

OXFORD METRICS TECHNOLOGY

5 April 2022

OMG.L

97p

Market Cap: £122m

SHARE PRICE (p)



12m high/low 127p/94p

Source: LSE Data

KEY DATA

Net (Debt)/Cash	£20.8m (at 30/09/21)
Enterprise value	£101.2m
Index/market	AIM
Next news	Trading update Apr '22
Shares in Issue (m)	125.7
Chairman	Roger Parry
Chief Executive	Nick Bolton
Finance Director	David Deacon

COMPANY DESCRIPTION

Oxford Metrics develops smart sensing software that enables the interface between the real world and its virtual twin.

www.oxfordmetrics.com

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Value in motion

Oxford Metrics' (OM) business is based around technology for obtaining data from sensors and other devices, managing and analysing that data and then delivering it in a way or form that creates value. OM has two interesting and high-quality technology divisions: Vicon (77% revs FY21), the global leader in motion tracking software and solutions, and Yotta (23% revs FY21), an infrastructure asset management software business. In our view, the standout difference for OM versus other UK-listed tech companies is the opportunity provided by LBE (Location-Based Entertainment) and other new applications for OM's technologies, served either directly, via licensing or other partnership routes.

- **Vicon's main technology is 3D visual motion tracking software** that measures the real-time positions of markers attached to a subject – sometimes a human, sometimes an object – and then provides comprehensive analysis tools to enable the user to understand the movement being studied.
- **Vicon works across three main markets: Life Sciences, Engineering and Entertainment.** It has built strong, and in some cases leading, positions in these markets, but there is significant potential elsewhere, most notably at present in Location-Based Entertainment (eg virtual reality based gaming venues), to exploit OM's core capabilities of 'Sense, Analyse and Apply'.
- **Yotta provides asset management software for local government and other infrastructure and services providers.** Yotta's approach and technology means that it has significant potential, with competitive advantages not only in its current niches of local authority and road asset management, but also in other areas for management of infrastructure assets and provision of related services.

As we move towards more digital-intensive ways of living both our working and personal lives, OM's core capabilities of Sense, Analyse and Apply become increasingly important, creating new opportunities to exploit OM's technology and skills. We believe that Location-Based Entertainment is just the first such opportunity to drive revenues and profits significantly beyond current levels – suggesting that OM could potentially have significant valuation upside from current levels.

FYE SEP (£M)	2020	2021	2022E	2023E	2024E
Revenue	30.3	35.6	41.3	46.5	51.0
Adj EBITDA	5.2	6.7	8.5	9.9	11.1
Fully Adj PBT	2.6	4.8	5.1	6.3	7.2
Fully Adj Dil EPS (p)	2.0	3.6	3.7	4.5	5.2
EV/Sales (x)	3.3x	2.8x	2.4x	2.2x	2.0x
EV/EBITDA (x)	19.4x	15.2x	11.9x	10.2x	9.1x
PER (x)	48.0x	27.2x	26.2x	21.5x	18.7x

Source: Company Information and Progressive Equity Research estimates.

This publication should not be seen as an inducement under MiFID II regulations.

Please refer to important disclosures at the end of the document.

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Executive Summary

Oxford Metrics' (OM) business is based around technology for obtaining data from sensors and other devices, managing and analysing that data and then delivering it in a way or form that creates value. Management regards the ability to analyse high-speed and/or high-volume data as OM's crown jewels, and sets out the three core capabilities of the group as Sense, Analyse and Apply.

OM is made up of two divisions: Vicon, the global leader in motion tracking software and solutions, and Yotta, an infrastructure asset management software business.

Vicon – motion capture technology (FY21: 77% revenues, 90% divisional profits)

Vicon's main technology is 3D visual motion tracking software that measures the real-time positions of markers attached to a subject – sometimes a human, sometimes an object – and then provides comprehensive analysis tools to enable the user to understand the movement being studied. Vicon works across three main markets: Life Sciences, Engineering and Entertainment.

- **Life Sciences.** OM's technology is applied in a range of applications within life sciences, which covers orthopaedics, physiotherapy, sports medicine and coaching, and animal biomechanics.
- **Engineering.** OM's technology finds applications in an industrial environment in a number of ways, including tracking UAVs (drones), evaluating product designs for customer usage and efficiency of assembly.
- **Entertainment.** In the entertainment sector, Vicon's motion capture customers are companies producing content for the film, TV and video game markets. Vicon counts all the major games developers and film effects houses among its customers, and is widely recognised as the market leader.

We expect the Life Sciences and Engineering revenues to grow at several percent ahead of GDP growth over the short to medium term, while the Entertainment segment should see significantly stronger growth (double figures % p.a.) helped by the take-off in demand for virtual production (VPro) systems.

Virtual production. In-camera visual effects in virtual production allows content makers to take a major step forward from the traditional production techniques in a number of ways. With VPro, instead of performing in front of green screens, actors can perform in front of dynamic images of the background on LED walls. It also allows content creators to have actors in different locations working on the same virtual set, and it can even integrate digital characters into the process, so that directors can see real actors and digital characters 'live' with near-final quality shots as they shoot scenes. VPro brings together the filming and post-production stages into one. The potential cost savings are considerable, not only in the original production process, but also in reducing the amount of post-production work required as directors can see the results immediately and make changes or retake scenes there and then.

Location-Based Entertainment and embedding technologies. In addition to serving these three core markets directly, OM also seeks to address other markets through embedding its technology within the applications of partners, currently focusing these efforts on the Location-Based Entertainment market (LBE), ie venues featuring VR-based games and experiences. LBE ranges from 3D experiences based around the participant as a viewer/audience, such as 3D flights across cities, to 3D video games where participants play in teams and are aware of, and able to play with or against, others.

Management is currently working with eight partners in the LBE market, with a range of product offerings and business models, from Electric Gamebox (EG) and Sandbox VR focusing on high street / cinema complex venues through to tourist / event-based Dreamscape Immersive. A number of these partners have considerable VC funding behind them and aggressive roll-out targets. With typical spend on OM solutions in the region of £50-75k per site and industry analysts and participants talking in terms of hundreds, if not thousands, of sites, LBE should be a significant driver to OM's revenues, profits and value. Our revenue forecasts for Vicon show average revenue growth of 11% per annum FY21-FY24E based on the core markets; adding in LBE takes this to 14%.

We note that further embedding of OM solutions and technology, both Vicon and Yotta sourced, is being explored by the company across other end markets where OM does not have the skills, scale or access to fully exploit the opportunity.

**Yotta – asset management and operations software
(FY21: 23% revenues, 10% divisional profits)**

Yotta provides asset management software for local government and other infrastructure and services providers. While its end markets might not initially appear exciting or dynamic compared to those of Vicon, Yotta's differentiated approach and technology means that it has significant potential, with competitive advantages not only in its current niches of local authority and road asset management, but also in other areas for management of infrastructure assets and provision of related services. We are forecasting 8% average annual revenue growth for Yotta over FY21-FY24E, driven mainly by increasing recurring subscription revenues.

