# Polar Capital Technology Trust plc

Investing in Tech/Al October 2023



polarcapitaltechnologytrust.co.uk

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### The Polar Capital Technology Team

POLAR

- Technology is at the core of the Polar Capital business
- · One of the largest technology franchises in Europe with cUS\$9.1bn under management
- · Ten dedicated technology specialists strong multi-cycle track record



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### **Thematic Investing: Hype Vs Reality**







#### Positioning of themes/products above is only intended to be indicative of approximate penetration/maturity

Source: Polar Capital and Gartner, September 2023. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request.

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### Macroeconomic/Reopening Headwinds



- Macro environment provides a challenging investment backdrop: Higher rates, financial and geopolitical instability, large fiscal deficits
- Inflation past the peak but uneven path to reach central bank targets: Global inflation forecast to decline to 6.8% in 2023 and 5.2% in 20241
- Rising real rates may challenge growth asset multiples: Central banks remain focused on defending inflation-fighting credibility



#### S&P 500 P/E (GAAP) inverted vs CPI y/y: 1950 - present<sup>2</sup>

#### 10-year UST yields vs Cloud software valuations (NTM EV/sales)<sup>3</sup>



Source 1. IMF, https://www.imf.org/en/Publications/, 25 July 2023. 2. Ned Davis, 31 July 2023. Copyright 2023 Ned Davis Research, Inc. Further distribution prohibited without prior permission. All Rights Reserved. See NDR Disclaimer at www.ndr.com/com/com/pit/html. For data vendor disclaimers refer to www.ndr.com/wendorinfo/. 3. clouded Judgement, <a href="https://substack.com/image/tetch/f">https://substack.com/image/tetch/f</a> auto:good.fl progressive:steep/https%3A%2F%2Fsubstack-postmedia.s3.amazonaws.com%2Fpublic%2Fimages%2F60ac3705-df20-4535-ad50-ab9fec842981\_1244x630.png?utm\_source=substack&utm\_medium=email, 6 October 2023. Forecasts are based upon subjective estimates and assumptions about circumstances and events that may not yet have taken place and may never do so. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.

# **Technology Outlook**



- IT spending steady: Gartner 2023 global IT spending est. US\$4.7trn (+4.3% y/y) vs 2.7% y/y in '22'
- Spending led by growth in software (+14% y/y) offsetting weakness in devices  $(-6\% y/y)^1$
- A low growth year: S&P 500 IT sector revenue/earnings growth for 2023 est. 1.4%/1.3% vs S&P 500 est. 2.5%/0.8%<sup>2</sup>
- 2024 rebound: Current forecasts for 2024 expect technology revenue/earnings growth of 8.8%/15.6% vs S&P 500 est. 5.1%/12.2%<sup>2</sup>
- A secular growth market: IT spending continues to increase as a portion of GDP and capital spending
- IT budgets reallocated in favour of new technologies: AI, cloud, cybersecurity, digital transformation



#### IT spending now around half of capital spending in nominal GDP<sup>3</sup>

#### Top and bottom CIO priorities in 2023<sup>4</sup>



#### Projects with largest/smallest spend increases in 2023 (% total responses)

Source: 1. Gartner, 19 July 2023. 2. FactSet, 15 August 2023. 3. AlphaWise, Morgan Stanley Research, 11 July 2023. 4. Yardeni, https://www.yardeni.com/pub/capspendrdtech.pdf, 28 July 2023. Forecasts contained herein are for illustrative purposes only and does not constitute advice or a recommendation. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.





# Artificial Intelligence The age of AI has begun

### "

Al is one of the most profound things we are working on as a humanity. It is more profound than fire or electricity. **?** 

> Sundar Pichai, Alphabet CEO

# **AI: Fund Exposure**



### Indicative percentage of portfolio exposed to Artificial Intelligence (100% stock weights)



Source: Polar Capital, 29 September 2023. Note for the purposes of the above pie charts the definitions are as follows; AI beneficiary: "Where AI is part of the investment rationale/Bull case"; AI Adopter: "Only users of AI/ML". Totals may not sum due to rounding.

