group's exposure has been calculated with reference to these balances as at the year-end.

Interest rate risk

As the Group currently has no borrowings, its exposure to interest rate risk relates to the interest rate on its cash, cash equivalent and treasury deposit balances. The Group's interest rate risk arises mainly from its funds invested in short-term bank deposits. To mitigate these risks, limits have been set by the Board in relation to maturity period and maximum deposits with any one institution.

If interest rates had been 2% higher/reduced to 0% and all other variables were held constant, the Group's profit for the year ended 31 December 2020 would increase by £0.1 million or decrease by £0.1 million (2019: increase by £0.2 million or decrease by £0.1 million). There would be no effect on equity reserves.

Foreign currency risk

The Group receives approximately 40% of its revenues in US Dollars and 10% of its revenue in Euros, which are partially naturally hedged by supplies in these currencies, but the remainder requires conversion into Sterling in order to fund the remaining costs of the UK operations. The Group has R&D operations in Sweden, and therefore incurs costs and holds cash balances in Swedish Krona. In 2017, the Group had a manufacturing facility in Sweden which was closed in 2016 and legacy working capital balances denominated in Swedish Krona remain in the Group's Swedish companies prior to the dissolution of these entities.

The Group is mainly exposed to foreign currency risk resulting from transactions in US Dollars, Euros and Swedish Krona. The following table demonstrates the Group's sensitivity to a 10% increase and decrease in the Sterling exchange rate against the relevant foreign currencies on the Group's profit before tax and equity (due to changes in the fair value of monetary assets, liabilities and forward currency contracts). 10% represents management's assessment of the reasonably possible movement in exchange rates. The sensitivity analysis includes only outstanding foreign currency denominated monetary items and adjusts their translation at the period end for a 10% change in foreign currency rates. The sensitivity analysis includes inter-company balances within the Group where the denomination of the balance is in a currency other than the functional currency of the debtor or the creditor. A positive number below indicates an increase in profit or equity.

	Euro currency impact		US Dollar currency impact		Swedish Krona currency impact	
	2020 £'000	2019 £'000	2020 £'000	2019 £'000	2020 £'000	2019 £'000
Effect of a 10% increase in relevant exchange rate on:						
Profit or loss	(139)	(90)	(420)	(342)	(107)	(12)
Other equity	-	-	(582)	(227)	-	57
Effect of a 10% decrease in relevant exchange rate on:						
Profit or loss	170	110	514	418	131	15
Other equity	-	-	711	276	-	(48)

Capital risk management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business, maximise shareholder value and provide flexibility for value enhancing investments. The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions or as a result of corporate strategy. To maintain or adjust the capital structure, the Group may adjust the dividend payment to shareholders, return capital to shareholders or issue new shares. In addition, any potential value enhancing investments may be funded through additional debt instruments. No changes were made in the objectives, policies or processes during the current or prior year. No dividend is proposed for 2020.

Further information can be found on page 134 (note 13).

The Group monitors capital using a gearing ratio, which is determined as the proportion of debt to equity. Debt is defined as long- and short-term borrowings. Equity includes all capital and reserves of the Group attributable to the equity holders of the parent. The Group's policy for its existing business is to use debt where appropriate, whilst maintaining the gearing ratio at a level under 10%.

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

22. Financial instruments (cont.)

Capital risk management (cont.)

The gearing ratio (excluding IFRS 16 leases) at the year-end is as follows:

	2020 £'000	2019 £'000
Net debt	–	–
Total equity	56,158	70,337
Gearing ratio	0%	0%

The Group is not subject to externally imposed capital requirements.

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, as a means of mitigating the risk of financial loss from defaults.

Trade receivables consist of a large number of customers, spread across different industries and geographical areas. Ongoing credit evaluation is performed on the financial condition of accounts receivable.

The credit risk on liquid funds is limited because the counterparties are banks with high credit ratings assigned by international credit rating agencies. Additional credit insurance coverage is maintained where appropriate against agreed credit terms with customers.

Liquidity risk

The Group aims to mitigate liquidity risk by managing cash generation by its operations and applying cash collection targets throughout the Group. Investment is carefully controlled, with authorisation limits operating up to Group Board level and cash payback periods applied as part of the investment appraisal process. In this way the Group aims to maintain a good credit rating to facilitate fund raising.

In order to mitigate the Group's liquidity risks, the Group can choose to fund significant fixed asset purchases by finance leases repayable over a period of three to five years dependent on the individual asset being financed and interest-bearing loans.

In its funding strategy, the Group's objective is to maintain a balance between continuity of funding and flexibility through the use of overdrafts, bank loans, finance leases and hire purchase contracts. The Group manages liquidity risk by maintaining adequate reserves and banking facilities by continuously monitoring cash flows and matching the maturity profiles of financial assets and liabilities. Given the current level of cash availability there are currently no overdraft or bank loan facilities arranged with banks either drawn or undrawn.

Non-derivative financial liabilities of £9,940,000 (2019: £7,973,000) comprise trade creditors of £9,940,000. The trade creditors are within current liabilities. The inherent liquidity risk of these financial liabilities is managed within the overall liquidity risk of the Group as described above. The maturity profile of lease liabilities is set out in note 18.

The Group's policy is to invest any excess cash used in managing liquidity in financial instruments exposed to insignificant risk of changes in market value, being placed on interest-bearing deposit with maturities no more than 12 months.

23. Deferred tax

The following are the major deferred tax liabilities and assets recognised by the Group and movements thereon during the current and prior reporting periods:

	Accelerated tax depreciation £'000	Share-based payment £'000	Untaxed reserves £'000	Tax losses £'000	Other temporary difference £'000	Total £'000
At 1 January 2019	5,017	(150)	148	(3,411)	(774)	830
(Credit)/charge to income	(56)	110	(148)	2,829	220	2,955
(Credit)/charge for discontinued operations	(4,256)	–	–	–	337	(3,919)
Foreign exchange movement	–	–	–	–	4	4
At 31 December 2019	705	(40)	–	(582)	(213)	(130)
(Credit)/charge to income	55	39	–	(139)	31	(14)
(Credit)/charge for discontinued operations	(68)	–	–	–	–	(68)
Foreign exchange movement	–	–	–	–	4	4
At 31 December 2020	692	(1)	–	(721)	(178)	(208)

Certain deferred tax assets and liabilities have been offset. The following is the analysis of the deferred tax balances (after offset) for financial reporting purposes:

23. Deferred tax (cont.)

	2020 £'000	2019 £'000
Deferred tax assets	208	130
Being: Deferred tax assets from continuing operations	139	130
Being: Deferred tax assets from discontinued operations	68	–

As at 31 December 2020, the Group had unused tax losses of £75.9 million (2019: £65.8 million) available to offset against future profits. As at 31 December 2020 the Group has an unrecognised deferred tax assets in respect of these losses totalling £14.5 million (2019: £11.2 million). These losses may be carried forward indefinitely. As at 31 December 2020, the Group has unused capital losses of £1.1 million (2019: £1.1 million) available for offset against future gains.

No deferred tax asset has been recognised in respect of these capital losses as it is not considered probable that there will be future chargeable gains available. These losses may be carried forward indefinitely.

24. Trade and other payables

	2020 £'000	Restated 2019 £'000
Trade payables and accruals	9,940	7,973

Trade payable and accruals principally comprise amounts outstanding for trade purchases and ongoing costs. The average credit taken for trade purchases is 18 days (2019: 27 days).

The Directors consider that the carrying amount of trade payables approximates to their fair value.

25. Provisions

	Warranty and commercial agreements £'000	Restructuring £'000	Total £'000
At 1 January 2019	207	292	499
Additional provision in the year	206	2,641	2,847
Utilisation of provision	(166)	(233)	(399)
At 1 January 2020	247	2,700	2,947
Additional / (release) provision in the year	71	685	756
Utilisation of provision	(121)	(3,105)	(3,226)
Release of provision	(120)	–	(120)
At 31 December 2020	77	280	357

The warranty and commercial agreements provision represents management's best estimate of the Group's liability related to claims against product warranties or commercial sales agreements. The timing of the utilisation of this provision is uncertain.

Additional restructuring provisions of £685,000 have been added primarily in relation to the strategic review of the business and redundancy programme and have been released within the year; utilisation of £3,105,000 relates to the conclusion of the 2019 and 2020 redundancy programmes. The remaining restructuring provision of £280,000 will be utilised in 2021 and relates to dilapidations.

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

26. Share capital

	2020 £'000	2019 £'000
Issued and fully paid:		
78,334,296 (2019: 78,334,296) ordinary shares of 10.0p each	7,833	7,833

The Companies Act 2006 abolished the legal requirement for a Company to have an authorised share capital. The Articles of Association were amended to remove the authorised share capital article following approval via special resolution at the AGM on 19 May 2010.

The movement during the year on the Company's issued and fully paid shares was as follows:

	2020 Number	2019 Number	2020 £'000	2019 £'000
Balance at 1 January and 31 December	78,334,296	78,334,296	7,833	7,833

The Company has one class of ordinary shares which carry no right to fixed income.