Five-year plan to take OM to the next level

The exciting opportunities open to OM are only partially reflected in our forecasts. The take-off in LBE is only just starting and management has been clear about the need to increase investment in development by £2.3m per annum in the short term as part of its ambitious five-year plan, revealed to investors in October 2021. The five-year plan focuses on the three capabilities of Sense, Analyse and Apply.

Sense – Extend the capabilities of its smart sensing systems through R&D, acquisitions and developing key industry relationships.

Analyse – Enhance the analysis that OM is able to perform in order to improve current products, but also to allow entry into other applications for OM's technology.

Apply – Embed the company's technology in the solutions provided by others through R&D, M&A and investing in dedicated resources.

Management's goal is to exit FY26 with revenues at a rate 2.5x that when exiting FY21, with group net profitability returning to what management regards as a historical norm of 15%. Achieving these goals would entail a significant change to the scale of the business and, most likely, its valuation.

Introduction

Oxford Metrics plc (OM) was spun out of Oxford Instruments plc (OXIG) in 1984, serving as a vehicle for the motion capture technology that OXIG had been working on for several years. OM worked in healthcare initially, but soon moved into entertainment and then engineering and defence. Floated in 2001, it has continued to grow, primarily organically but also through smaller enabling acquisitions, establishing a track record of incubating and exploiting technology that is rare in the UK technology sector.

Oxford Metrics' business is based around technology for obtaining data from sensors (especially image sensors), managing and analysing that data and then delivering it in a way or form that creates value. Management regards the ability to analyse high-speed and/or high-volume data as OM's crown jewels, and sets out the three core capabilities of the group as Sense, Analyse and Apply.

OM is now made up of two divisions: Vicon, the global leader in motion tracking software and solutions, and Yotta, an infrastructure asset management software business.

Revenue mix FY20-FY24E (left), and Adj PBT mix (FY21 £7.6m divisional pre central costs) (right)

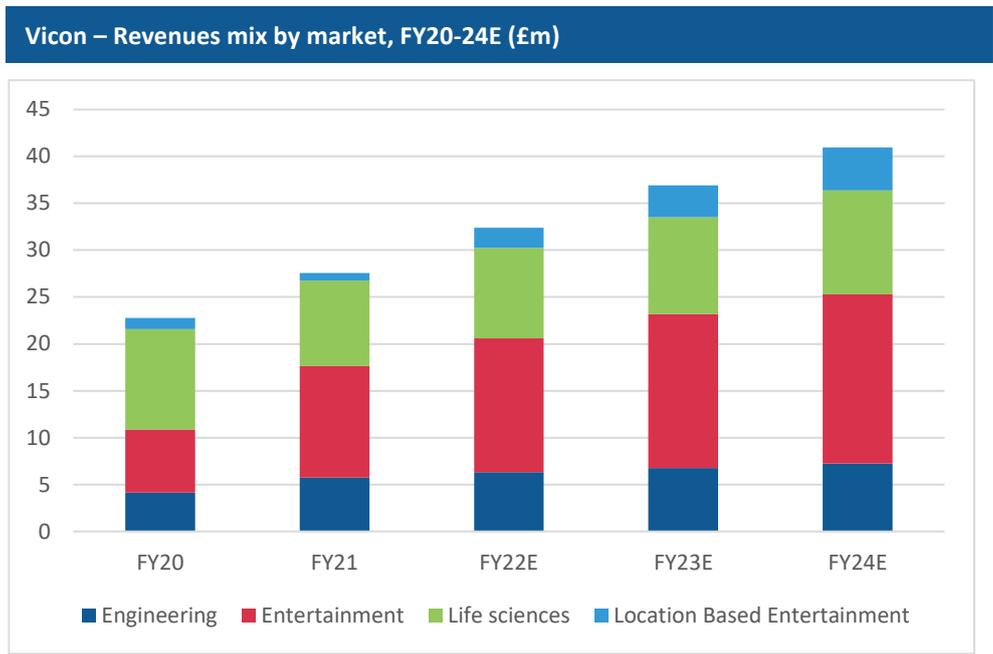


Source: OM

Vicon

Working across three main markets, Life Sciences, Engineering and Entertainment, Vicon generates the majority of OM's revenues and profits. In addition to serving its three core markets directly, OM also seeks to address other markets through embedding its technology within the applications of partners, currently focusing these efforts on the Location-Based Entertainment market (ie venues featuring VR-based games and experiences).

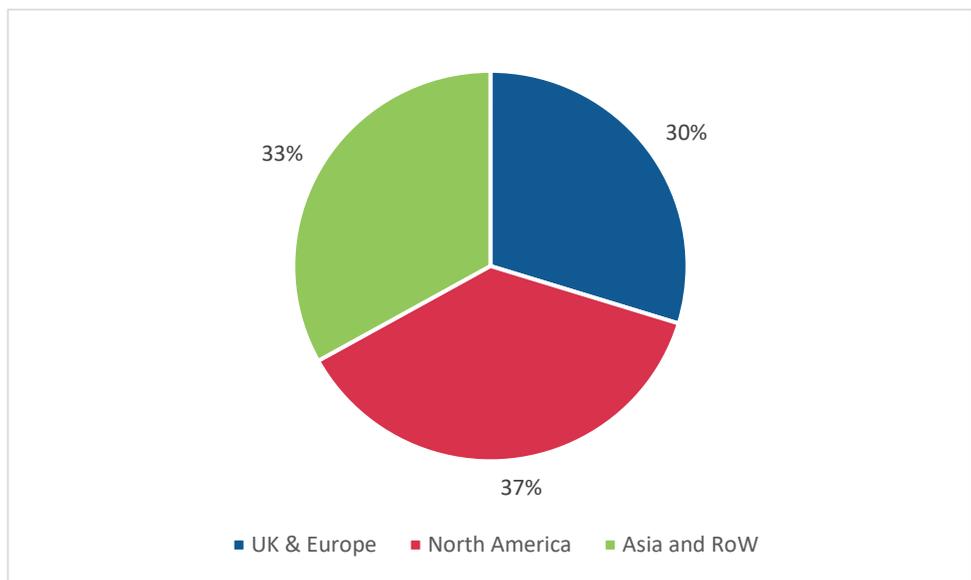
Vicon’s main technology is 3D visual motion tracking software that measures the real-time positions of markers attached to a subject – sometimes a human, sometimes an object – and then provides comprehensive analysis tools to enable the user to understand the movement being studied. The software also enables other sensed information, such as from force plates or electromyography (EMG) systems, to be combined with the movement data to enable a complete analysis of the subject in motion through high-speed cameras and markers on the body being tracked. There are a number of technological challenges within this, mainly capturing and analysing the very high-speed data, handling and synchronising data from anywhere up, and even beyond, 250 cameras working at up to 2,000 frames per second with sub-millimetre 3D measurement accuracy, and dealing with the specific peculiarities of the wide variety of measurement applications customers apply the technology to.



Source: OM, Progressive Equity Research

In recent years, Vicon has made significant moves into other motion sensing technologies, such as video motion tracking (CONTEMPLAS, in 2021) and inertial sensors (IMeasureU, in 2017), which complement Vicon’s existing technologies and present opportunities for reapplication of these technologies across Vicon’s end markets.