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- Early AI gains driven by deep/reinforcement learning
  - 'Superhuman' capabilities in narrow fields:
  - e.g. AlphaGo, AlphaZero, AlphaFold etc.
  - e.g. Moderna: Increased production of mRNA molecules from c30 → c1000/month using Al<sup>1</sup>
- Recent AI breakthroughs based on transformer models
- Transformers are a type of neural network primarily used for natural language processing tasks. By applying a set of mathematical techniques called *self-attention*, the model can weigh the importance of different parts of the input when making predictions and allows for massive parallel processing
- Unlike other models, transformers can handle longer documents and maintain longer conversations without context being lost. Most importantly, performance continues to improve as model complexity becomes exponentially larger

#### Computational requirements for training transformers<sup>2</sup>



Source: 1. MIT Sloan Management Review, <a href="https://sloanreview.mit.edu/audio/ai-and-the-covid-19-vaccine-modernas-dave-johnson/">https://sloanreview.mit.edu/audio/ai-and-the-covid-19-vaccine-modernas-dave-johnson/</a>, 13 July 2021. 2. NVIDIA, <a href="https://blogs.nvidia.com/blog/2022/03/25/what-is-a-transformer-model/">https://blogs.nvidia.com/blog/2022/03/25/what-is-a-transformer-model/</a>, 25 March 2022. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the wess of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.



"Produce Javascript code that creates a random image that looks like a painting of Kandinsky"<sup>1</sup>







- Showed emergent properties around natural language understanding and generation
- Can process image inputs as well as text, making it multimodal
- Performance improved as parameter count scaled exponentially from GPT-3 (1.5bn) to GPT-3.5 (175bn) to GPT-4 (1.76trn)<sup>1</sup>

#### Non-linear change in performance<sup>2</sup>

	GPT-3.5	GPT-4-8K	GPT-4.32K
Maximum context length for requests	4,096	8,192	32,768
Number of English words	-3,000	-6,000	-24,000
Number of single-spaced pages of English text	6	12	50
Input types	Text	Text and images	Text and images

Source: 1. Microsoft GPT-4 Research Paper, https://arxiv.org/adf/2303.12712\_pdf, 13 April 2023. 2. Medium, https://medium.com/@mlubbad/the-ultimate-guide-to-gpt-4-parameters-everything-you-need-to-know-about-nlps-game-changer\_ 109b8767855a, 19 March 2023. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and ho not necessarily represent the views of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.





"A question that might be lingering...is whether GPT-4 truly understands all these concepts, or whether it just became much better than previous models at improvising on the fly, without any real or deep understanding. We hope that after reading this paper the question should almost flip, and that one might be left wondering how much more there is to true understanding than on-the-fly improvisation. Can one reasonably say that a system that passes exams for software engineering candidates is not really intelligent?"

Source: Microsoft GPT-4 Research Paper, <a href="https://arxiv.org/odf/2303.12712.pdf">https://arxiv.org/odf/2303.12712.pdf</a>, 13 April 2023. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.



#### GPT-4 passes technical interviews on LeetCode



"A question that might be lingering...is whether GPT-4 truly understands all these concepts, or whether it just became much better than previous models at improvising on the fly, without any real or deep understanding. We hope that after reading this paper the question should almost flip, and that one might be left wondering how much more there is to true understanding than on-the-fly improvisation. Can one reasonably say that a system that passes exams for software engineering candidates is not really intelligent?"

### Time spent: 3 minutes 59 seconds

Source: Microsoft GPT-4 Research Paper, <a href="https://arxiv.org/pdf/2303.12712.pdf">https://arxiv.org/pdf/2303.12712.pdf</a>, 13 April 2023. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request.



#### **GPT-4** outperforms **GPT-3.5** across multiple exams



"A question that might be lingering...is whether GPT-4 truly understands all these concepts, or whether it just became much better than previous models at improvising on the fly, without any real or deep understanding. We hope that after reading this paper the question should almost flip, and that one might be left wondering how much more there is to true understanding than on-the-fly improvisation. Can one reasonably say that a system that passes exams for software engineering candidates is not really intelligent?"

Source: Microsoft GPT-4 Research Paper, <u>https://arxiv.org/pdf/2303.12712.pdf</u>, 13 April 2023. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.

### **AI: A New Interface For Humans To Interact With Computers**



#### PC: Text → Graphical User Interface<sup>1</sup>

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#### Smartphone: Keyboard → Touch<sup>2</sup>

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Source: Google images, 18 August 2023. 1. Areppim, <u>https://stats.areppim.com/stats/stats\_pcxfcst.htm</u>, 2023. 2. Gartner, 18 August 2023 and eMarketer, 2017. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.