Scheme	Date of grant	Number of shares under option as at 31 December 2020	Number of shares under option as at 31 December 2019	Subscription price per share
Xaar plc 2004 Share Option Plan	22 November 10	–	10,000	211.0p
	1 June 11	40,000	40,000	250.0p
	1 May 12	90,000	90,000	226.5p
		130,000	140,000	
Xaar plc Share Save Scheme	1 November 16	–	22,676	407.0p
Xaar plc 2017 Share Save Scheme	1 November 17	7,010	19,351	344.0p
	1 November 18	116,596	182,295	142.0p
	1 December 19	937,505	1,196,152	34.0p
	2 November 20	702,032	–	102.0p
		1,763,143	1,397,798	
Xaar plc 2013 Share Incentive Plan	17 April 13	6,309	8,105	0.0p
	16 April 14	8,866	11,079	0.0p
	14 April 16	11,717	16,206	0.0p
	13 April 17	5,280	8,000	0.0p
		32,172	43,390	
Total share options outstanding at 31 December		1,925,315	1,603,864	

26. Share capital (cont.)

Options granted under the Xaar plc 2004 Share Option Plan are ordinarily exercisable within three to ten years after the date of grant. The maximum value of approved options, under the Xaar plc 2004 Share Option Plan, which may be granted to individual employees is £30,000.

Options under the Xaar plc Share Save Scheme are ordinarily exercisable between 36 and 42 months after the date of grant.

Awards under the Xaar plc Share Incentive Plan are ordinarily exercisable between three and five years after the date of grant.

Long-Term Incentive Plan

Performance Share Awards outstanding under the Xaar plc 2007 Long-Term Incentive Plan are as follows:

Date of grant	Number of shares under option as at 31 December 2020	Number of shares under option as at 31 December 2019
3 May 11	4,533	4,533
2 April 12	–	60,417
1 May 12	7,297	66,872
2 April 15	35,933	111,077
28 September 15	3,069	3,695
7 December 15	9,354	9,354
1 April 16	34,645	58,579
11 May 16	4,977	14,019
27 June 16	3,733	8,400
6 September 16	700	700
1 December 16	15,093	15,093
	119,334	352,739

All awards under this scheme are exercisable within three to ten years after the date of grant.

Performance Share Awards have been made under the Xaar plc 2017 Long-Term Incentive Plan as follows:

Date of grant	2020 Number of shares	2019 Number of shares
16 May 17	30,472	194,079
3 April 18	126,735	199,396
1 June 18	–	–
2 April 2019	110,792	127,821
30 April 2019	59,789	80,648
4 October 2019	180,328	180,328
29 April 2020	404,000	–
4 June 2020	535,000	–
1 October 2020	21,000	–
	1,468,116	782,272

All awards under this scheme are exercisable within three to ten years after the date of grant.

27. Share premium account

	2020 £'000	2019 £'000
Balance at 1 January	29,328	29,328
Premium arising on issue of equity shares	–	–
Balance at 31 December	29,328	29,328

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

28. Own shares

	2020 £'000	2019 £'000
Balance as at 1 January	(2,676)	(3,113)
Sold in the year	719	437
Balance at 31 December	(1,957)	(2,676)

Of this balance, £20,000 (2019: £20,000) represents 91,250 ordinary shares in Xaar plc held in trust by Xaar Trustee Ltd. Xaar Trustee Ltd was formed in 1995 to act as trustee to the Employee Benefit Trust established in 1995 to hold shares for the benefit of the employees of the Company and the Group. There has been no movement in the number of shares held in trust by Xaar Trustee Ltd during the year.

The remaining balance of £1,937,000 (2019: £2,656,000) represents the cost of 705,083 (2019: 966,410) shares in Xaar plc purchased in the market at market value and held by the Xaar plc ESOP trust to satisfy options granted under the Company's share option schemes.

The market value of own shares at 31 December 2020 was £1,421,000 (2019: £585,000).

29. Translation reserves

	2020 £'000	2019 £'000
Balance at 1 January	594	817
Exchange differences on retranslation of net investment	224	(157)
Prior year correction (see note 36)	-	(66)
Balance at 31 December	818	594

Exchange differences relating to the translation of the net assets of the Group's foreign operations, which relate to subsidiaries only, from their functional currency into the parent's functional currency, being Sterling, are recognised directly in the translation reserve.

30. Retained earnings and other reserves

	Notes	Merger reserve £'000	Share-based payments £'000	Other reserves £'000	Total other reserves £'000	Retained earnings £'000	Total £'000
Balance at 1 January 2019		1,105	13,554	485	15,144	79,343	94,487
Net loss for the year		-	-	-	-	(71,051)	(71,051)
Own shares sold in the period		-	-	-	-	(437)	(437)
Charge to equity for equity-settled share-based payments		-	1,111	-	1,111	-	1,111
Adjustment arising from change in non-controlling interest		-	-	4,666	4,666	-	4,666
Balance at 31 December 2019 as reported		1,105	14,665	5,151	20,921	7,855	28,776
Correction of error	36	-	-	-	-	(257)	(257)
Restated total equity at the beginning of the financial year		1,105	14,665	5,151	20,921	7,598	28,519
Net loss for the year		-	-	-	-	(11,685)	(11,685)
Tax on items taken directly to equity		-	-	-	-	(5)	(5)
Own shares sold in the period		-	-	-	-	(710)	(710)
Charge to equity for equity-settled share-based payments		-	-	246	246	-	246
Balance at 31 December 2020		1,105	14,665	5,397	21,167	(4,802)	16,365

The merger reserve and other reserves are not distributable. The merger reserve represents the share premium account in Xaar Technology Limited.

The share-based payment reserve represents the cumulative charge made under IFRS 2 in relation to share options and LTIP awards. Other reserves represent the non-distributable portion of the dividend received in Xaar plc from Xaar Digital Limited and includes the change in parent equity arising from the transactions with non-controlling interest of Xaar 3D during 2019.

31. Notes to the cash flow statement

	2020 £'000	Restated 2019 £'000
Loss before tax from continuing operations	(4,322)	(10,937)
Loss before tax from discontinued operations	(10,105)	(61,211)
Total loss before tax	(14,427)	(72,148)
Adjustments for:		
Share-based payments	353	912
Depreciation of property, plant and equipment	4,223	3,776
Depreciation of right of use assets	1,236	1,061
Amortisation of intangible assets	685	1,024
Impairment of assets	391	39,013
Research and development expenditure credit	(454)	(2,610)
Investment income	(72)	(103)
Interest expense – finance cost for leases	94	110
Foreign exchange losses	523	447
Gain on re-measurement of derivative liability	(77)	(106)
Profit/(loss) on disposal of property, plant and equipment	99	(18)
Other gains and losses	202	623
(Increase) / decrease in provisions	(2,572)	1,267
Operating cash flows before movements in working capital	(9,796)	(26,752)
Decrease in inventories	4,849	11,805
(Increase) / decrease in receivables	(1,337)	11,059
Increase / (decrease) in payables	2,011	(9,332)
Cash used in operations	(4,273)	(13,220)
Income taxes received	1,466	3,392
Net cash used in operating activities	(2,807)	(9,828)

During the year non-cash investing activity pertains to purchase of property, plant and equipment by the Company on credit amounting to £1,152,000 (2019: £114,000).

From the consolidated cash flow statement net cash (including treasury deposits) generated from continuing operations (excluding proceeds from transactions with non-controlling interest) amounted to £7,073,000 (2019: £8,405,000).

Further information of cash flows from discontinued operations can be found in note 11.

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

32. Share-based payments

Equity-settled share option scheme

The Company's share option schemes are open to all employees of the Group. Options are exercisable at a price equal to the average quoted market price of the Company's shares on the date of grant. The standard vesting period is three years.

An option granted under the Xaar plc 2004 Share Option Plan from 2011 onwards will be exercisable over shares with a market value at the date of grant not exceeding a person's annual salary, if at the third anniversary of grant, Xaar plc has achieved positive adjusted profit before tax as shown in the consolidated income statement in the Company's Annual Report and Accounts for any of the three years ending during the vesting period. One third of the shares subject to the option granted rounded to the nearest whole share will vest based on the performance condition being met per year for each of the three years ending in the vesting period. If the adjusted profit before tax as shown in the consolidated income statement in Xaar plc's Annual Report and Accounts for any relevant year is restated before the option becomes exercisable, the restated figure shall, unless the Remuneration Committee determines otherwise, be applied in determining whether the above targets are met. In addition, options shall only become exercisable in respect of any shares if the Committee in its absolute discretion determines that the overall financial performance of Xaar plc over the performance period is satisfactory.

The Xaar 2007 and 2017 Share Save Schemes provides an opportunity to all UK employees to save a set monthly amount (up to £500) over three years towards the exercise of a discounted share option, which is granted at the start of the three years.

The Xaar Share Incentive Plan provides an opportunity for all UK employees to buy shares from their pre-tax remuneration up to the limit permitted by the relevant tax legislation (£1,500 per year for the awards made in 2013 and 2014, £1,800 per year for awards made from 2015) and are awarded additional shares for free on a matching basis; the Company currently operates the plan on the basis of a 1:1 match but may award matching shares up to the maximum ratio permitted by the relevant tax legislation (currently a 2:1 ratio).

Options and awards under the Xaar 2007 and 2017 Share Save Schemes and Xaar Share Incentive Plan are not subject to performance conditions.

If the options remain unexercised after a period of ten years from the date of grant, or 42 months in the case of the Share Save Scheme, or five years in the case of the Share Incentive Plan (being the contractual lives), the options expire. Save as permitted in the share option scheme rules, options ordinarily lapse on an employee leaving the Group.

