Risk management
Managing our risks

Key risk areas

The risks around our business are set out in more detail on pages 47 to 55, but the key risk areas can be identified as being associated with the following:

Market
Risk owner: **CEO** John Mills

1. **Competition**
   Monitoring and adjusting to competitive dynamics such as pricing/promotion, innovation, resource investments and market share changes.
2. **Identification of market requirements**
   Successfully developing products with the characteristics that meet market requirements within the necessary timescale.
3. **Commercialising and maintaining products with cutting edge technology**
   Creating value by generating innovative products that deliver significant customer benefit.
4. **Merger and acquisition opportunities**
   Seek opportunities to expand, create synergies and generate greater shareholder value.
5. **Coronavirus ('COVID-19' and variants) – External**
   Tracking and adjusting to the potential global impact and external risks arising from pandemic response and impact on customers / supply chain.

Operational
Risk owner: **CEO** John Mills

6. **Climate change**
   Identifying risks and scenario planning of physical and transition impact upon operations and developing mitigating actions.
7. **Organisational capability**
   Having the right people in the right roles.
8. **Coronavirus ('COVID-19' and variants) – Internal / Company**
   Tracking the potential local impact and response to pandemic and operational internal risks on employees or organisation.
9. **Brexit**
   Tracking & adjusting to the impact of the Trade & Co-operation agreement between UK & EU.
10. **Manufacturing facility**
    Optimising mix of products, locations and manufacturing partners to drive performance and minimise operational issues.
11. **Partnerships and alliances**
    Working with the right companies, at the right time on the right terms to deliver long-term value.
12. **Supply chain**
    Optimising sourcing and supply chain relationships to drive performance and minimise operational issues.

IT
Risk owner: **CFO** Ian Tichias & **Group IT Director** Graeme Smith

13. **IT systems and control environment**
    Strengthen IT infrastructure and key IT systems. Enhance and build resilience by investing in and implementing new IT infrastructure or IT systems.
14. **IT transformation**
    Delays in 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.
15. **Cyber security risk**
    Loss of systems or confidential data due to a malicious cyber-attack, leading to disruption to business operations and loss of data.

Financial
Risk owner: **CFO** Ian Tichias

16. **Ability to access sufficient capital**
    Ability to access sufficient capital to fund growth opportunities.
17. **Customer credit exposure**
    Offering credit terms ensuring recoverability is reasonably assured.
18. **Inventory obsolescence**
    Holding excess inventory levels when compared to demand, that leads to increased risk of obsolescence and write-off before consumption.
19. **Exchange rates**
    Monitoring global economic events and mitigating any resulting significant exchange rate impacts.

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.

Background

Overall the printing industry is declining in terms of total output, is generally 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. In areas such as Packaging and Textiles, where analogue processes are still dominant, the conversion to digital opportunity is significant.

The digital printing market in which we operate continues to grow, with the market expected to grow from USD $24.8 billion in 2021 to USD $34.3 billion in 2026, at a CAGR of 6.7%. Growing demand for sustainable printing and developments in packaging and textile industries are key factors driving the growth of the digital printing markets. (Source: www.marketsandmarkets.com)

The first approach to managing these risks is to have high quality leaders and teams within the business functions that proactively monitor and adjust to risks that could impact effectiveness. 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. 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 2022.

Climate change

During 2021, the senior management and Board re-evaluated the existing principal risks, and approved the escalation of climate change from an emerging to a principal risk. The Board considers that climate change has the potential to affect our business in various ways and while these may not be severe in the short term, we believe climate change-related risks are likely to have a medium and long-term impact on our business.

Notwithstanding the opportunities and threats climate change presents, the Directors have assessed that currently climate risks present no potential material adverse impact to the financial performance or position of the Group.

In 2022, we will conduct a formal assessment of climate-related scenarios to identify risks and opportunities and the potential impact of both physical and transition risks on the Group's operations, strategy and financial planning.

Supply chain

In the past year, Xaar has navigated the COVID-related supply chain disruptions fairly well. However, there continue to be significant global supply chain risks that could worsen due to COVID and variants, tight labour markets, key component capacity and potential inflationary dynamics. A new separate principal risk has been identified.

Emerging risks

The Board periodically reviews emerging risks, to consider and evaluate the potential impact of newly identified risks against current principal risks, and monitor developing issues. A report in Q4 2021 from Gartner highlighted the Top 5 emerging risks, and these were mapped against existing principal risks.