Vicon – Geographic mix of revenues (FY21 £27.6m)



Source: OM

While the vast majority of Vicon revenues are disclosed as hardware sales (mainly cameras but also other devices like calibration and networking devices), the bulk of the solution’s value lies in the software contained within those devices and sold alongside it.

Life Sciences

OM’s technology is applied in a range of applications within life sciences, which covers orthopaedics, physiotherapy, sports medicine and coaching, and even animal biomechanics.

The end customers, being mainly medical and educational institutions, are typically publicly funded and therefore relatively predictable over the medium term. They include Georgia Tech, Asics, Cambridge University, Shriners Hospitals for Children, Loughborough University, Adidas, Harvard University and Red Bull. Although the exact amounts vary significantly, a typical order would be for c.\$100k with a renewal / upgrade cycle of around seven years.

The list of life sciences issues that could be helped with OM’s technology is seemingly endless. For OM, the demand has to be for very precise 3D movement measurement and analysis for it to be worthwhile pursuing.

The impact of the pandemic was a significant decline in life sciences revenues from £13.6m (FY19) to £10.7m (FY20), which then continued to fall to £9.1m in FY21, although clear signs of recovery have been visible, with £4.9m in H2 vs £4.2m in H1 FY21.

Engineering

OM’s technology finds applications in an industrial environment in a number of ways, including tracking UAVs (drones), evaluating product designs for customer usage and efficiency of assembly, and even training mining engineers.

Industrial customers of Vicon's technology have included NASA, Lockheed Martin, dyson, University of California Berkeley, Boeing, VW and Bosch.

As with life sciences, it is relatively easy to imagine new applications for motion capture within an engineering context. However, cost is a constraint, with cost-conscious engineers and OM's management, rightly, focused on generating a worthwhile margin.

The order size in the engineering market varies considerably, with some customers starting out with \$25k and others willing to spend several \$'00k or more, but a typical order would be around \$100k. As regards the spending cycle, this also varies considerably but management views it as being around five years on average.

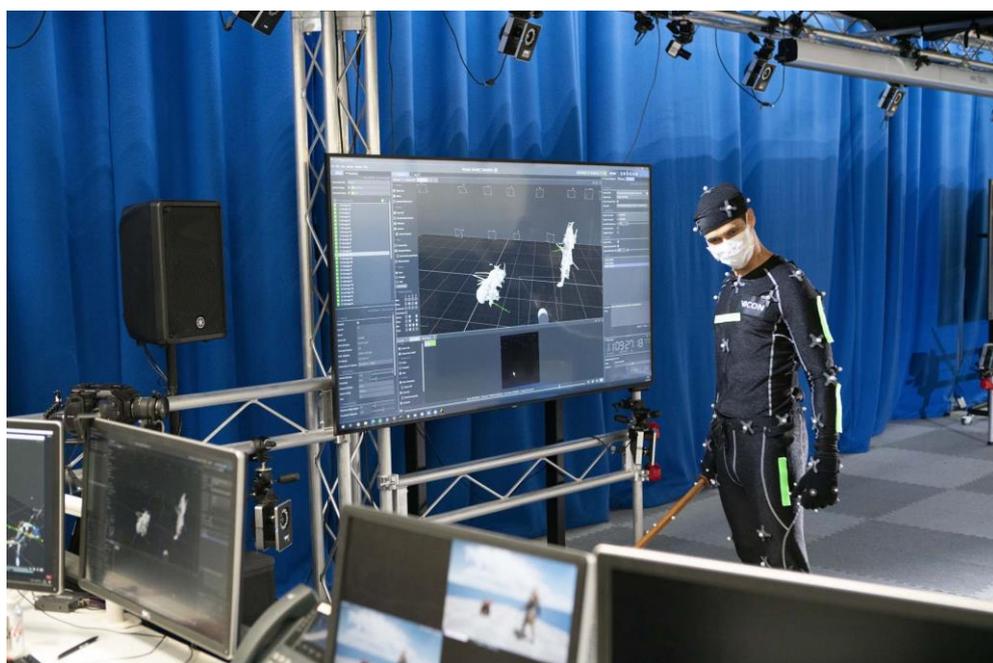
Within this market, most of the customers are driven by their own business cycles as well as the state of the wider economy. There is, however, an element of engineering sales that goes to educational research establishments, which tends to be particularly stable.

The impact of the pandemic was to hit FY20 engineering revenues hard, but there has been a subsequent bounce back towards 'normal' levels in FY21, with £6.0m FY19, £4.1m FY20 and £5.8m FY21.

Entertainment

In the entertainment sector, Vicon's customers are companies producing content for the film, TV and video game markets. Vicon counts all the major games developers and film effects houses among its customers, and is widely recognised as the market leader. Customers include Electronic Arts, Ubisoft, Epic Games, Disney, Activision, Industrial Light & Magic and DNEG.

Motion capture for video game



Source: Image courtesy of Dimension Studio

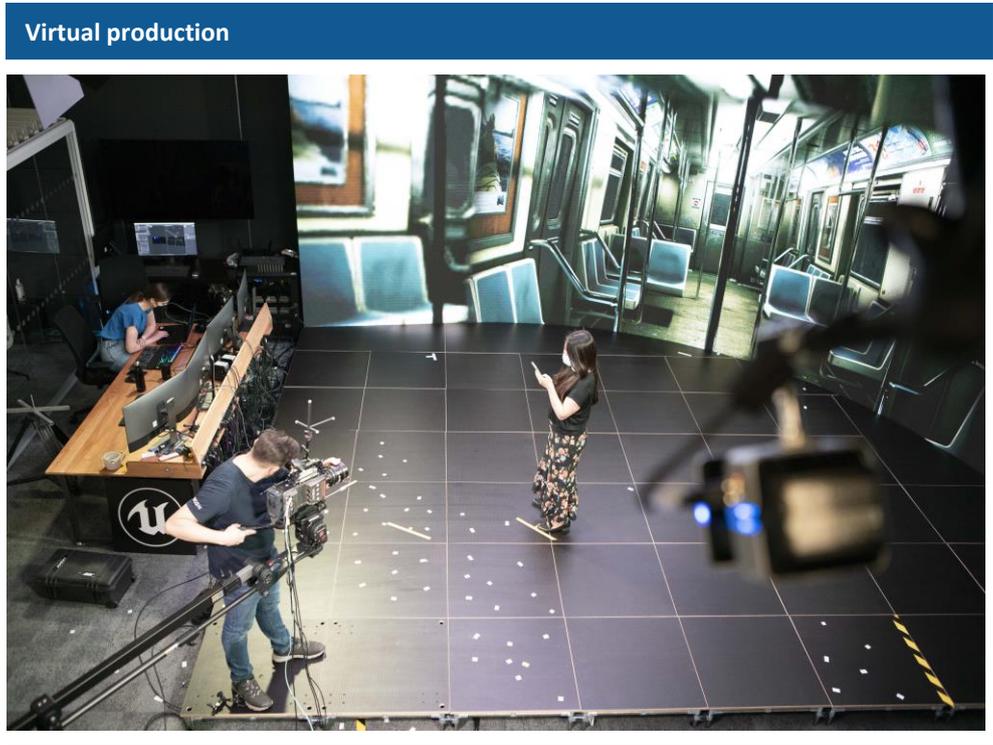
Being consumer-driven, this market is subject to macroeconomic fluctuations. However, a more direct impact is the video game console cycle, in which video games content creators' spending on content, and therefore on equipment to help produce that content, is driven by the launch timetable for each new generation of console. Although specific numbers are not disclosed, management has stated that strong demand ahead of the introduction of the Sony PlayStation 5 has been a significant factor in the strong performance in this area across the pandemic.