Details of the share options outstanding during the year are as follows:

	2020		2019	
	Number of share options	Weighted average exercise price (£)	Number of share options	Weighted average exercise price (£)
Outstanding at beginning of year	1,603,864	0.72	1,367,107	1.87
Granted during the year	702,032	1.02	1,196,152	0.34
Lapsed during the year	(349,323)	0.94	(951,559)	1.91
Exercised during the year	(31,258)	0.22	(7,836)	–
Outstanding at the end of the year	1,925,315	0.79	1,603,864	0.72
Exercisable at the end of the year	162,172	1.87	159,184	2.04

The weighted average share price at the date of exercise for share options exercised during the period was £1.10 (2019: £0.86). The options outstanding at 31 December 2020 had a weighted average remaining contractual life of three and a half years (2019: three years). In 2020, options were granted on 2 November. The aggregate of the estimated fair values of the options granted on those dates is £0.525 million. In 2019, options were granted on 1 December. The aggregate of the estimated fair values of the options granted on those dates is £0.25 million.

32. Share-based payments (cont.)

Equity-settled share option scheme (cont.)

The inputs into the Black-Scholes model are as follows:

	2020	2019
Weighted average share price	£1.28	£0.43
Weighted average exercise price	£1.02	£0.34
Weighted average expected volatility	74%	61%
Expected life	3.5 years	3 years
Risk-free rate	(0.05)%	0.60%
Weighted average expected dividends	0.00%	0.00%

Expected volatility was determined by calculating the historical volatility of the Group's share price over periods ranging from the previous one to three years. The expected life used in the model has been adjusted, based on management's best estimate, for the effects of non-transferability, exercise restrictions and behavioural considerations.

Long-Term Incentive Plan

The Company's Long-Term Incentive Plan is open to all employees of the Group.

All LTIP share awards granted before 2015 are subject to the achievement of EPS performance conditions and the number of shares that vest will depend on the EPS growth of the Company for the three financial years of the Company commencing on 1 January of the year of grant, as follows:

- (1) None of the awards will vest if the Company's EPS growth does not exceed growth in the Retail Prices Index ('RPI') by at least 4% compound p.a.
- (2) 35% of the awards will vest if the Company's EPS growth exceeds growth in the RPI by at least 4% compound p.a.
- (3) All of the awards will vest if the Company's EPS growth exceeds growth in the RPI by at least 10% compound p.a.
- (4) Awards will vest on a straight-line basis for EPS growth in excess of growth in the RPI of between 4% and 10% compound p.a.

LTIP share awards granted in 2015 onwards are subject to the achievement of different performance conditions depending on the level of the employee. The number of shares that vest will depend on for the three financial years of the Company commencing on 1 January of the year of grant, and are subject to one, two, three, four or five of the conditions as set out below:

- (1) Absolute cumulative EPS performance over the period, whereby 25% of the awards will vest if the threshold target is achieved, below threshold 0% will vest and up to a maximum of 100% if the maximum EPS target or higher is achieved.
- (2) For 2015 and 2016 grants, TSR relative to FTSE TechMARK All Share Index, whereby 25% of the awards will vest if the median rank in the comparator group is achieved, below median 0% will vest and up to a maximum of 100% if the upper quartile or higher is achieved. For 2017 and 2018 grants, TSR outperformance multiplier determined by comparison to the FTSE Small Cap Index, whereby a performance multiplier of between 116.7% (for upper quartile performance) and 150% or 200% (for upper decile performance) is applied to the base award relating to awards granted with EPS and revenue performance conditions.
- (3) For 2015 and 2016 grants, achievement of positive adjusted profit before tax as shown in the consolidated income statement in the Company's Annual Report and Accounts for any of the three years ending during the vesting period. One third of the shares subject to the option granted, rounded to the nearest whole share, will vest based on the performance condition being met per year for each of the three years ending in the vesting period. If the adjusted profit before tax as shown in the consolidated income statement in Xaar plc's Annual Report and Accounts for any relevant year is restated before the option becomes exercisable, the restated figure shall, unless the Remuneration Committee determines otherwise, be applied in determining whether the above targets are met. In addition, options shall only become exercisable in respect of any shares if the Committee in its absolute discretion determines that the overall financial performance of Xaar plc over the performance period is satisfactory.
- (4) From 2017, revenue growth over the period, whereby 25% of the awards will vest if the threshold target is achieved, below threshold 0% will vest and up to a maximum of 100% if the maximum revenue growth target or higher is achieved.
- (5) From 2018, revenue from new products in the third year in the vesting period, whereby 25% of the awards will vest if the threshold target is achieved, below threshold 0% will vest and up to a maximum of 100% if the maximum revenue target or higher is achieved.
- (6) From 2019, Adjusted Basic EPS over the performance period, whereby 25% of the awards will vest if the threshold target is achieved, below threshold 0% will vest and up to a maximum of 100% if the maximum EPS target or higher is achieved. TSR element over the performance period, whereby 25% of the awards will vest if the median target v comparator group is achieved, below threshold 0% will vest and up to a maximum of 100% if the TSR ranking of the company is ranked in the upper quartile of the comparator group.
- (7) From 2020, Adjusted Profit before tax ('aPBT') over the performance period 100% of the awards will vest if the threshold target is achieved, below threshold target 0% will vest. The threshold target is achieving an adjusted profit before tax measured over the three-year performance period to 31 December 2022.

There are also a number of LTIP share awards granted that are subject to the achievement of different performance conditions for specific individuals, dependent on revenue or profit performance over a set performance period.

In addition, options shall only become exercisable in respect of any shares if the Committee in its absolute discretion determines that the overall financial performance of Xaar plc over the performance period is satisfactory. All awards that will vest will be calculated on a straight-line basis. All awards made under this scheme are exercisable within three to ten years after the date of grant. Save as permitted in the Long-Term Incentive Plan rules, awards lapse on an employee leaving the Group.

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

32. Share-based payments (cont.)

Long-Term Incentive Plan (cont.)

Key individuals have previously been invited to participate in a bonus matching scheme where matching LTIP share awards are granted when the employee invests their bonus in Xaar shares and retains ownership of these shares for the duration of the LTIP share award vesting period. The matching share award is a 1 for 1 match on the pre-tax value of the bonus used to acquire bonus investment shares. Matching LTIP share awards are subject to the same performance criteria as all other LTIP awards.

Details of Performance Share Awards outstanding during the year are as follows:

	2020	2019
Awards outstanding at start of year	1,135,011	2,080,009
Granted during the year	963,000	829,149
Lapsed during the year	(275,618)	(1,615,254)
Exercised during the year	(234,943)	(158,893)
Awards outstanding at end of year	1,587,450	1,135,011
Exercisable at the end of the year	149,806	255,948

The weighted average share price at the date of exercise for awards exercised during the period was £0.58 (2019: £0.72). The options outstanding at 31 December 2020 had a weighted average remaining contractual life of nine and a half years (2019: seven years). In 2020, Performance Share Awards were made in April, June and October. The aggregate of the estimated fair values of grants made on those dates is £0.44 million. In 2019, Performance Share Awards were made in April and October. The aggregate of the estimated fair values of grants made on those dates is £0.5 million.

The estimated fair values for grants with non-market based performance conditions were calculated using the Black-Scholes model. The inputs into the Black-Scholes model were as follows:

	2020	2019
Weighted average share price	£0.48	£0.96
Weighted average exercise price	nil	£nil
Weighted average expected volatility	74%	44%
Weighted average expected life	3 years	3 years
Weighted average risk free rate	(0.05)%	0.76%
Weighted average expected dividends	0.00%	0.00%

The estimated fair values for grants with market based performance conditions were calculated using the Monte Carlo model. The inputs into the Monte Carlo model were as follows:

	2020	2019
Weighted average share price	£0.44	£0.79
Weighted average exercise price	nil	£nil
Weighted average expected volatility	72%	56%
Weighted average expected life	3 years	4 years
Weighted average risk free rate	0.04%	0.83%
Weighted average expected dividends	0.00%	0.00%

The Group recognised total expenses of £246,000 and £1,111,000 related to all equity-settled share-based payment transactions in 2020 and 2019, respectively.

33. Retirement benefit schemes

Defined contribution schemes

The UK based employees of the Group's UK companies have the option to be members of a defined contribution pension scheme managed by a third party pension provider. For each employee who is a member of the scheme the Company will contribute a fixed percentage of each employee's salary to the scheme. The only obligation of the Group with respect to this scheme is to make the specified contributions.

The total cost charged to the income statement in respect of these schemes during 2020 was £740,000 (2019: £951,000). As at 31 December 2020 contributions of £89,000 (2019: £94,000) due in respect of the current reporting period had not been paid over to the schemes.

34. Related party transactions

Transactions between the Company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note.

Following the transaction in December 2019 which increased the shareholding owned by Stratasys Solutions Limited ('SSYS') in Xaar 3D Limited to 45%, the shareholding determines that they are a related party to Xaar plc.