The Directors' views on each of the above and on emerging risks in general, were integrated into the management discussions and actions being taken on existing principal risks.

Cyber security

Cyber risks continue to be a significant area of focus for the Group following the cyber security incident in October 2020. During 2021 we conducted further work under the IT transformation program to strengthen our IT security, focused on mitigating risks in operational technology in response to the changing dynamics and external cyber threats of new ransomware models. Work on maintaining and, where appropriate, improving the integrity of our system security remains an area of focus.

Internal controls

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.

Following the identification of internal control weakness in EPS during 2020, an action plan was initiated in 2021 to identify and strengthen the internal and management controls. Headcount restructuring and non-cash adjustments relating to slow moving and obsolete inventory were recognised in 2021. External advisors were engaged to support the newly appointed senior management team of EPS in remediation of the gaps identified and establish a proper control environment. In addition, the external advisors also assisted management in development and execution of audit readiness to support the year end preparation of accurate financial statements and supporting documentation.

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.

Emerging risks	Principal risk response
1. New ransomware models	**14. IT cyber risks** – remote working security risks
2. Post-pandemic talent	**7. Organisation capability** – retention & recruitment
3. Endemic COVID-19 and variants	**8. Internal COVID-19 risks & 5. External COVID-19 risks** – further variants
4. Supply chain disruptions	**5. External COVID-19 risks & 12. Supply chain**
5. Hybrid workforce disparities	**7. Organisation capability** – engagement, development & conduct

Compliance

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.

This also complies with FRC guidance on risk management, internal control and related financial and business reporting (September 2014).

Approach to risks

The first approach to managing these risks is to have high quality leaders and teams within the business functions that proactively monitor and adjust to risks that could impact effectiveness.