The solutions provided to Entertainment customers are generally more complex and sizeable than in Engineering and Health, with typical orders of around \$250k, on a slightly faster upgrade cycle of around four years.

That said, we anticipate that the TV and film markets will become more important over the coming years driven by such factors as virtual production (VPro) and the increased application of digital effects and film-making techniques.

In-camera visual effects in virtual production (VPro) allows content makers to take a major step forward from the traditional green-screen techniques. Instead of performing in front of green screens, actors can perform in front of dynamic images of the background on LED walls, with the systems able to adjust for parallax with the backdrop image as the camera moves and its motion is tracked by the Vicon system. It can even integrate digital characters into the process, so that directors can see real actors and digital characters 'live' as they shoot scenes. Furthermore, it can also allow multiple virtual sets. It is even possible to have actors in different locations working on the same virtual set.

This approach brings together the filming and post-production stages. The potential cost savings are considerable, not only in the original production process but also in reducing the amount of post-production work required as directors can see the results immediately and make changes or retake scenes there and then.



Source: Courtesy of Epic Games London Innovation Lab

In the past 24 months, there has been a particular growth of interest in virtual production, with sales of VPro systems rising from £1.3m in FY20 to £1.7m in FY21, stimulated partly by pandemic-related challenges in terms of bringing people together to work on a set.

The fit out for a virtual production facility in terms of OM equipment, varies from around £200k for a typical TV production volume through to £500k for a high-end film and/or major TV series production space. While there are perhaps only a few dozen major locations in the short term, there are hundreds of smaller TV and lower-budget film facilities worldwide for which VPro is relevant and attractive.

Competition

Vicon faces competition across its markets, but it is limited. Management regards Optitrack (part of Leyard, SHE: 300296, one of a number of players in the LED wall market) and Qualisys (private, Sweden) as the leading competitors, with Optitrack more in entertainment and the US, and Qualisys more in life sciences and Europe. Management also believes that OM has the leading position across these core markets.

Vicon – threat / opportunity of alternative technologies

Perhaps the greatest competitive threat to Vicon is alternative ways of sensing movement and position. In recent years, improving video camera technology and the application of such technologies as AI have led to video motion capture becoming increasingly effective in motion capture applications. The development of low-cost motion, position and orientation sensors (driven mainly by their use in mobile phones) has enabled similar developments in the use of ‘inertial’ motion capture. OM’s strategy has been to explore the technologies internally and to acquire them when suitable opportunities arise.

In June 2017, OM acquired IMeasureU and its wearable, inertial motion sensing technology for £2m. Since then, this technology has been applied in OM’s Blue Trident range of devices and integrated into the core Vicon offering.

In September 2021, OM announced the purchase of CONTEMPLAS for an initial and deferred consideration of £1.14m, giving OM access to the company’s complementary and highly regarded video tracking technology, along with a leading position in the analysis of swimming performance. It is noteworthy that OM already had a 12% holding in the company, having invested €0.1m in 2005.

Given the increased prevalence of video capture devices (most notably cameras in mobile phones), it is no surprise that a multitude of low-end motion capture solutions have appeared. We do not regard these as in any way a competitive threat to Vicon in any professional markets. They can capture only basic single-person movements, almost always in 2D, but they take a considerable time to process the images, struggle with complex body movements and fail completely when trying to track multiple bodies.

These products, along with the relatively short-lived excitement surrounding such products as Nintendo’s Wii and Microsoft’s Kinect for X-Box, do however indicate the latent potential and demand for motion capture. And while they suggest that consumer technologies could open up some markets, including some within life sciences and engineering, to 3D motion capture technology, the very limited success of numerous attempts to apply such products to wider applications demonstrates just how significant a challenge 3D motion capture is.

Embedding technology

What is embedding and why do it?

OM's businesses are based around the provision of both the technology and a product, be that hardware, software or services. However, there is clearly potential for the application of the technology in more markets than resources can effectively serve, and although an OM technology may be crucial to enabling a product or service, it does not necessarily mean that it is going to be the core skill or knowledge set that determines success.

This is particularly the case when we look further away from deep tech applications towards more industrial or consumer focused uses. Furthermore, this can apply to both end markets that are too small to justify OM resources and those that are so large or rapidly growing as to potentially overwhelm/distract OM from its longer-term goals.

We expect that this embedding of OM's technology within the broader offering of another business has considerable potential, whether it be bundling some OM hardware and software within another party's product offering or placing a key OM algorithm into a consumer or professional market software application.

Although this route to market may not allow OM to capture the full value of its technology, the lack of capital (and management time) commitment and the fact that OM is typically entering these markets alongside existing players should mean that this approach is significantly lower risk than the traditional full-on 'let's build a whole business' approach.

Embedding in Location-Based Entertainment (LBE)

The first market to be approached in this way has been the Location-Based Entertainment (LBE) market, where Vicon's position and motion measurement technology is a core part of the overall offering. LBE is based around providing virtual reality experiences to the public. This ranges from 3D experiences based around the participant as a viewer/audience, such as 3D flights across cities, to 3D video games where participants play in teams and are aware of, and able to play with or against, fellow participants.

It is clear that the potential for LBE is considerable and that Vicon's technologies fit well within it. However, it is also clear that there is considerable uncertainty about what form(s) the market will actually take, and that OM's management skillset does not include directly managing a leisure roll-out.

Management is currently working with eight partners in the LBE market, with a range of product offerings and business models, from Electric Gamebox (EG) and Sandbox VR focusing on 'everyday entertainment' high street / mall / cinema complex venues through to tourist / event-based Dreamscape Immersive, which looks to us to have spent \$ millions per venue to create theme park-like virtual experiences in LA, Dallas and Dubai.

As a physical participation event-based product, the decline in revenues seen in this area across the pandemic is not surprising. However, this general sector has continued to make strategic progress, with new openings and several significant fund raisings.

Electric Gamebox's offerings range from 15- to 60-minute games that can 'take' players to the surface of Mars, to London in the 1980s or to a CIA training centre. Prices range from £5 off peak to £25 per person peak.

According to its franchisee promotional information, Electric Gamebox’s typical full hardware and equipment costs £300,000 per venue, with 3-5 Gameboxes per site, each ‘box’ measuring 12ft x 12ft.

Electric Gamebox game



Source: OM

EG is well funded by VCs and has set a goal of 100 sites across the UK, the US and beyond by 2023 and 1,000 by 2026. We believe that the confidence of VCs’ management, and in turn OM’s management, in EG and its roll-out is based on the track record of Will Dean, EG’s founder and CEO, one of the original entrepreneurs and drivers behind the international success of Tough Mudder.