- SSYS part exercised its existing option, which was granted to SSYS under the terms of the Initial Transaction in 2018, to acquire additional Xaar 3D Shares in return for a \$4 million investment in Xaar 3D, increasing its shareholding in Xaar 3D to 25%
- Xaar sold to SSYS, 20% of the enlarged share capital of Xaar 3D for \$10 million
- Subsequently, Xaar and SSYS together invested \$3.25 million in Xaar 3D on a fully-preemptive basis as follows:
 - Xaar re-invested \$1.79 million into Xaar 3D by way of an additional share subscription; and
 - SSYS invested \$1.46 million into Xaar 3D by way of an additional share subscription.

Following such share subscriptions, Xaar holds 55% of the enlarged issued share capital of Xaar 3D, and SSYS holds 45% of the enlarged issued share capital of Xaar 3D.

In addition, in 2019 Xaar granted SSYS a call option to acquire its remaining 55% shareholding in Xaar 3D for at least \$33 million (being the greater of \$33 million and 2 x revenue for previous 12 months; the option is exercisable during the three-year period following completion of the Additional Investment Agreement ('Call Option'). Exercising such Call Option will entitle Xaar to receive royalties on products and services sales for up to 15 years, subject to a \$10 million cap. This Call Option is subject to a negotiation for amendment to exercise.

Additional disclosure on the transaction is included in note 22 – Financial instruments, and note 35 – Non-controlling Interest.

During 2020 there were both product sales between Xaar and SSYS, and related party transactions associated with the "go-to-market" functions where SSYS employees have been seconded to Xaar 3D Limited and the costs recharged:

- Sales between Xaar and SSYS in 2020 £636,078 (o/s at year end £237,783)
- Purchases between SSYS and Xaar £2,620 (o/s at year end Nil)
- Employees seconded to Xaar from SSYS £219,201 (accrued at year end)

There were no other transactions during the year with related parties who are not members of the Group.

Remuneration of key management personnel

The actual remuneration of the Directors, who are the key management personnel of the Group, is disclosed in the Directors' Remuneration report. The contractual employee benefits are set out below in aggregate for each of the categories specified in IAS 24 'Related Party Disclosures'.

 Further information about the remuneration of individual Directors is provided in the audited part of the Directors' Remuneration report on pages 87 to 89.

	2020 £'000	2019 £'000
Short-term employee benefits	1,040	947
Post-employment benefits	29	53
Share-based payments	183	90
	1,252	1,090

Notes to the consolidated financial statements (cont.)

for the year ended 31 December 2020

35. Non-controlling interest

Summarised financial information in respect of each of the Group's subsidiaries that has a material non-controlling interest is set out below. The summarised financial information below represents amounts before intra-group eliminations.

The terms of the 2019 call option allow for Stratasys to purchase the remaining 55% of Xaar 3D Ltd for at least \$33 million, which is exercisable at any time within three years of closing. The fair value of the option is a £2.9 million derivative liability and is disclosed further in note 22.

The management judgement is that the shareholding and option call held by Stratasys are assessed as having significant influence but does not exercise control over Xaar 3D Ltd and which is therefore subject to consolidation as a subsidiary of Xaar plc. This judgement will be reassessed at each reporting period end.

Stratasys have not consolidated Xaar 3D Limited into their financial statements, presenting their investment under other non-current assets in their consolidated balance sheet.

Xaar 3D Limited

	2020 £'000	2019 £'000
Statement of financial position		
Current assets	3,770	10,057
Non-current assets	6,198	6,909
Current liabilities	(1,233)	(1,432)
Non-current liabilities	(356)	(558)
Equity attributable to owners of the Company	8,379	14,976
Non-controlling interests (2020: 45% / 2019: 45%)	3,771	6,739
Income statement and other comprehensive income		
Revenue	734	18
Expenses	(7,366)	(1,219)
Loss for the year	(6,632)	(1,201)
Loss attributable to owners of the Company	(3,648)	(778)
Loss attributable to the non-controlling interests	(2,984)	(423)
Loss for the year	(6,632)	(1,201)
Total comprehensive loss attributable to owners of the Company	(3,648)	(778)
Total comprehensive loss attributable to the non-controlling interest	(2,968)	(458)
Total comprehensive loss for the year	(6,616)	(1,236)
Cash flow statement		
Net cash outflow from operating activities	(6,213)	(2,434)
Net cash outflow from investing activities	(645)	(2,299)
Net cash (outflow) / inflow from financing activities	(160)	5,511
Net cash (outflow) / inflow	(7,018)	778
Non-controlling interest equity		
Balance at 1 January	6,739	2,028
Effect of initial application of IFRS 16	-	(2)
Adjustment arising from change in non-controlling interest	-	5,171
Share of total comprehensive expense for year	(2,968)	(458)
Balance at 31 December	3,771	6,739

36. Prior period restatement

The financial statements include a prior year restatement in relation to the release of untaxed reserves of £623,000 in XaarJet AB in 2019. This reserve is a Swedish-IFRS GAAP difference and both balance sheet and income statement impacts should have been eliminated on consolidation. The accounting for these untaxed reserves should have no impact on the consolidated Group financial statements as the untaxed reserves are not carried on the Group balance sheet, in accordance with IFRS. However, in 2019 an entry was incorrectly recorded which resulted in a credit of £623,000 to the income statement, with a corresponding reduction to other payables and accruals. A correcting entry has been recorded in these financial statements, as a prior year adjustment to eliminate these entries from the 2019 balance sheet and income statement with a corresponding increase in exceptional costs in 2019 of £623,000 and associated translation reserve impact of £66,000.

Furthermore there was the reversal of an adjustment on intercompany sales which had been made in 2019 in error. The goods had been sold externally by the year end. The adjustment impacts cost of sales (£278,000), general and administrative expenses (£88,000) and inventory (£366,000).

In addition, as required under IFRS the financial statements have been restated to present the assets, liabilities and net income from discontinued operations associated with the planned and ongoing sale of 3D business unit as single lines in the comparative period, which is consistent with the current year presentation [further information and other required disclosures can be found in note 11].

The following tables summarise the impact of the prior year restatement on the financial statements of the Group for year ended 31 December 2019:

Consolidated income statement	Note	As reported 2019 £'000	Untaxed reserve £'000	Inventory £'000	3D £'000	Restated 2019 £'000
Revenue		49,397	–	–	(18)	49,379
Cost of sales		(37,435)	–	277	69	(37,089)
Gross profit		11,962	–	277	51	12,290
Research and development expenses		(3,502)	–	–	421	(3,081)
Research and development expenditure credit		260	–	–	(231)	29
Sales and marketing expenses		(8,410)	–	–	306	(8,104)
General and administrative expenses		(8,689)	–	89	882	(7,718)
Impairment losses on financial assets		(2,715)	–	–	–	(2,715)
Restructuring costs		(896)	(623)	–	–	(1,519)
Gain on derivative liabilities	22	106	–	–	(193)	(87)
Operating loss		(11,884)	(623)	366	1,236	(10,905)
Investment income	10	103	–	–	(38)	65
Finance costs for leases	18	(110)	–	–	13	(97)
[Loss] / profit before tax		(11,891)	(623)	366	1,211	(10,937)
Income tax (expense) / credit	12	(3,501)	–	–	4	(3,497)
[Loss] / profit for the year from continuing operations		(15,392)	(623)	366	1,215	(14,434)
Loss for the year from discontinued operations		(56,082)	–	–	(1,215)	(57,297)
[Loss] / profit for the year		(71,474)	(623)	366	–	(71,731)
Attributable to (Restated):						
Owners of the Company		(71,051)	(623)	366	–	(71,308)
Non-controlling interests		(423)	–	–	–	(423)
		(71,474)	(623)	366	–	(71,731)
Earnings per share from continuing operations (Restated)						
Basic		(19.4p)	(0.8p)	0.5p	1.0p	(18.7p)
Diluted		(19.4p)	(0.8p)	0.5p	1.0p	(18.7p)

Notes to the consolidated financial statements (cont.) for the year ended 31 December 2020

36. Prior period restatement (cont.)

Consolidated statement of comprehensive income	31-Dec-19 as previously reported £'000	Untaxed reserve £'000	Inventory £'000	31-Dec-19 restated £'000
Loss for the year	(71,474)	(623)	366	(71,731)
Exchange differences on retranslation of net investment	(192)	(66)	–	(258)
Other comprehensive (loss) / income for the year	(192)	(66)	–	(258)
Total comprehensive income for the year	(71,666)	(689)	366	(71,989)
Attributable to (Restated):				
Owners of the Company	(71,208)	(689)	366	(71,531)
Non-controlling interests	(458)	–	–	(458)
	(71,666)	(689)	366	(71,989)
Consolidated statement of financial position	31-Dec-19 as previously reported £'000	Untaxed reserve £'000	Inventory £'000	31-Dec-19 restated £'000
Current assets				
Inventories	16,164	–	366	16,530
Total assets	87,858	–	366	88,224
Current liabilities				
Trade and other payables	(7,284)	(689)	–	(7,973)
Total liabilities	(17,198)	(689)	–	(17,887)
Net assets	70,660	(689)	366	70,337
Equity				
Translation reserve	660	(66)	–	594
Retained earnings	7,855	(623)	366	7,598
Total equity	70,660	(689)	366	70,337

37. Non-adjusting post balance sheet event – 3D Call Option

In the year ended 31 December 2020, the Company invested approximately £7.0 million cash in Xaar 3D. Due to delays caused by the impact of the COVID-19 pandemic on the development of Xaar 3D products, the Directors believe there was a risk that the Xaar 3D programme may take longer than anticipated when it entered into the original Call Option with Stratasys, and subsequently the Company would be required to commit additional funds to Xaar 3D. With further investment anticipated, the Xaar Board has considered all options for the future financing and ownership structure of Xaar 3D, and accordingly has held detailed discussions to sell the remaining stake in Xaar 3D. Terms are still to be finalised and may potentially differ to those of the Call Option originally agreed in 2019.