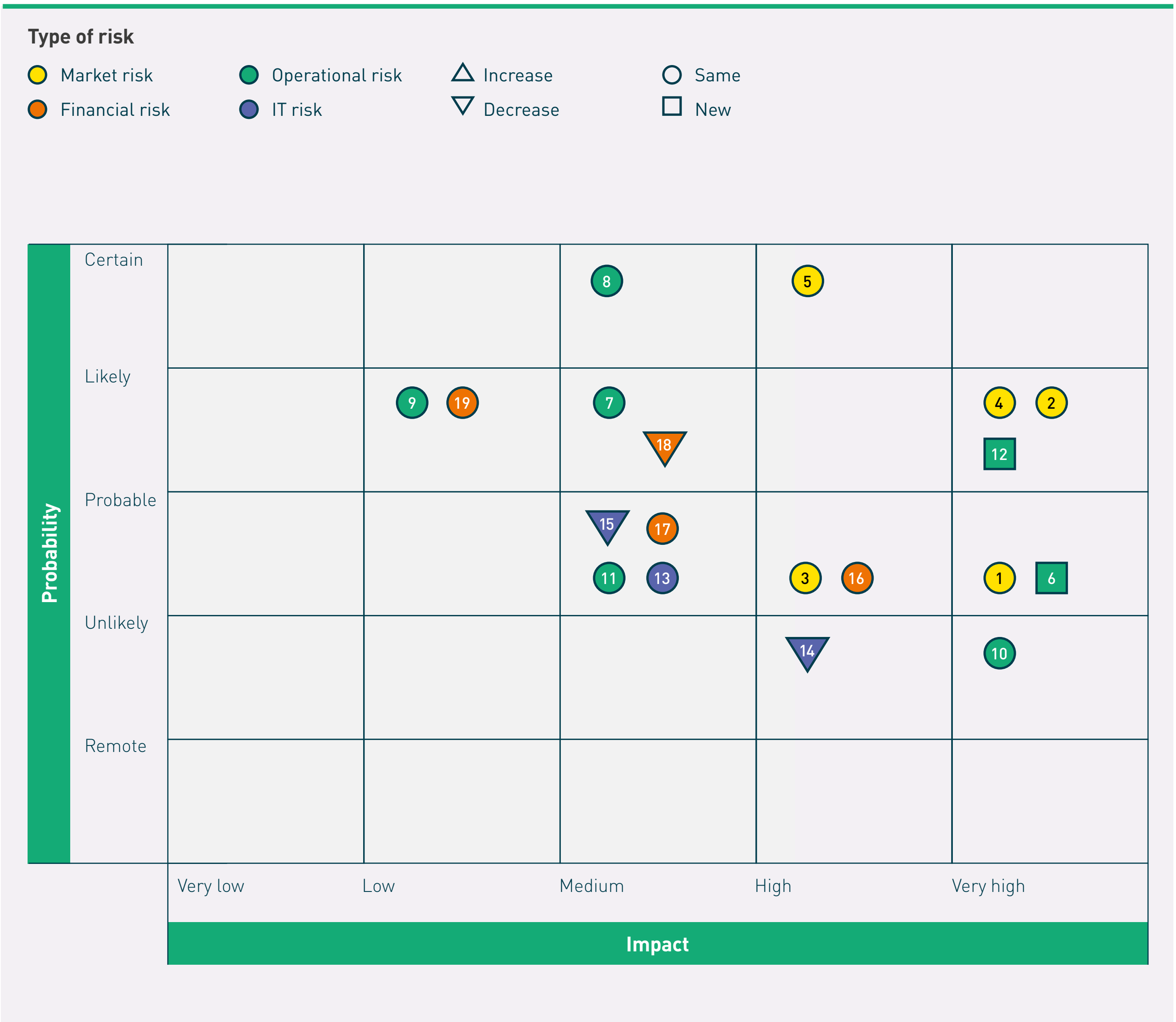
Probability rating

The probability rating is the 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 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
NEW

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Market			
1. Competition	We compete on the basis of our technology, innovation, price, quality, reliability, brand, reputation and customer relationships. 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. We are the only true independent printhead company in the world and we are competing with vertically integrated large scale multinational companies.	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. Production efficiency improvement programmes are established to ensure that cost bases remain competitive within the marketplace. 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. Continued investment in innovative technical solutions for development of new applications from existing technologies and launch new technologies.	**Probable** **Very high** ❯
2. Failure to identify market requirements	Products need to meet the changing demands of the market, including regulatory changes. Failure to meet future market requirements/specifications could impact on long-term revenue and profit.	Regular, specific and detailed reviews are held to assess current and anticipated market requirements, including expected regulatory changes. 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. 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.	**Likely** **Very high** ❯
3. Commercialising and maintaining products with cutting edge technology	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. This could lead to: • 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 to reputation. 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.	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. Xaar's manufacturing facilities are ISO 9001 accredited. Customer returns are reviewed quickly using a consistent and thorough investigation process. 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. This is evidenced by our continued focus on R&D spend and the number of new products brought to market.	**Probable** **High** ❯

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Market			
4. Merger and acquisition opportunities	Our strategy is predicated primarily on organic growth. 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. 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.	Full financial and other due diligence is conducted to the extent reasonably achievable in the context of each opportunity arising from acquisition or divestment. Integration risk and planning would be reviewed and undertaken as part of every acquisition. A detailed business case including forecasts is reviewed by the Board for each opportunity for acquisition or divestment. Use of external advisors.	**Likely** **Very high** ❯
5. Coronavirus (COVID-19) – External	In the uncertain environment of a global pandemic, the impact of COVID-19 can be felt within the entire customer base and supply chain. We operate in a global environment with significant exposure as part of the new business model to OEM customers in China, Europe and USA. Any slowdown in the global economy could lead to delays in capital investment for new equipment that utilises Xaar printheads. Temporary disruption to the supply chain and further workplace restrictions may threaten to slow down production.	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. 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. 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. Order books and manufacturing processes are closely aligned with goods manufactured to customer order. Newly developed printheads will enable Xaar to diversify into a broader customer base and new vertical markets. Scenario planning alongside stress testing and reverse stress testing to identify and develop alternative solutions, as guidance and requirements change during an evolving event.	**Certain** **High** ❯