Electric Gamebox’s targets do not look outlandish in the context of the number of other social leisure venues in the UK or the US. For example, in the UK there are approximately 320 10-pin bowling centres, 840 cinemas and 1,500 escape rooms, while in the US there are approximately 5,000 bowling centres, 5,800 cinemas and 2,000 escape rooms (source: Statista, Mintel, bowlersjournal.com, bizjournals.com).

Sandbox VR’s offering is more sophisticated than Electric Gamebox, and more akin to console games with headsets and haptic bodysuits. Sandbox VR’s website suggests an initial cost for franchisee investment of \$770k-\$1,075k, around twice that of an EG venue (source: Sandbox VR and EG franchisee info on websites). Thus far, Sandbox VR has 16 locations, mainly in major cities in the US and Asia, but also in some smaller cities with populations of less than 100,000. While it has no public targets, it is important to note that it has raised over \$100m and has Andreessen Horowitz, one of silicon valley’s top VCs, among its backers.

OM’s management has suggested that revenue per site for OM is in the region of £50-75k, depending on the exact tracking requirements of the venue.

LBE could see several years of dramatic growth before the market reaches saturation point in terms of venue numbers. However, even when this point is reached, we need to consider the potential of alternative technologies, repeating upgrades to the OM technology and, of course, the timing and scale of international markets. Just looking at 100 units per year for EG alone (and OM is working with seven other partners) implies £5m of revenues for OM; this in turn implies that, with multiple partners and routes to market in multiple geographies, revenues for OM in the medium term could be in the tens of \$m.

Yotta

Yotta provides asset management software for local government and other infrastructure and services providers. Yotta was established within Oxford Metrics in 2006 as a business focused on the application of technology using visual images to identify and examine highways and highway assets. From this original business it has evolved, disposing of a significant services element to the business along the way and acquiring Mayrise, another more general asset-based software product, in 2013 for a consideration of £3.0m net of cash acquired.

While its end markets might not initially appear exciting or dynamic compared to those of Vicon, Yotta's differentiated approach and technology means that it has significant potential, with competitive advantages in not only its current niches of local authority and road asset management, but also in other areas for management of infrastructure assets and provision of related services. We are forecasting 8% average annual revenue growth for Yotta over FY21-FY24E, driven mainly by increasing recurring subscription revenues.

Yotta has two product lines, Horizons and Alloy, of which Alloy is the most significant.

- Horizons is described as a strategic asset management product and has been focused on highways maintenance, with National Highways (formerly Highways England) in the UK and VicRoads in Australia among its customers.
- Alloy is a general operational asset management product covering, among other things, streetlights, bins, drainage, and street cleaning. In creating Alloy, Yotta has taken Mayrise's highly regarded functionality and moved it several steps further with greater flexibility and a SaaS (software as a service) business model. Its customers include City of York, county councils for Worcestershire, Somerset, Warwickshire, SSE and English Heritage.

Although Yotta is principally a software business, a proportion of its revenues are derived from product support and services relating to asset management. Although we expect these revenues to grow, we do not expect the level of growth that we anticipate in software.

The public sector asset and service management software is highly fragmented. Both local and national government departments tend towards working on a silo basis and the software that serves these markets has followed much the same path. As a result, the public sector is awash with solutions-based software businesses that are focused around central offices and distinct and structured databases. Many of these businesses are faced with the challenges of moving to SaaS (Software as a Service) subscription-based models and how to grow beyond their respective silos and niches.

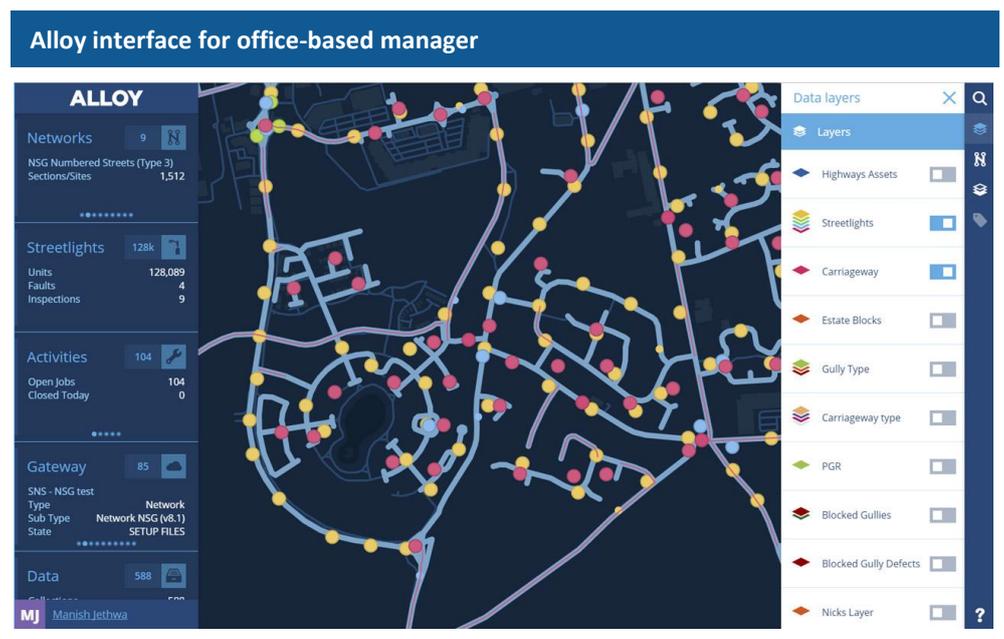
As with much of the software market, there is an increasing demand for local authority and infrastructure management software to be provided online, on a SaaS basis. The UK market has been one of the first movers across to this new(er) way of working, and we believe that Yotta is ahead of the market curve in this transition.

OM has invested heavily in Yotta’s technology in recent years, principally upon creating and extending Alloy. Alloy was launched as a SaaS product in 2016. However, the move from large up-front licence payments to small repeating subscriptions meant that investors in OM had to wait until FY21 to see the fruits of the investment in Yotta in terms of full-year profitability.

Flexibility at its core

Yotta has built its software with the goals of providing flexibility and mobility. A key element of this flexibility is its use of a non-relational database, which allows Yotta’s customers greater flexibility in the way that they store and handle data. When used to handle one set of closely related assets, the non-relational database has limited advantages against the traditional relational approach of the incumbents. However, as soon as customers want to handle multiple datasets in one place or to undertake analysis across databases, everything becomes far more challenging. The less prescriptive way in which data is structured in Yotta’s underlying database makes it far easier to bring in sets of data from these silos. So, not only does this make it easier for customers to replace legacy silo-focused systems, but it also makes it easier for Yotta to ‘land’ in one silo and ‘expand’ across others.

Management has sought to build upon this flexibility in creating solutions for more of these silos, in what it describes as an ‘archipelago’ of mobile products for use in the field. Yotta has also worked to ensure that it can take in data from a range of sources, not just direct human input, such as pollution sensors on lamp posts or water level sensors in drains.