The terms of any final agreement will be subject to Xaar shareholder approval.

Such an arrangement would provide Xaar 3D with the best opportunity to complete the commercialisation of the HSS product range in the shortest time, would lead to an immediate injection of cash and will enable Xaar to focus on its core business (see Strategy update on page 11).

38. Subsidiary audit exemption

The following companies are exempt from the requirements relating to the audit of individual accounts for the year ended 31 December 2020 by virtue of section 479A of the companies act 2006: XaarJet Limited (03320972), XaarJet (Overseas) Limited (03375961), Xaar Technology Limited (02469592), Xaar Digital Limited (03588121), Xaar Trustee Limited (03025096), Xaar 3D Holdings Limited (11425540), Xaar 3D Limited (11389105).

Company balance sheet as at 31 December 2020

	Notes	2020 £'000	2019 £'000
Fixed assets			
Right of use asset	3	39	–
Investments	4	82,055	32,893
		82,094	32,893
Current assets			
Debtors	5	5,572	50,159
Cash at bank and in hand		7,051	4,201
		12,623	54,360
Total assets		94,717	87,253
Creditors: amounts falling due within one year			
Trade and other payables	6	(9,280)	(8,646)
Lease liabilities	3	(16)	–
Provisions	7	–	(119)
		(9,296)	(8,765)
Net current assets		3,327	45,595
Total assets less current liabilities		85,421	78,488
Lease liabilities	3	(19)	–
Net assets		85,402	78,488
Capital and reserves			
Called up share capital	9	7,833	7,833
Share premium account	9	29,328	29,328
Other reserves	9	36,723	36,561
Own shares	9	(1,937)	(2,656)
Share-based payment reserve	9	3,520	3,440
Profit and loss account		9,935	3,982
Equity shareholders' funds		85,402	78,488

Xaar plc reported a profit for the financial year ended 31 December 2020 of £6,663,000 (2019: loss of £1,512,000).

As permitted by section 408 of the Companies Act 2006, the Company has elected not to present its own profit and loss account for the year.

The financial statements of Xaar plc, registered number 3320972, were approved by the Board of Directors and authorised for issue on 27 April 2021. They were signed on its behalf by:



John Mills
Chief Executive Officer



Ian Tichias
Chief Financial Officer

Company statement of changes in equity for the year ended 31 December 2020

	Notes	Called up share capital £'000	Share premium account £'000	Other reserves £'000	Own shares £'000	Share-based payments £'000	Profit and loss account £'000	Total £'000
At 1 January 2019		7,833	29,328	35,729	(3,093)	3,160	5,966	78,923
Loss for the financial year		-	-	-	-	-	(1,512)	(1,512)
Total comprehensive income for the period		-	-	-	-	-	(1,512)	(1,512)
Own shares sold in the period		-	-	-	437	-	-	437
Share option exercises		-	-	-	-	-	(472)	(472)
Capital contribution for share-based payments	4	-	-	832	-	-	-	832
Share-based payments	10	-	-	-	-	280	-	280
At 31 December 2019		7,833	29,328	36,561	(2,656)	3,440	3,982	78,488
Profit for the financial year		-	-	-	-	-	6,663	6,663
Total comprehensive expense for the period		-	-	-	-	-	6,663	6,663
Own shares sold in the period		-	-	-	719	-	-	719
Share option exercises		-	-	-	-	-	(710)	(710)
Capital contribution for share-based payments	4	-	-	162	-	-	-	162
Share-based payments	10	-	-	-	-	80	-	80
At 31 December 2020		7,833	29,328	36,723	(1,937)	3,520	9,935	85,402

The share premium account and other reserves are non-distributable.

Other reserves represent the profit from the sale of a subsidiary, the non-distributable portion of the dividend received in Xaar plc from Xaar Digital Limited and the capital contribution to investments relating to share-based payments.

The share-based payment reserve represents the cumulative charge made under IFRS 2 in relation to share options and LTIP awards.

Full details of share capital, share premium and own shares are given in notes 26, 27 and 28 to the consolidated financial statements.

Notes to the Company financial statements for the year ended 31 December 2020

1. Significant accounting policies

Basis of accounting

The separate financial statements of the Company are presented as required by the Companies Act 2006 and in accordance with FRS 101 ('Financial Reporting Standard 101') 'Reduced Disclosure Framework' as issued by the Financial Reporting Council. The results of Xaar plc are included in the consolidated financial statements of Xaar plc.

As permitted by FRS 101, the Company has taken advantage of the disclosure exemptions available under that standard in relation to share-based payments, financial instruments, capital management, presentation of comparative information in respect of certain assets, presentation of a cash flow statement and certain related party transactions.

Where required, equivalent disclosures are given in the consolidated financial statements of Xaar plc.

The financial statements have been prepared under the historical cost convention.

The principal accounting policies adopted are the same as those set out in note 3 of the consolidated financial statements except as noted below. They have all been applied consistently throughout the year and the preceding year.

Share-based payments

The share-based payment reserve represents the cumulative charge made under IFRS 2 in relation to share options and LTIP awards. The costs related to employees contracted with other Group entities are recharged from Xaar plc to the related entity.

Going concern

The Company's business activities, together with the factors likely to affect its future development, performance and position, are set out in the Strategic Report on pages 8 to 31. Notes 21 and 22 to the consolidated financial statements include a description of the Company's objectives, policies and processes for managing its capital; its financial risk management objectives; details of its financial instruments and hedging activities; and its exposure to credit risk and liquidity risk.

After making enquiries, and having regard to the principal risks the Directors have a reasonable expectation that the Company has adequate resources to continue in operational existence for the foreseeable future, the Directors have assessed the Company's forecasts and cash flow projections for the next 12 months, which have undergone reverse stress tests by significantly reducing revenue across the period, and identified cost mitigations. For this reason, we continue to adopt the going concern basis in preparing the financial statements.

Please refer to Directors' report on pages 64 and 65 for going concern.

Investments

Fixed asset investments in subsidiaries are shown at cost less provision for impairment and include capital contributions arising from share-based payments. Each year, the Company carries out impairment tests of its investments which require estimates to be made of the value in use of its CGUs and groups of CGUs. The value in use calculations are dependent on estimates of future cash flows, long-term growth rates and appropriate discount rates to be applied to future cash flows. Having modelled a number of sensitivities, it was concluded that no reasonably foreseeable change in the key assumptions used in the impairment model would result in a significant impairment charge being recorded in the financial statements.

For investments in subsidiaries acquired for consideration, including the issue of shares qualifying for merger relief, cost is measured by reference to the nominal value only of the shares issued. Any premium is ignored. Utilising transition rules, as the merger relief arose from transactions before the introduction of FRS101, the transaction has utilised grandfathering relief rather than recalculating and presenting under appropriate FRS101 treatment.

Dividends

Dividend income is recognised when an irrevocable right to receive payment has been established provided that it is probable that the economic benefits will flow to the Company and the amount of income can be measured reliably.

2. Profit/(loss) for the year

As permitted by section 408 of the Companies Act 2006, the Company has elected not to present its own profit and loss account for the year.

The average number of employees throughout 2020 was 32 (2019: 31). Staff costs amounted to £1.9 million (2019: £1.9 million). Information about the remuneration of Directors is provided in the audited part of the Directors' Remuneration report on page 87. For the remuneration of key management personnel of the Company see note 34 Related party transactions of the consolidated financial statements.

 The Directors' Remuneration report can be found **on page 87**.

The audit fee for the audit of the Company's financial statements in 2020 was £20,000 (2019: £20,000).

The figures for the auditor's remuneration for the Company required by regulation 5(1)(b) of the Companies (Disclosure of Auditor Remuneration and Liability Limitation Agreements) Regulations 2008 are not presented as the consolidated financial statements comply with this regulation on a consolidated basis.

Notes to the Company financial statements (cont.)

for the year ended 31 December 2020

3. Leases

	Building £'000
Cost	
At 1 January 2020	–
Additions	45
Exchange movements	(1)
At 31 December 2020	44
Depreciation	
At 1 January 2020	–
Charge for the year	(6)
Exchange movements	1
At 31 December 2020	(5)
Carrying amount	
At 31 December 2020	39
At 31 December 2019	–

Set out below are the carrying amounts of lease liabilities (included under interest-bearing loans and borrowings) and the movements during the period:

	2020 £'000
At 1 January	–
Additions	45
Payments	(9)
Exchange movement	(1)
At 31 December	35
Current	16
Non-current	19
	35

The table below summarises the maturity profile of the Group's financial liabilities based upon the contractual undiscounted payments for the year.

	2020 £'000
On demand	–
Less than three months	–
Four to 12 months	17
One to five years	19
More than five years	–
	36

The following are the amounts recognised in profit or loss:

	2020 £'000
Depreciation expense of right-of-use assets	6
Interest expense on lease liabilities	–
Total amount recognised in profit or loss	6

4. Fixed asset investments

	2020 £'000	2019 £'000
Subsidiary undertakings held at cost		
At beginning of the year	32,893	32,062
Additions in the year	49,000	–
Capital contributions arising from share-based payments	162	831
At end of the year	82,055	32,893

The Directors believe that the carrying value of the investments is supported by their underlying net assets.