Key of change
- Increase
- No change
- Decrease
- NEW

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Operational			
6. Climate change	Climate change is not only a future challenge. The IPCC report in 2021 was declared a "code red for humanity". The IPCC, IEA & COP26 have re-enforced the changes that are required to re-wire the economy to a low carbon manufacturing one – and the climate impacts that are expected in a range of scenarios. The impact of Climate change can be specified as: **a)** the physical risks that may impact the assets of the business, and cause business disruption (e.g. flooding), and extreme weather events that may negatively impact the supply chain, to the increases in temperature that will impact human activity and the global supply chain, at an extreme level this could negatively impact the global economy and cause mass emigration from emerging economies **b)** the transition risks in managing the shift to a low carbon economy, and investment / expenditure to manage the transition and remain viable – the potential for reputation damage should the transition be poorly executed or risk of "greenwashing" if announcements are not supported by actions that are measurable.	Investigating and reporting on climate-related risks and opportunities in adherence to internationally accepted recommendations, such as those published by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). The assessment of the risks associated with climate change can also identify opportunities that arise to help potential customers reduce their emissions and increase efficiencies by using digital printhead solutions. **Physical risks:** • Major incident plans are in place with specific provisions for areas most exposed to potential risks (flood, fires, hurricanes etc) • Geographic spread of the business limits the impact to our customers • Our sourcing strategy takes into account risks associated with our key suppliers. Undertake scenario planning across two climate scenarios (e.g. RCP2.6, RCP 8.5) to identify recommendations for key mitigation measures and resilience consideration, including: • Flood modelling • Full assessment of key climate perils. **Transition risks:** • Develop Sustainability Roadmap to deliver 'Net Zero by 2030' • Outline metrics and targets in support of reducing greenhouse gas emissions and developing Science Based Targets to 1.5°C across Scope 1, 2 & 3 emissions • Continue reducing carbon use to minimise impact, and to become a low carbon manufacturer • Identify "spend to save" projects that are cash generative • Continue GHG mitigation actions to maintain a carbon neutral position. Develop transparency and credibility in 'net zero' commitments with verifiable plans and progress in both near-term and medium-term action plans.	**Probable** **Very High** **NEW**

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Operational			
7. Organisational capability	Our people remain key to our business. Ensuring the right people are in the right roles is critical to our future success and growth. Operations in remote locations or highly competitive markets make attracting and retaining skilled employees challenging. 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: • Lack of staff to meet a specific business need or contract requirement • Loss of project specialisms • Single point of failure • Loss of key skills.	Our focus is to minimise the voluntary turnover of employees, through better hiring for fit, improved induction procedures and employee engagement initiatives. Launched in 2021, new corporate values (EPIICC): • Everything with Passion • Innovative • Integrity • Creative • Collaborative The Group reviews remuneration to ensure that the appropriate reward packages accompany a fulfilling work environment. Annual performance management reviews for the majority of employees to identify talent and develop key employees. Investment to build a learning organisation with focus on culture, reward and recognition. An updated suite of Learning and Development tools is being progressed 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 was launched in 2021. Campaigns to increase performance and development of communication between managers and employees to ensure alignment to Company objectives.	**Likely** **Medium** ❯
8. Coronavirus ('COVID-19') – Internal / Operations	Impact across all business operations and locations: Reduction in staff availability and development of commercial opportunities. With the continued uncertainty associated with the virus it is too early to assess the impact on the Group's financial performance. IT infrastructure – see 13. IT systems.	We had stopped all international travel and remote access and business continuity testing has been performed. As we enter a 'post-COVID' world, international travel will be evaluated in conjunction with a risk assessment by location. Employees where possible are working from home, and we have communicated sick and self-quarantine policies to all our staff. Employees who work from home have effective digital collaboration tools to enable continued effective communication with their colleagues, customers and suppliers; we raise employee awareness to cyber security risks and implement additional security measures related to remote working. 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. 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. In 2021 no claims for furlough or job support were requested from the UK Government.	**Certain** **Medium** ❯