Source: OM

Of course, the Yotta technology can be applied to other markets and the company has made progress in this area, winning English Heritage and SSE as customers, who apply it to arboreal and street lighting management respectively.

The vast majority of Yotta's sales are direct and in the UK. Yotta has made progress with sales in Australia and New Zealand but has found that overseas markets, most notably Germany, are not at a stage where a SaaS solution is yet applicable.

The majority of Yotta's end customers are public sector and so ultimately derive their funding from the government. While this has disadvantages in terms of basic willingness and ability to spend, the underlying demand for asset management software in the public sector is robust and characterised by long-term contracts and relationships.

The impact of the pandemic on Yotta has been muted. After an initial slowdown, the market soon recovered. Helped by the drive from public bodies to improve their engagement with the public online rather than in person, and by increased functionality of the products demand recovered and revenues actually grew across the period FY19-FY21, with £7.0m (FY19), £7.5m (FY20) and then £8.1m (FY21).

Competition

Yotta has a number of competitors across its markets. Management regards the leading competitors in the UK to be Confirm (part of Dude Solutions, a US-based operations management company) and Symology (an employee-owned UK company). That said, the main alternative is in-house developed solutions created by the customers themselves, although these are increasingly transferring across to commercial solutions. There are, as noted, also a number of smaller operators focused on particular silos of local and national services and infrastructure management.

The siloed nature of the markets means that there could be a number of older niche businesses that might view selling up as a better solution than investing in updating their software. Such businesses would fit well with OM management's five-year plan, discussed below, if they were to bring a body of existing customers into the Yotta fold.

Group structure

The lack of obvious linkage between Vicon and Yotta begs the questions as to why the two businesses remain together in the same group. Heavy investment in Yotta in recent years has brought it to its current state as a flexible, mobile asset and resource management tool. However, it is not yet clear that the business is on a certain path towards the market leadership / lead consolidator position that would make it attractive to private equity buyers.

Longer term, it is difficult to see the two businesses alongside each other, but with Yotta's key competitive advantages only now becoming clearer it would seem premature to attempt to realise this value just yet.

Yotta is probably too small to float off, but also not big enough to make a strategic investor balk at taking it on, albeit temporarily, if acquiring the greater prize of Vicon. Furthermore, as the disposal of 2D3 for \$23m in 2015 and the subsequent special dividends show, management is able to, and certainly not averse to, taking big strategic decisions.

Five-year plan

With dynamic businesses operating in a number of markets that could be on the point of inflexion, it is no surprise that OM's management has set ambitious targets for the company's new five-year plan, revealed to investors in October 2021.

Management's goal is to exit FY26 with revenues at a rate 2.5x that when exiting FY21, with group net profitability returning to what management regards as a historical norm of 15%. Achieving these goals would entail a significant change to the scale of the business and, most likely, its valuation.

Given the level of ambition, it is encouraging to find that management have been relatively clear in how it aims to achieve these goals, focusing on the three skills of Sense, Analyse and Apply.

Sense – Extend the capabilities of its smart sensing systems through R&D, acquisitions and developing key industry relationships.

Analyse – Enhance the analysis that OM is able to perform in order to improve current products, but also to allow entry into other applications for OM's technology.

Apply – Embed the company's technology in the solutions provided by others through R&D, M&A and investing in dedicated resources.

Organic investment

Management is looking to extend the asset management software to more applications within its existing and potential customer bases, most specifically using mobile apps for workforce on the ground and creating what management describes as an 'archipelago' of apps addressing a range of operations within its existing and potential customer base.

Investment will also be made in further opening up OM's systems, both Yotta and Vicon, to allow embedding and working with other software systems / solutions.

Investment to allow software to take information from a wider range of sources, for example in Vicon to gather information from different sources such as LIDAR and at Yotta to take in information from more IoT type devices linked to assets, for example air quality or noise level sensing.

M&A

Key criteria set out by management are:

- IP-rich, hard to replicate technology
- Attractive cashflow
- Good-to-high revenue visibility or dominant position in a niche market
- Able management teams with common/compatible culture
- Attractive valuation

Having made three tuck-in acquisitions in 10 years, OM is far from being an acquisition-driven business. Given the nature of those deals (Mayrise, IMeasureU and CONTEMPLAS), it is probably best to describe some of OM's growth as acquisition enabled, rather than driven. Management's M&A skills have perhaps been more evident on the disposals side, where not only did they adeptly exit lower-value surveying services, but also sold the 2D3 defence venture to Boeing for £15.5m, making a profit on disposal of £8.4m.

The market and technology areas that OM regards as attractive are:

- Complementary analysis techniques
- New verticals that could use OM IP – eg asset management for utilities or other infrastructure
- Unique relevant sensors – that is to say, sensors that have some specific IP and that are not generic
- Embedding businesses that might benefit from being able to embed OM IP

Management has stated that, with debt, it believes that OM has the potential headroom to spend up to around £70m on acquisitions. Given that the most significant acquisition to date has been Mayrise in 2013 for £3.0m net of cash acquired, we would be surprised to see spend of this magnitude, let alone for it to be made in one transaction.

Forecasts and Financials

Forecasts

We have forecast revenue growth of 16% FY22E on FY21, and revenue CAGR of 10% over the period FY22E-FY24E, principally driven by the growth within Vicon.

Revenues

Revenues	FY20 £m	FY21 £m	FY22E £m	FY23E £m	FY24E £m
Vicon	22.8	27.6	32.4	36.9	40.9
Yotta	7.5	8.1	9.0	9.6	10.1
Total	30.3	35.6	41.3	46.5	51.0

Source: OM, Progressive Equity Research

The principal driver of the increase in revenues at Vicon is the take-off in revenues of Location-Based Entertainment (LBE), and to a lesser extent the expected strong demand for Virtual Production systems.

Vicon revenues

Revenues	FY20 £m	FY21 £m	FY22E £m	FY23E £m	FY24E £m
Engineering	4.1	5.8	6.3	6.8	7.3
Entertainment	6.7	11.9	14.3	16.4	18.0
Life sciences	10.7	9.1	9.7	10.3	11.1
LBE	1.2	0.8	2.1	3.4	4.6
Total	22.8	27.6	32.4	36.9	40.9

Source: OM, Progressive Equity Research

This increase in revenues feeds through into an increase in Adj. PBT of 7% FY22E on FY21, and Adj. PBT CAGR of 15% over the period FY22E-FY24E. We do not forecast significant changes in the cost structures other than the short-term increase in development spend as % of sales (see 'Development spend' below).

OM Earnings forecasts

Earnings	FY20 £m	FY21 £m	FY22E £m	FY23E £m	FY24E £m
PBT	1.6	3.2	4.6	5.7	6.7
Adj. PBT	2.6	4.8	5.1	6.3	7.2
Dil. EPS	1.3	2.3	3.3	4.1	4.8
Adj. Dil. EPS	2.0	3.6	3.7	4.5	5.2

Source: OM, Progressive Equity Research

Balance sheet and cashflow

OM has both a strong balance sheet and a generally solid cashflow. Pre-tax operating cashflow had been broadly similar to EBITDA but over FY20 and FY21 it was significantly greater as inventories declined, trade receivables were extended and the pattern of revenues led to a significant decline in the year-end debtors.