### **Al: Technology Transitions Drive Huge New Markets**

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Source: 1. Datahub, <u>https://datahub.itu.int/</u>, 2023. 2. Internet World Stats, <u>https://www.internetworldstats.com/emarketing.htm</u>, August 2023. 3. 42 Matters, <u>https://www.statista.com/statistics/627312/worldwide-developer-population/</u>, August 2023. 5. US Bureau of Labor Statistics, <u>https://www.bls.gov/oes/current/oes/21.htm</u>, May 2022. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Forecasts are based upon subjective estimates and assumptions about circumstances and events that may not yet have taken place and may never do so.

25% of current tasks could be exposed to automation by Al<sup>1</sup>



- Generative AI could put 300m jobs at risk of automation and add 1.5% to annual productivity growth and 7% to global GDP (cUS\$7trn)<sup>1</sup>
- 60% of workers are employed in occupations that did not exist in 1940: 85% of employment growth may be technology driven<sup>1</sup>
- Large corporate Al investments: Al adoption increases annual worker productivity growth by 2-3pp within firms<sup>1</sup>
- Gartner expects >30% of new drugs and materials to be systematically discovered using generative AI from 0% today<sup>2</sup>



#### One quarter of current tasks could be automated by Al<sup>2</sup>

Estimated economic impact from AI<sup>3</sup>



Source: 1. Goldman Sachs, 26 March 2023. 2. State of Al 2022, <a href="https://www.stateof.ai/2022-report-launch">https://www.stateof.ai/2022-report-launch</a>, 11 October 2022. 3. Morgan Stanley Research, October 2023. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations. Forecasts contained herein are for illustrative purposes only and does not constitute advice or a recommendation.

## **AI: Timing The Opportunity**

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- 50% workplace adoption of new technology historically drives an inflection in labour productivity<sup>1</sup>
- Electric motors and PCs took about 20 years from development to reach 50% penetration
- Internet took 12 years... Smartphones took 6 years ...
- BUT generative AI could be quicker
- No upfront cost: Generative AI requires zero spend on behalf of the user for early adoption (in contrast with electricity/internet/PC etc.)
- Mass distribution: Smartphone + internet puts generative AI technology in hands of 6bn+ people worldwide
- ChatGPT reached 100m users in two months by the end of Jan 2023<sup>2</sup>



#### US labour productivity growth inflection has happened with a lag<sup>3</sup>



### US household adoption of new technology (years to 50%/75%)<sup>2</sup>

Source: 1. Goldman Sachs Global Investment Research, 26 March 2023. 2. Morgan Stanley, 2 March 2023 3. Reuters, 2 February 2023. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations. Forecasts contained herein are for illustrative purposes only and does not constitute advice or a recommendation.





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#### Core thematic exposure

Cloud Infrastructure/Cybersecurity

**Data Economy and Artificial Intelligence** 

DigitalAdvertising/eCommerce/Payments

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Connectivity and 5G/IoT
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#### Software and Digital Transformation

Mobility and EV/Energy Transition

Other<sup>1</sup>

Market hedge/beta offset



Source: Polar Capital, 29 September 2023. 1. 'Other' theme includes Growth, Cyclical and Value/Digital Entertainment. Thematic classification is undertaken by the team and is influenced by qualitative as well as quantitative factors, including rationale for ownership. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital.

# **Cloud Infrastructure/Cybersecurity**

- Strong Covid demand has given way to cloud spend optimisation: >US\$180bn public cloud revenue run-rate has slowed from c40% y/y to c20% y/y growth but appears to be stabilising<sup>1</sup>
- Only c29% of workloads running in cloud today: expected to be c45% by 2025<sup>2</sup>
- c2% of public cloud spend dedicated to security in 2022, trending higher as 45% of breaches were cloud-based<sup>3</sup>







#### Al impacts:

- Increased demand from AI training and inference taking place in the cloud
- Al applications drive greater demand for other cloud services (e.g. compute/storage)
- Greater software development velocity could drive incremental cloud infrastructure demand (e.g. databases, data lakes)
- Al could render existing cyber tools obsolete:
  - Increased velocity and sophistication of attacks
  - Phishing and impersonationbased breaches an order of magnitude more advanced

DATADOS

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zscale

Source: Polar Capital unless otherwise stated. 1. Barclays 2Q23 Cloud Update, 4 August 2023. 2. Morgan Stanley 2Q23 Clo Survey, 16 March 2023. 3. IDC 2023 Security Outlook. IBM Cost of a Data Breach Report 2022. 4. Morgan Stanley Public Cloud, 11 July 2023. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Forecasts contained herein are for illustrative purposes only and does not constitute advice or a recommendation.