Key of change
❮ Increase
❯ No change
❯ Decrease
NEW

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Operational			
9. Brexit	The United Kingdom's decision to leave the European Union presents both risks and opportunities to the Company. 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. 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. The free movement of employees and recruitment of potential employees are key focus areas under the new arrangements. We remain exposed to currency fluctuations that could result from the United Kingdom's decision to leave the EU.	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. A review of import and export tariffs identified minimum effect on the raw materials and finished goods. 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 2022. Identify and support EU, EEA or Swiss employees requiring advice in completion of application to the EU Settlement Scheme. 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. Identify talent that will meet visa requirements under existing Tier 2 conditions and/or minimum threshold criteria for skilled worker general visa. 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. The Group has sufficient cash resources to protect against any short-term volatility. The Board will assess the removal of "Brexit" as a principal risk in 2022, as the transition periods end, and are replaced by normal legislative activities that would be categorised under other principal risks.	**Likely** **Low** ❯
10. Loss of manufacturing facility	We have manufacturing facilities in the UK and the US, and we rely on our strategic partners for key products and components. 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.	Formal disaster recovery plans are maintained and reviewed. Appropriate precautions are taken in all factories and warehouses to safeguard against theft, fire and flood. Business continuity plan implemented, site access restricted, security enhanced, daily building and IT checks for security and performance. Given the specialised nature of the manufacturing equipment and processes there would be short-term disruption. We are also able to use manufacturing partners to alleviate some operational issues. **2021 update**: Reduction versus interim report, as supply chain risk transferred to separate principal risk category.	**Unlikely** **Very high** ❯
11. Partnerships and alliances	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.	The IP and Legal team focuses on the extensive review of legal agreements and in particular IP with such partners. 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. Where significant investment and research is undertaken there will be contractual arrangements to ensure appropriate governance and Board structure to support the business and product development.	**Probable** **Medium** ❯

Risk management continued

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Operational			
12. Supply chain	The Group is dependent on retaining its key suppliers and ensuring that deliveries are on time and the materials supplied are of appropriate quality. There has been a shift from a finished goods risk to a component materials risk particularly where components have a single source of supply. There are challenges with the supply of some key components that are used in production and global logistics routes have experienced some disruption.	Focused on monitoring and securing continuity of supply of components necessary to maintain production and the supply of printheads into 2022: We conduct regular audits of our key suppliers and in addition keep large amounts of safety inventory of key components, which we also regularly review. We also dual source our components where possible to minimise dependency on any single supplier. Working capital investment was undertaken in 2021 to secure the raw component materials required to meet expected 2022 production plans. We will design new products with multiple sources of components where possible, and identify alternative materials to build resilience into manufacturing. We will continue to diversify and localise our supply chains, and investigate developing a circular manufacturing approach by recovery of materials from finished goods to be re-utilised in production.	**Likely** **Very high** **NEW**
IT			
13. IT systems and control environment	COVID-19: IT network resilience and access to information via hardware and software capabilities. Inability to operate effectively or loss of operating capability. Loss of information, incurring financial or regulatory penalties.	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. Developed and communicated a new IT Vision statement and IT Strategy which are clearly aligned to our overall business objectives. 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. 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. Placing increased focus on ensuring that continuity plans for critical IT systems are tested and current as the IT infrastructure and systems are changed. Developing the IT Service Delivery maturity and increasing capacity in the Group IT function.	**Probable** **Medium** ›
14. IT transformation	Delays in transformation project to deliver the key elements of the IT Strategy and achieve the Vision for IT. Inability to progress sufficiently quickly to avoid disproportionate increases in the operational cost base as the business grows. Lack of alignment between business processes and IT systems.	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. 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. Undertaking real-time project delivery management and assurance activities throughout the Transformation Programme.	**Unlikely** **High** ⌄

Key of change
- ⌃ Increase
- ❯ No change
- ⌄ Decrease
- NEW

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
IT			
14. IT transformation continued		**2021 update:** Overall risk level reduced as a result of probability being lowered. Good project delivery performance in 2021 with all planned projects in the IT infrastructure and IT security work streams delivered to plan. Major achievement in the ERP work stream successfully delivered the highest priority project to upgrade Xaar's ERP system to the latest supported release of the software.	**Unlikely** **High** ⌄
15. Cyber threat and information security	Inability to operate effectively or significant loss of operating capability and business disruption. Unauthorised access to data, breach of information security and data protection regulations incurring financial penalties from regulators. Reputational impact, business disruption and potential deterioration in customer relationships. Potential loss of Intellectual Property or exposure of commercially sensitive information. 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.	Implemented a Multi-Factor Authentication solution for VPN to reduce the likelihood of remote attacks. MFA rolled out across all key systems in 2021, including CRM and HR systems. Established incident response and business contingency plans were in place and have been strengthened following the cyber breach in October 2020. Strengthened our Enterprise Backup Solution by incorporating a third immutable copy of all system data in a secure public cloud environment. Prioritisation of infrastructure and systems rationalisation to reduce the available attack surface for malicious cyber attackers. Implemented a risk-based security testing approach across IT infrastructure and systems to identify ongoing vulnerabilities and prioritise remediation. Inclusion of a security work stream in the IT Transformation Programme, with an in-depth externally conducted IT Security Assessment. IT Service maturity and increased capacity in the Group IT function will enable us to enhance our security operations capability. Employees are trained on the risks of phishing and best practices for IT, a new training and education programme for information security will be introduced in 2022. 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. **2021 update:** Overall risk level reduced as a result of probability being lowered. Whilst the general prevalence of cyber-attacks has increased during the last 12 months, we have made good progress in strengthening Xaar's IT security and reducing the number of vulnerabilities that malicious attackers could exploit. External IT security consultants (Claranet) were engaged in 2021 to perform penetration tests to assist in the identification and resolution of any remaining vulnerabilities in the network. A review will be undertaken in 2022 as to the benefits of ISO 27001 certification as part of the IT security stream. The Board receives regular updates on the IT Transformation Programme and cyber security risks. The Board will continue to assess progress in the IT security stream in 2022. The Board has assessed the IT security risk based on the above and deferred introducing specific cyber security insurance in 2021; this is subject to annual review by the Board.	**Probable** **Medium** ⌄