As the company returns to more normal ways and patterns of operating, we forecast a decline in net cash in FY22 before a return to cash generation in FY23 and FY24.

Development spend

As one would expect from a leading technology company, OM spends a significant proportion of its revenues on product and technology development. In FY21, its cash spend on development was £5.2m with a charge to the income statement of £5.0m (FY20 £4.2m) and £2.8m capitalised (FY20 £1.8m). OM has announced an intention to increase its absolute development spend by £2.3m over the coming years 'to augment our capabilities to sense, analyse and apply our technology'. We have included this in our forecasts but expect that as a proportion of revenues development spend in the income statement will track back across FY22E-FY24E from mid-teens % towards the low-teens levels seen historically.

Tax

We forecast an effective tax rate for OM of 9%, broadly in line with recent years. Its heavy spend on technology development in the UK means that most of the tax payable relates to US operations. We do not expect this to change significantly in the short to medium term.

Dividend policy

OM has an established progressive dividend policy with a goal of maintaining a long-term average of 2x cover based on Adjusted EPS. Management paused the dividend growth in 2020, paying 1.8p (FY19 1.8p). Dividend growth resumed in FY21 with a dividend of 2.0p. We do not regard this dividend, or the progression in our forecasts of approximately 10% in FY22, F23 and FY24, as a constraint on growth.

Valuation

As can be seen from the table below, based on short-term metrics, Oxford Metrics' market valuation does not appear significantly out of line with other UK-listed small and mid-cap companies working in media technology, public service software or in hardware with high software/technology content. The important difference for us is the opportunity for Oxford Metrics provided by LBE and other new applications for its technologies, served either directly or via licensing or other partnership routes. It is the potential for these opportunities to scale and to drive profits significantly beyond current levels that suggest OM could potentially have significant valuation upside from current levels.

Comparator Valuations

	Market cap £m	EV/EBITDA (x)		EV/Sales (x)		PER (x)		Sales growth	
		CY1E	CY2E	CY1E	CY2E	CY1E	CY2E	CY1E	CY2E
Oxford Metrics	121	14.3	11.4	2.7	2.4	26.8	24.9		
Media/TV related technology									
Aptitude Software Group PLC	174	17.3	13.9	2.3	2.1	29.5	23.2	18.5%	9.7%
Zoo Digital Group PLC	106	17.7	14.4	2.0	1.8	52.8	30.9	19.7%	11.9%
Keywords Studios PLC	1,953	19.3	17.8	3.7	3.4	32.4	29.8	18.5%	11.4%
Hardware with high software/tech element									
Oxford Instruments PLC	1,214	15.4	14.6	3.2	3.0	24.7	23.5	6.5%	4.6%
Spirent Communications plc	1,446	12.0	11.1	2.9	2.8	18.0	16.8	9.5%	5.1%
Other selected UK software									
Idox PLC	282	12.6	11.7	4.1	3.9	22.5	21.3	8.2%	5.4%
1Spatial PLC	41	8.9	9.1	1.4	n/a	24.4	54.2	8.7%	n/a
Learning Technologies Group PLC	1,309	12.3	11.1	2.4	2.3	21.3	19.0	113.9%	4.2%

Priced as at 1 April 2022. Source: Eikon and Progressive Equity Research

Summary

The management of Oxford Metrics has clearly built two good technology businesses around the three core capabilities of the group – Sense, Analyse and Apply. These capabilities are increasingly relevant as we move towards more digital-intensive ways of living both our working and personal lives.

Vicon combines strong market positions in its core markets with the potential to scale significantly beyond this with Location-Based Entertainment and other applications.

Yotta looks set, after significant investment in its technology and products, to exploit the growing demand for adaptable asset and operations management software from both local and national government, and from utilities and many other industries with geographically diverse assets – be they physical or human.

Risks

Forex

The main source of forex risk for OM comes from its UK businesses trading with US subsidiaries and with other parties in Europe and Asia. Management attempts to minimize overall currency risk through inter-company trading.

Acquisitions

The acquisition strategy is discussed elsewhere in this note. Risks with regard to acquisitions are most notably that the company may not be able to find suitable acquisitions at the right price and that the performance of acquisitions may not be as strong as hoped. As noted above, the business does not necessarily require significant acquisitions to grow or achieve its goals.

Technology

As with any technology company, OM faces the risk that its key technology or technologies may be replaced by more effective or cheaper technologies. However, OM's key technology strengths do not rely on specific deep-tech IP but more on how to extract, analyse and apply the sensed information. As such, although it has a clear bias towards vision-based sensing at present, it is not bound by a particular sensing technology.

Covid

While the company has clearly been hit by Covid in both its Yotta and Vicon businesses, the pandemic has not changed the long-term outlook for OM.

Global economy

We regard both the Industrial and Life Sciences revenue streams as well protected from weakness in consumer spending, with the Industrial business, as discussed above, being exposed to general economic cycles. The Entertainment sector is, of course, driven by a consumer end market, but because its products are part of secular changes in the industry, which are themselves in part driven by a desire to cut costs, we do not regard them as particularly exposed to a potential economic downturn. Location-Based Entertainment is an early-stage market and we do not believe that its success or failure will be determined by the state of the economy, although weak consumer spending may mean that the growth is not quite as strong as hoped.

Five-year plan

Management has been very clear in setting out targets based upon revenues and EBIT margin. While such targets have clear merits, in a set of changing industries they can run counter to the maximisation of shareholder value. While the EBIT target might be seen as some form of constraint on chasing revenues, there are no explicit returns or earnings per share criteria. From our discussions with management, and from their track record of investment and transactions, we believe that management is well aware of this.

Management

The top management team of Nick Bolton (CEO) and David Deacon (CFO) have a long record of working together and building businesses. They are supported by Catherine Robertson, company secretary, and a group of Non-Executive Directors that we regard as particularly strong for a company of OM's size. We would not expect such a number of experienced and successful non-execs to join a small-cap business unless they saw significant potential in it.

Executive Directors

Nick Bolton – CEO

Nick joined pre-IPO Oxford Metrics in 1995 and spent four years establishing the company's motion capture products in the entertainment market. In 1999, he left to pursue a series of successful product management and marketing roles within international technology businesses, including Micromuse and start-up Lexicle. In 2002, he joined AIM-listed Mediasurface, with responsibility for all the company's marketing activities, and in 2005, returned to lead Oxford Metrics.

David Deacon – CFO

David joined Oxford Metrics in 2008 as Chief Financial Officer. Before joining, he was CFO of AIM-listed Mediasurface for five years, where he successfully floated the business in 2004 and concluded the disposal of the business in 2008 to Alterian plc. Prior to this, he held senior financial positions with R.L Polk & Co, Wonderware Inc. and Kalamazoo Computer Group plc.

Cathy Robertson – Group Executive Director

Cathy joined Oxford Metrics in 1985 and was Financial Controller for 10 years. She has over 30 years' experience in law, finance, and administration. Prior to joining the group, Cathy began her career with the UK subsidiary of a US company, working with the founders to establish a thriving electronics business.