As described in note 5, an exercise was performed in the year to simplify the intra-group position. This resulted in a capital contribution of £49,000,000, which has been included as an additional investment in the table above.

5. Debtors

	2020 £'000	2019 £'000
Amounts receivable within one year		
Amounts owed by Group undertakings	5,572	50,159
Amounts receivable after more than one year		
Deferred tax asset (see below)	–	–
	5,572	50,159

Amounts owed by Group undertakings are trading balances and interest is not charged.

During 2020 an exercise took place to simplify the intra-group position and historic trading balances, with certain Group debtors being waived which has been accounted for as a capital contribution.

	2020 £'000	2019 £'000
Deferred tax asset at 1 January	–	44
Effect of initial application of IFRS 16	–	(4)
Restated Deferred tax asset at 1 January	–	40
Deferred tax movement on IFRS 16	–	4
Deferred tax movement on share option	–	(44)
Deferred tax asset at 31 December	–	–
Deferred tax asset due after more than one year	–	–

For additional disclosures relating to current and deferred taxation, see notes 12 and 23 to the consolidated financial statements.

Notes to the Company financial statements (cont.) for the year ended 31 December 2020

6. Creditors

	2020 £'000	2019 £'000
Amounts falling due within one year		
Amounts owed to Group undertakings	9,124	8,593
Accruals	156	53
	9,280	8,646

Amounts owed to Group undertakings are trading balances under normal commercial terms and interest is not charged.

7. Provisions

	2020 £'000	2019 £'000
At 1 January	119	78
Additional provision in the year	–	119
Utilisation of provision	(119)	–
Release of provision	–	(78)
At 31 December	–	119

Provision movements relate to restructuring costs arising in Xaar plc. Further details of provisions are provided in note 25 to the consolidated financial statements.

8. Dividends

There were no dividends declared or paid during the current and preceding year.

9. Share capital and share premium account

Full details of movements in share capital, share premium account, other reserves, own shares and the share option payment reserve are given in notes 26, 27, 28 and 30 to the consolidated financial statements.

10. Share-based payments

Equity-settled share option scheme

The Company's share option schemes are open to all employees of the Company. Options are exercisable at a price equal to the average quoted market price of the Company's shares on the date of grant. The vesting period is three years. The vesting criteria of these options are disclosed in note 32 to the consolidated financial statements. If the options remain unexercised after a period of ten years from the date of grant, 42 months in the case of the Share Save Scheme, or five years in the case of the Share Incentive Plan, the options expire. Save as permitted in the share option scheme rules, options lapse on an employee leaving the Company.

The weighted average share price at the date of exercise for share options exercised during the period was £0.53 (2019: £1.32). The options outstanding at 31 December 2020 had a weighted average remaining contractual life of two and a half years (2019: three years), and a range of exercise prices between 0 pence and 344 pence (2019: 0 pence and 403 pence).

The performance conditions relating to the above share options and the exercise prices of options outstanding at the year-end are given in note 32 to the consolidated financial statements.

Long-Term Incentive Plan

The Company's Long-Term Incentive Plan is open to all employees of the Company. Vesting of Performance Share Awards made under this scheme is conditional upon the achievement of performance conditions. Full details of the performance conditions are shown in note 32 of the consolidated financial statements. All awards made under this scheme are exercisable within three to ten years after the date of grant. Save as permitted in the Long-Term Incentive Plan rules, awards lapse on an employee leaving the Company.

The weighted average share price at the date of exercise for awards exercised during the period was £0.45 (2019: £0.73). The awards outstanding at 31 December 2020 had a weighted average remaining contractual life of nine years (2019: nine years). All awards have a Nil exercise price.

11. Subsidiary undertakings

The following entities are the subsidiary undertakings of the Company:

Name	Country of incorporation	Address of registered office	Principal activity	Issued and fully paid up share capital	Proportion of ordinary share capital held by the Company
Xaar Technology Limited	England & Wales	Science Park, Cambridge, CB4 0XR	Research and development	4,445,322 ordinary £1 shares	100%
XaarJet Limited	England & Wales	Science Park, Cambridge, CB4 0XR	Manufacturing, research and development and sales and marketing	2 ordinary £1 shares	100%
XaarJet (Overseas) Limited	England & Wales	Science Park, Cambridge, CB4 0XR	Sales and marketing	1 ordinary £1 share	100%
Xaar Trustee Limited ¹	England & Wales	Science Park, Cambridge, CB4 0XR	Trustee	2 ordinary £1 shares	100%
Xaar Digital Limited	England & Wales	Science Park, Cambridge, CB4 0XR	Treasury	100 ordinary £1 shares	100%
Xaar 3D Holdings Limited	England & Wales	Science Park, Cambridge, CB4 0XR	Holding Company	1,100 ordinary shares of £0.01 each	100%
Xaar 3D Limited ²	England & Wales	Science Park, Cambridge, CB4 0XR	Manufacturing, research and development	2,400 ordinary shares of £0.01 each	55%
Xaar 3D ApS ³	Denmark	c/o Bygning OBV 028, Otto Busses Vej 7, 1. sal., 2450 Kobenhavn SV, Denmark	Research and development	500 ordinary shares of DKK 100 each	55%
Xaar Group AB (in liquidation) ⁴	Sweden	Science Park, Cambridge, CB4 0XR	Holding Company	1,137,000 ordinary shares of SEK 0.09 each	100%
XaarJet AB (in liquidation) ⁴	Sweden	Science Park, Cambridge, CB4 0XR	Manufacturing	1,000 ordinary shares of SEK 100 each	100%
Xaar US Holdings Inc.	USA	1209 Orange Street, Wilmington, New Castle County, Delaware, USA	Holding Company	6,000 shares of common stock \$1 each	100%
Engineered Printing Solutions ⁵	USA	201 Tennis Way, East Dorset, VT 05253, USA	Manufacturing, sales and marketing	100 shares of common stock \$1 each	100%
Xaar Americas Inc. ⁵	USA	1000 Post and Paddock, Suite 405, Grand Prairie, TX 75050, USA	Sales and marketing	10,000 shares of common stock US\$1 each	100%
Xaar Inkjet Technology (Shenzhen) Company Limited ⁶	China	Room 409, Floor 4, Building 13, Fuhai Industrial Zone, Fuzhou Avenue, Shenzhen, China	Sales and marketing	-	-

¹ Xaar Trustee Limited shares are held by Xaar Technology Limited.

² Xaar 3D Limited shares are held by Xaar 3D Holdings Limited.

³ Xaar 3D ApS shares are held by Xaar 3D Limited.

⁴ Xaar Group AB and XaarJet AB, companies incorporated in Sweden were liquidated on EGM on 21 December 2020.

⁵ Xaar Americas Inc and Engineering Printing Solutions are held by Xaar US Holdings Inc.

⁶ Xaar Inkjet Technology (Shenzhen) was granted a trading licence and legally incorporated in China in December 2020 but no share capital was in issue at year end.

Five year record

	2020 Continuing Operations £'000	2019 Restated Continuing Operations £'000	2018 £'000	2017 £'000	2016 £'000
Summarised consolidated results					
Results					
Revenue	47,984	49,379	60,468	100,142	96,178
Gross profit	13,010	12,290	29,496	47,045	44,667
Adjusted (loss)/profit before tax (note 4)	(3,911)	(7,952)	4,523	18,012	19,482
Adjusted (loss)/profit after tax (note 14)	(4,038)	(11,632)	6,930	16,413	16,587
Adjusted diluted earnings per share (note 4)	(5.2p)	(15.1p)	10.0p	20.7p	21.2p
Dividends pence per share	-	-	1.0p	10.2p	10.0p
Assets employed					
Net cash*	18,117	25,322	27,946	44,697	49,321

* Net cash is made up of cash and cash equivalents, treasury deposits less borrowings and assets held for sale.

Notice of the Annual General Meeting

COVID-19 statement

The health and wellbeing of our colleagues, shareholders and the wider community in which our Company operates is a priority for us. The Directors have carefully considered the impact on the meeting of the constantly evolving COVID-19 situation and the UK Government's restrictions and guidance on, amongst other things, public gatherings and social distancing. As at the date of publication of the notice of the Annual General Meeting, it is anticipated that this year's AGM will be held as a closed meeting. Accordingly, save for the Chairman of the Meeting and such other persons as the Chairman of the Meeting may decide should be admitted for the purposes of forming a quorum, shareholder attendance in person at the AGM will not be permitted.

The Company will continue to closely monitor the developing impact of COVID-19 and the latest legislation and guidance issued by the UK Government. If circumstances evolve such that the Directors consider that, within safety constraints and in accordance with government guidance, arrangements regarding attendance at the Annual General Meeting can change, the Company will notify shareholders as soon as reasonably practicable of any such changes via a Regulatory Information Service and on our website. We encourage shareholders to monitor the Company's website and regulatory news services for any updates in relation to this year's AGM.