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Financial			
16. Ability to access sufficient capital	Our ability to access sufficient capital/liquidity may restrict growth opportunities for our organisation, as well as the strategic plan and vision. Significant investment is required to bring new products to market and ramp up to meaningful volumes.	The Group has sufficient cash available for execution and delivery of the strategy within agreed timescales. The Group has implemented cost reduction actions to focus resources on key initiatives and to achieve break even under current volume requirements. 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.	**Probable** **High** ❯
17. Customer credit exposure	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 their 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.	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. Monitor overdue receivables and manage credit limits prudently. Close management of overdue debtors and use of credit holds to encourage payment. The business model has moved away from a distribution model, to being a direct supplier to OEM manufacturers, which reduces the future risk being contained in a limited number of large transactions to a wider breadth of supply across a consistent sales order pipeline. New OEM customers are being onboarded with favourable payment terms depending upon credit assessment and review of credit history. Where there is exposure to Chinese manufacturers payments in advance may be requested.	**Probable** **Medium** ❯
18. Inventory obsolescence	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. Conversely, too little inventory risks stock outs, missed sales opportunities and ultimately damage to Xaar's reputation. Insufficient buffers in raw materials increase Xaar's exposure to supply chain issues – particularly during times of economic uncertainty (see Brexit) or health emergencies (see COVID).	Put in place appropriate stock holding policies, ensuring these are reviewed frequently and change dynamically in line with market/business conditions. Identify and write off obsolete or slow moving stock items, review work in progress to determine profitability of contracts and revenue recognition for EPS. In 2021 a review of inventory recorded in EPS was undertaken as part of the improvements to internal and management controls, leading to the non-cash adjustments for writing off historic inventory values. Improvements have been made to management controls relating to the costing of projects and physical stock counts. Enforcing lead times for customer orders to ensure we have the most accurate forecast in place as far out as possible. Continually develop forecasting techniques so that stock requirements can be predicted with great accuracy. Ongoing supplier negotiation to reduce minimum order quantities to prevent obsolescence and inflated inventory. To minimise the potential impact of supply chain disruption arising from economic uncertainty, inventory levels for components have been increased to provide sufficient availability for production plans in 2022.	**Likely** **Medium** ⌄

Key of change
❮ Increase
❯ No change
❯ Decrease
NEW

Risk and link to business unit	Impact	Mitigation	Likelihood Magnitude Change
Financial			
19. Volatility in exchange rates	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. The Group is exposed to currency transactional risk relating to day-to-day sales and purchases across GBP, USD, and EUR. Reported results of overseas subsidiaries are subject to translational risk which may cause volatility in earnings and the balance sheet. The risk is that there could be significant adverse movements in currencies which cause a foreign exchange loss, reducing profit.	We take a balanced view of this risk as the risk arises as a direct result of our global presence, but our geographic spread means we are not wholly dependent on any one currency. There is a partial natural hedge for foreign currency movements, with sales companies and manufacturing spread across the globe. Consideration of exchange rate movements in the manufacturing operations. Cash flows are constantly reviewed and action is taken when appropriate. We may enter forward cover contracts in line with the Group Treasury Policy on hedging foreign currency exchange movements. See 'Brexit' risk above for further disclosure.	**Likely** **Low** ❯