Non-Executive Directors

Naomi Climer CBE

Naomi joined the board in November 2019, with a successful career in broadcast, media and communications technology. Her career began at the BBC, where she was Director of Technical Operations at ITV Digital, then joining Sony as Director of Professional Services before becoming Vice President of Professional Solutions for Europe and President of Sony Media Cloud Services. Naomi currently holds several non-executive positions and is Trustee and Vice President at the Royal Academy of Engineering.

Roger Parry CBE

Roger joined the board in June 2016, with an extensive career in the media sector. Roger is currently chairman of YouGov plc, Mobile Streams plc plus a number of private companies. He has held a variety of chairman roles including Johnston Press plc, Future plc and Shakespeare's Globe. Previously he was CEO of Clear Channel International and More Group plc and spent three years with McKinsey, the international consulting firm, and prior to that was a TV and radio journalist with the BBC and ITV.

David Quantrell

David joined the Board in June 2018, with more than 30 years of senior management experience across a range of high-growth global software businesses including HP, Mercury Interactive and McAfee. Most recently, David was Senior Vice President and a member of the Global Management Team at Box, the cloud storage company, where he helped to establish the brand in Europe in a period where the company experienced dramatic growth and a successful IPO.

Paul Taylor

Paul joined the board in October 2021, with more than 20 years of boardroom experience as an executive and non-executive director. Throughout his career, Paul has remained connected to growth technology businesses and spent a large part of his executive career with AVEVA Group plc, where as CFO he was part of the team that delivered consistently high levels of growth in revenue and profitability both organically and through acquisition.

Financial Summary: Oxford Metrics

Year end: Sep (£m unless shown)

	2020	2021	2022E	2023E	2024E
PROFIT & LOSS					
Revenue	30.3	35.6	41.3	46.5	51.0
Adj EBITDA	5.2	6.7	8.5	9.9	11.1
Adj EBIT	4.0	5.6	7.5	8.9	10.1
Reported PBT	1.6	3.2	4.6	5.7	6.7
Fully Adj PBT	2.6	4.8	5.1	6.3	7.2
NOPAT	2.3	3.8	5.2	6.3	7.3
Reported EPS (p)	1.3	2.3	3.3	4.1	4.8
Fully Adj Dil EPS (p)	2.0	3.6	3.7	4.5	5.2
Dividend per share (p)	1.8	2.0	2.2	2.4	2.7
CASH FLOW & BALANCE SHEET					
Operating cash flow	2.5	13.3	3.0	8.8	9.8
Free Cash flow	(0.6)	9.9	(0.6)	5.2	6.1
FCF per share (p)	(0.5)	7.8	(0.4)	4.1	4.8
Acquisitions	(0.1)	(1.1)	0.0	0.0	0.0
Disposals	0.0	0.0	0.0	0.0	0.0
Shares issued	0.3	0.7	0.0	0.0	0.0
Net cash flow	(2.7)	7.2	(3.1)	2.4	3.1
Overdrafts / borrowings	(2.3)	(2.1)	(1.6)	(1.1)	(0.6)
Cash & equivalents	14.9	23.0	19.4	21.3	23.9
Net (Debt)/Cash	12.6	20.8	17.7	20.1	23.2
NAV AND RETURNS					
Net asset value	30.7	32.4	34.1	36.5	39.5
NAV/share (p)	24.4	25.8	27.1	29.0	31.5
Net Tangible Asset Value	18.2	18.9	20.6	23.4	27.0
NTAV/share (p)	14.5	15.0	16.4	18.6	21.5
Average equity	31.0	31.6	33.3	35.3	38.0
Post-tax ROE (%)	7.0%	11.8%	15.3%	17.7%	18.9%
METRICS					
Revenue growth	(14.3%)	17.6%	16.0%	12.5%	9.8%
Adj EBITDA growth	(31.3%)	27.6%	27.9%	16.3%	11.6%
Adj EBIT growth	(51.1%)	41.0%	33.2%	18.5%	12.9%
Adj PBT growth	(53.2%)	87.4%	7.0%	22.2%	15.2%
Adj EPS growth	(48.2%)	76.2%	4.1%	22.0%	15.0%
Dividend growth	0.0%	- 11.1%_	- 10.0%_	- 9.1%_	- 10.4%_
Adj EBIT margins	8.8%	15.8%	18.2%	19.2%	19.7%
VALUATION					
EV/Sales (x)	3.3	2.8	2.4	2.2	2.0
EV/EBITDA (x)	19.4	15.2	11.9	10.2	9.1
EV/NOPAT (x)	44.9	26.4	19.6	16.0	13.9
PER (x)	48.0	27.2	26.2	21.5	18.7
Dividend yield	1.9%	2.1%	2.3%	2.5%	2.7%
FCF yield	(0.5%)	8.1%	(0.5%)	4.2%	5.0%

Source: Company information and Progressive Equity Research estimates

Disclaimers and Disclosures

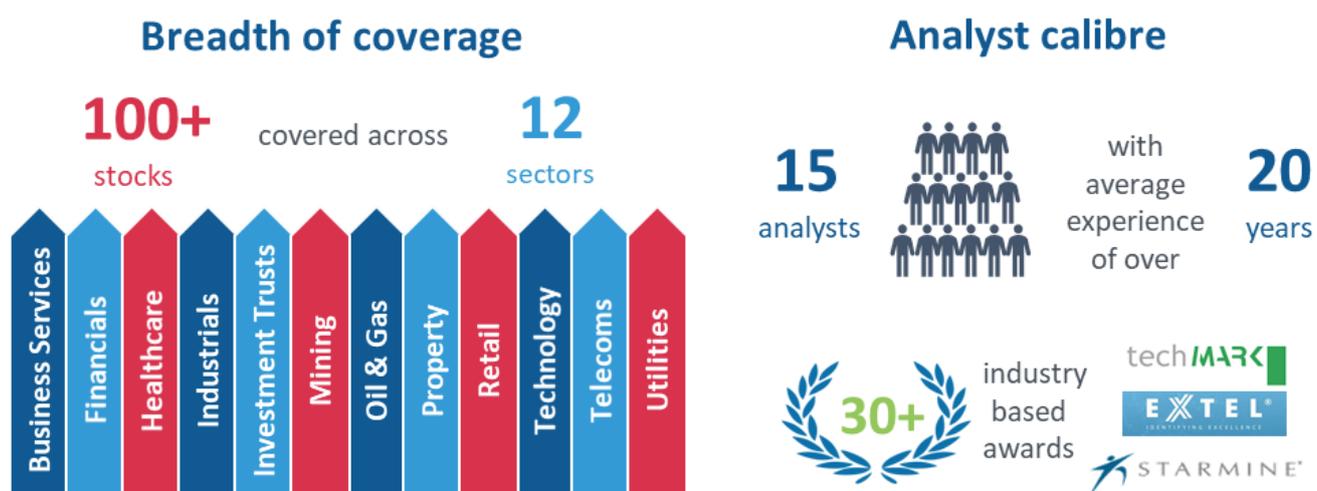
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