Given the uncertainty around whether shareholders will be able to attend the AGM, we strongly recommend that shareholders exercise their votes by submitting their proxy as set out in the Notice of Meeting. This will ensure that your vote will be counted if attendance at the meeting is restricted (which is likely to be the case due to the ongoing COVID-19 restrictions). All shareholders are strongly recommended to vote electronically at www.signalshares.com as your vote will automatically be counted. In addition, should a shareholder have a question that they would have raised at the meeting, we ask that they send it by email to investor.relations@xaar.com before 5.00 pm on 8 June 2021. Answers to the questions will be published on our corporate website (www.xaar.com) after the AGM.

Notice is hereby given that the twenty-fourth Annual General Meeting ('AGM') of Xaar plc (the 'Company') will be held at Xaar plc, Unit 5 Enterprise, 3950 Cambridge Research Park, Beach Drive, Waterbeach, Cambridge, CB25 9PE on Wednesday 16 June 2021 at 9:30am for the following purposes:

Ordinary business

To consider and, if thought fit, pass the following Resolutions which will be proposed as Ordinary Resolutions:

1. THAT the Company's annual financial statements for the financial year ended 31 December 2020, together with the Directors' report and auditor's report on those financial statements, be received and adopted.
2. THAT Ernst & Young LLP be re-appointed as the Company's auditors to hold office from the conclusion of this meeting until the conclusion of the next general meeting of the Company at which financial statements are laid.
3. THAT the Directors be authorised to determine the remuneration of the auditors.
4. THAT Dr Robert Mills be re-elected as a Director of the Company.
5. THAT Andrew Herbert be re-elected as a Director of the Company.
6. THAT Christopher Morgan be re-elected as a Director of the Company.
7. THAT Ian Tichias be re-elected as a director of the Company.
8. THAT Alison Littlely be re-elected as a director of the company.
9. THAT the Directors' remuneration report (excluding the Directors' remuneration policy which is set out on pages 78 to 94 of the Annual Report) for the year ended 31 December 2020 be approved.

Special business

To consider and, if thought fit, pass the following Resolutions which will be proposed in the case of Resolution 10 as an Ordinary Resolution and in the case of Resolutions 11 to 13 as Special Resolutions:

10. THAT, in substitution for all existing authorities including the authority conferred on the Directors of the Company by Article 4(b) of the Company's Articles of Association, pursuant to and in accordance with section 551 of the Companies Act 2006 ('Act') the Directors of the Company be hereby generally and unconditionally authorised to exercise all powers of the Company to allot equity securities (within the meaning of section 560 of the Act), or grant rights to subscribe for, or convert any security into, shares in the Company ('Rights'):
 - (i) up to an aggregate nominal value of £2,611,143 (being the nominal value of approximately one third of the issued share capital of the Company); and
 - (ii) up to an aggregate nominal value of £5,222,286 (being the nominal value of approximately two thirds of the issued share capital of the Company) (such amount to be reduced by the nominal amount of any equity securities allotted or Rights granted under paragraph (i)) in connection with an offer by way of a rights issue (as defined in the Listing Rules issued by the Financial Conduct Authority pursuant to Part VI of the Financial Services and Markets Act 2000) or other pre-emptive offer to:
 - (a) the holders of ordinary shares of 10 pence each in the capital of the Company ('ordinary shares') in proportion (as nearly as may be practicable) to the respective numbers of ordinary shares held by them; and
 - (b) holders of other equity securities, as required by the rights of those securities or, subject to such rights, as the Directors otherwise consider necessary, and so that, in each case, the Directors of the Company may impose any limits or restrictions and make any arrangements which they consider necessary or appropriate to deal with treasury shares, fractional entitlements, record dates, legal, regulatory or practical problems in, or under the laws of, any territory or the requirements of any regulatory body or stock exchange or any other matter, such authority to expire on the earlier of the next Annual General Meeting of the Company held after the date on which this resolution becomes unconditional and the date 15 months after the passing of this

Notice of the Annual General Meeting (cont.)

Special business (cont.)

Resolution, save that the Company may at any time before such expiry make any offer(s) or enter into any agreement(s) which would or might require shares to be allotted or Rights to be granted after such expiry and the Directors may allot shares or grant Rights in pursuance of any such offer(s) or agreement(s) as if the authority conferred hereby had not expired. This Resolution revokes and replaces all unexercised authorities previously granted to the Directors to allot shares or grant Rights but without prejudice to any allotment of shares or grant of Rights already made, offered or agreed to be made pursuant to such authorities.

11. THAT, subject to the passing of Resolution 10, the Directors of the Company be authorised to allot equity securities (as defined in section 560 of the Act) for cash under the authority conferred by that Resolution and/or to sell ordinary shares held by the Company as treasury shares as if section 561 of the Act did not apply to any such allotment or sale, provided that such authority shall be limited to:

- (a) the allotment of equity securities in connection with an offer of equity securities (but, in the case of the authority granted under paragraph (ii) of Resolution 10, by way of a rights issue only):
 - (i) to the holders of ordinary shares in proportion (as nearly as may be practicable) to their respective holdings; and
 - (ii) to holders of other equity securities as required by the rights of those securities or as the Directors otherwise consider necessary, but subject to such exclusions or other arrangements as the Directors of the Company may deem necessary or expedient in relation to treasury shares, fractional entitlements, record dates, legal or practical problems in or under the laws of any territory or the requirements of any regulatory body or stock exchange; and
- (b) the allotment of equity securities or sale of treasury shares (otherwise than pursuant to paragraph (i) of this Resolution) to any person up to an aggregate nominal amount of £391,672.

The authority granted by this Resolution will expire at the conclusion of the Company's next Annual General Meeting after the passing of this Resolution or, if earlier, at the close of business on the date 15 months after the passing of this Resolution, save that the Company may, before such expiry make offers or agreements which would or might require equity securities to be allotted (or treasury shares to be sold) after the authority expires and the Directors of the Company may allot equity securities (or sell treasury shares) in pursuance of any such offer or agreement as if the authority had not expired.

12. THAT, subject to the passing of Resolution 10, the directors of the Company be authorised in addition to any authority granted under Resolution 11 to allot equity securities (as defined in section 560 of the Act) for cash under the authority conferred by Resolution 10 and/or to sell ordinary shares held by the Company as treasury shares as if section 561 of the CA 2006 did not apply to any such allotment or sale, provided that such authority shall be:

- (a) limited to the allotment of equity securities or sale of treasury shares up to an aggregate nominal amount of £391,672; and
- (b) used only for the purpose of financing (or refinancing, if the authority is to be used within six months after the original transaction) a transaction which the Directors of the Company determine to be an acquisition or other capital investment of a kind contemplated by the Statement of Principles on Disapplying Pre-Emption Rights most recently published by the Pre-Emption Group prior to the date of this notice.

The authority granted by this Resolution will expire at the conclusion of the Company's next Annual General Meeting after this Resolution is passed or, if earlier, at the close of business on the date 15 months after the passing of this Resolution, save that the Company may, before such expiry make offers or agreements which would or might require equity securities to be allotted (or treasury shares to be sold) after the authority expires and the Directors of the Company may allot equity securities (or sell treasury shares) in pursuance of any such offer or agreement as if the authority had not expired.

13. That the Company be generally and unconditionally authorised for the purposes of section 701 of the Act to make one or more market purchases (within the meaning of section 693(4) of the Act) of ordinary shares provided that:

- (a) the maximum aggregate number of ordinary shares authorised to be purchased is 11,671,810 (representing 14.9% of the issued ordinary share capital);
- (b) the minimum price (excluding expenses) which may be paid for an ordinary share is the par value of the shares;
- (c) the maximum price (excluding expenses) which may be paid for an ordinary share is an amount equal to the higher of (i) 105% of the average of the middle market quotations for an ordinary share as derived from the London Stock Exchange Daily Official List for the five business days immediately preceding the day on which that ordinary share is purchased, and (ii) the higher of the price of the last independent trade and the highest current independent bid on the trading venue where the purchase is carried out;
- (d) this authority shall expire at the conclusion of the next Annual General Meeting of the Company, or, if earlier, at the close of business on the date which is 15 months after the passing of this Resolution unless renewed, revoked or varied before that time; and
- (e) the Company may make a contract to purchase ordinary shares under this authority before the expiry of the authority which will or may be executed wholly or partly after the expiry of the authority, and may make a purchase of ordinary shares in pursuance of any such contract.

By order of the Board

Camila Cottage
Company Secretary

27 April 2021

Notes

1. A member entitled at the meeting may appoint one or more proxies to exercise all or any of the member's rights, to speak at the meeting. A proxy need not be a member of the Company. If a member appoints more than one proxy, each proxy must be appointed to exercise the rights attached to a different share or shares held by the member. If a member wishes to appoint one or more proxies they may do so at www.signalshares.com, if not already registered you will need your Investor code to do so, this can be found on your share certificate. If you need help with voting online, or require a paper proxy form, please contact our Registrar, Link Group by email at enquiries@linkgroup.co.uk, or you may call Link on 0371 664 0391. Calls are charged at the standard geographic rate and will vary by provider. Calls outside the United Kingdom will be charged at the applicable international rate. We are open between 09:00 – 17:30, Monday to Friday excluding public holidays in England and Wales.
2. To be effective, the proxy vote must be submitted at www.signalshares.com so as to have been received by the Company's registrars not less than 48 hours (excluding weekends and public holidays) before the time appointed for the meeting or any adjournment of it. Any power of attorney or other authority under which the proxy is submitted must be returned to the Company's registrars, Link Group, PXS 1, Central Square, 29 Wellington Street, Leeds LS1 4DL. If a paper form of proxy is requested from the registrar, it should be completed and returned to Link Group, PXS 1, Central Square, 29 Wellington Street, Leeds LS1 4DL to be received not less than 48 hours before the time of the meeting.
3. Any person to whom this notice is sent who is a person nominated under section 146 of the Companies Act 2006 to enjoy information rights (a 'Nominated Person') may, under an agreement between him/her and the shareholder by whom he/she was nominated, have a right to be appointed (or to have someone else appointed) as a proxy for the Annual General Meeting. If a Nominated Person has no such proxy appointment right or does not wish to exercise it, he/she may, under any such agreement, have a right to give instructions to the shareholder as to the exercise of voting rights.
4. The statement of the rights of shareholders in relation to the appointment of proxies in paragraphs 1 and 2 above does not apply to Nominated Persons. The rights described in these paragraphs can only be exercised by shareholders of the Company.
5. In accordance with Regulation 41 of the Uncertified Securities Regulations 2001, the Company specifies that only those members entered on the register of members of the Company as at close of business on 14 June 2021 (or in the event the meeting is adjourned, on the register of members 48 hours before the time of any adjourned meeting) shall be entitled to vote at the meeting in respect of the number of shares registered in their name at that time. Changes to entries on the register of members after close of business on 14 June 2021 (or in the event the meeting is adjourned, on the register of members less than 48 hours before the time of any adjourned meeting) shall be disregarded in determining the rights of any person to vote at the meeting.
6. Copies of Directors' service agreements, the terms of appointment of Non-Executive Directors, and the register of Directors' interests kept by the Company under section 808 of the Companies Act 2006 will be available 15 minutes prior to the commencement of the meeting and will remain open and accessible during the continuance of the meeting to any person attending the meeting.
7. Biographical details of all Directors offering themselves for re-appointment are set out on pages 56 and 57 of the Annual Report and Accounts.
8. Shareholders should note that it is possible that, pursuant to requests made by shareholders of the Company under section 527 of the Companies Act 2006, the Company may be required to publish on a website a statement setting out any matter relating to: (i) the audit of the Company's accounts (including the auditor's report and the conduct of the audit) that are to be laid before the Annual General Meeting; or (ii) any circumstance connected with an auditor of the Company ceasing to hold office since the previous meeting at which annual accounts and reports were laid in accordance with section 437 of the Companies Act 2006. The Company may not require the shareholders requesting any such website publication to pay its expenses in complying with sections 527 or 528 of the Companies Act 2006. Where the Company is required to place a statement on a website under section 527 of the Companies Act 2006, it must forward the statement to the Company's auditor not later than the time when it makes the statement available on the website. The business which may be dealt with at the Annual General Meeting includes any statement that the Company has been required under section 527 of the Companies Act 2006 to publish on a website.

Notice of the Annual General Meeting (cont.)

Notes (cont.)

9. In order to facilitate voting by corporate representatives at the meeting, arrangements will be put in place at the meeting so that: (i) if a corporate shareholder has appointed the Chairman of the meeting as its corporate representative to vote on a poll in accordance with the directions of all of the other corporate representatives for that shareholder at the meeting, then on a poll those corporate representatives will give voting directions to the Chairman and the Chairman will vote (or withhold a vote) as corporate representative in accordance with those directions; and (ii) if more than one corporate representative for the same corporate shareholder has not appointed the Chairman of the meeting as its corporate representative, a designated corporate representative will be nominated, from those corporate representatives, who will vote on a poll and the other corporate representatives will give voting directions to that designated corporate representative. Corporate shareholders are referred to in the guidance issued by the Institute of Chartered Secretaries and Administrators on proxies and corporate representatives (www.icsa.org.uk) for further details of this procedure. The guidance includes a sample form of appointment letter if the Chairman is being appointed as described in (i) above.
10. CREST members who wish to appoint a proxy or proxies through the CREST electronic proxy appointment service may do so by using the procedures described in the CREST Manual. CREST Personal Members or other CREST sponsored members, and those CREST members who have appointed a service provider(s), should refer to their CREST sponsor or voting service provider(s), who will be able to take the appropriate action on their behalf.
11. In order for a proxy appointment or instruction made using the CREST service to be valid, the appropriate CREST message (a 'CREST Proxy Instruction') must be properly authenticated in accordance with CRESTCo's specifications, and must contain the information required for such instruction, as described in the CREST Manual. The message, regardless of whether it constitutes the appointment of a proxy or is an amendment to the instruction given to a previously appointed proxy must, in order to be valid, be transmitted so as to be received by the issuer's agent (ID RA10) by 9:30 am on 14 June 2021. For this purpose, the time of receipt will be taken to be the time (as determined by the timestamp applied to the message by the CREST Application Host) from which the issuer's agent is able to retrieve the message by enquiry to CREST in the manner prescribed by CREST. After this time any change of instructions to proxies appointed through CREST should be communicated to the appointee through other means.
12. CREST members and, where applicable, their CREST sponsors, or voting service providers should note that CRESTCo does not make available special procedures in CREST for any particular message. Normal system timings and limitations will, therefore, apply in relation to the input of CREST Proxy Instructions. It is the responsibility of the CREST member concerned to take (or, if the CREST member is a CREST personal member, or sponsored member, or has appointed a voting service provider, to procure that his CREST sponsor or voting service provider(s) take(s)) such action as shall be necessary to ensure that a message is transmitted by means of the CREST system by any particular time. In this connection, CREST members and, where applicable, their CREST sponsors or voting system providers are referred, in particular, to those sections of the CREST Manual concerning practical limitations of the CREST system and timings.
13. The Company may treat as invalid a CREST Proxy Instruction in the circumstances set out in Regulation 35(5)(a) of the Uncertificated Securities Regulations 2001 (as amended).
14. As at 7.00am on 27 April 2021, the Company's issued share capital comprised 78,334,296 ordinary shares of 10 pence each. Each ordinary share carries the right to one vote at a general meeting of the Company, except for the shares held in trust for the Xaar Share Incentive Plan totalling 73,923 ordinary shares and, therefore, the total number of voting rights in the Company as at 7.00am on 27 April 2021 is 78,260,373.
15. Any member has the right to ask questions. The Company must answer any such question relating to the business being dealt with at the meeting but no such answer need be given if: (a) to do so would interfere unduly with the preparation for the meeting or involve the disclosure of confidential information; (b) the answer has already been given on a website in the form of an answer to a question; or (c) it is undesirable in the interests of the Company or the good order of the meeting that the question be answered.
16. You may vote your shares electronically at www.signalshares.com. On the home page, search "Xaar plc" and then log in or register, using your Investor Code. To vote, click on the "Vote Online Now" button.
17. A copy of this Notice, and other information required by section 311A of the Companies Act 2006, can be found at www.xaar.com.

Advisors

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316 Science Park
Cambridge CB4 0XR

Registered number

3320972

Company Secretary

Camila Cottage

Brokers

Investec

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Registered auditor

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Link Group

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Leeds LS1 4DL

Unsolicited mail:

The Company is obliged by law to make its share register publicly available should a request be received. As a consequence, shareholders may receive unsolicited mail from organisations that use it as a mailing list. Shareholders wishing to limit the amount of such mail should either write to Mailing Preference Service, DMA House, 70 Margaret Street, London W1W 8SS, register online at www.mpsonline.org.uk or call the Mailing Preference Service ('MPS') on +44 (0)845 703 4599. MPS is an independent organisation which offers a free service to the public.

Warning to shareholders – boiler room scams

Each year in the UK, £1.2bn is lost to investment fraud, with the average victim losing around £20,000. What is more, it is estimated that only 10% of the people that become victims of investment fraud actually report it.

Investment scams are becoming ever more sophisticated – designed to look like genuine investments, they are increasingly difficult to spot. They are targeted at those most at risk, typically people in retirement who are actively seeking an investment opportunity.

Protect yourself

1. Reject cold calls

If you have been cold called with an offer to buy or sell shares, it is likely to be a high-risk investment or scam. You should treat the call with extreme caution. The safest thing to do is hang up.

If you are offered unsolicited investment advice, discounted shares, a premium price for shares you own, or free company or research reports, you should get the name of the person and organisation contacting you and take these steps before handing over any money.

2. Check the firm on the Financial Services Register at www.fca.org.uk/register

The Financial Services Register is a public record of all the firms and individuals in the financial services industry that are regulated by the FCA.

Use the details on the Financial Services Register to contact the firm.

3. Get impartial advice

Think about getting impartial financial advice before you hand over any money. Seek advice from someone unconnected to the firm that has approached you.

REMEMBER, if it sounds too good to be true, it probably is!

If you use an unauthorised firm to buy or sell shares or other investments, you will not have access to the Financial Ombudsman Service or Financial Services Compensation Scheme if things go wrong.

Report a scam

If you suspect you have been approached by fraudsters please tell the FCA using the share fraud reporting form at www.fca.org.uk/scams, where you can find out more about investment scams.

You can also call the FCA Consumer Helpline on +44 (0)800 111 6768.

If you have lost money to investment fraud, you should report it to Action Fraud on +44 (0)300 123 2040 or online at www.actionfraud.police.uk.

Find out more at www.fca.org.uk/scamsmart

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