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### Data Economy And Artificial Intelligence

- Exponential growth in data/compute: Machine learning (ML) compute doubles every 3.4 months<sup>1</sup>. Datasphere doubles every 3 years<sup>2</sup>
- >1/3 of organisations already using generative AI regularly in at least one business function: 3/4 expect it to drive significant or disruptive change in next 3 years<sup>2</sup>
- Al expected to have a meaningful economic impact 2025-30<sup>3</sup> .



#### Technology and compute platforms building upon themselves for over 50 years<sup>4</sup>



#### Al impacts:

- Requires a new high built for accelerated computing and generative AI
- Increases the value of proprietary data sets as relevant data improves AI model performance
- Al could spur greater velocity of machine-to-machine
- Potential for faster productivityled GDP growth and corporate earnings growth

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Source: 1. Open AI, 2018. 2. Mckinsey, State of AI in 2023, 1 August 2023. 3. Goldman Sachs, Equity Views, 21 August 2023. 4. Morgan Stanley Research, April 2018. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Forecasts contained herein are for illustrative purposes only and does not constitute advice or a recommendation. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.

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# **Digital Advertising**

- Digital advertising: US\$602bn '23E +8.5% y/y, c67% of total worldwide ad spend, entering a more mature (cyclical) phase<sup>1</sup>
- New markets growing in CTV (US\$20bn 2023E market) and retail media (US\$45bn)<sup>2</sup>
- Advertising headwinds abating: Apple Identifier for Advertisers (IDFA) and TikTok headwinds past peak, short-form video monetization improving (Reels, YouTube Shorts)



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#### Al impacts:

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- Al-generated digital ad creative, copy and campaigns lowers barriers/time to advertising
- More sophisticated targeting as generative AI understands customer intent and preferences
- Risk of disruption to Google's dominant position in search advertising?
- Size and quality of both datasets and data infrastructure drives advertising performance – will smaller platforms be able to keep up?

Source: 1. eMarketer, April 2023. 2. Morgan Stanley, https://www.insiderintelligence.com/content/retail-media-ad-spend-will-more-than-double-by-2027, 23 July 2023. It should not be assumed that recommendations made in future will be profitable or will equal
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amazon

### Software/Digital Transformation

- Digital transformation was a US\$595bn market in 2022 and projected to grow at a 21% CAGR to 2027 to >US\$1.5trn. Software continues to grow as a share of GDP1
- Software sector EV/NTM sales multiple compressed by -63% during 2022 as higher rates/risk off environment ٠ weighed on the sector<sup>2</sup>
- Software companies have cut costs and delivered higher operating margins as growth slows (reflecting investor • demands and activist involvement)
- Mix of digital transformation spend likely to move away from SaaS in favour of PaaS/IaaS<sup>3</sup> •



120%





#### Al impacts:

- Premium Al-powered SKUs (e.g. Copilots) represent a material revenue opportunity
- More software developers as they become more productive using AI tools or fewer developers as most code is generated by AI?
- Software incumbents harbour vast 1P data assets, allow trusted/compliant adoption of AI
- Will a natural language interface disrupt existing application software 'point-and-click'

Source: 1. https://www.marketsandmarkets.com/Market-Reports/digital-transformation-market-43010479.html. 2. Jefferies: 2023 Software Outlook, 5 January 2023. 3. Morgan Stanley Public Cloud, 16 March 2023. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change, without notice, and do not necessarily represent the views of Polar Capital, Forecasts contained herein are for illustrative purposes only and does not constitute advice or a recommendation. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.



Absolute sector valuation (P/E): At post GFC highs (1992 – present)



#### **Relative sector valuation (P/E):** At/around market level – with superior balance sheet



Source: Ned Davis, 29 September 2023. Copyright 2018 Ned Davis Research, Inc. Further distribution prohibited without prior permission. All Rights Reserved. See NDR Disclaimer at <u>www.ndr.com/copyright.html</u>. For data vendor disclaimers refer to <u>www.ndr.com/vendorinfo/</u>. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.



#### IT security valuation: EV/forward 12-month revenue multiples<sup>1</sup>



Cloud vs legacy valuation:

EV/trailing 12-month revenue multiples<sup>2</sup>

Source: 1. Citi Research, FactSet, September 2023. 2. Keybanc, September 2023. Includes the following tickers: APPF, AVLR, AYX, BAND, BILL, BL, BNFT, BOX, COUP, CRWD, DDOG, DOCU, ESTC, EVBG, FIVN, FSLY, GDDY, GWRE, MDB, MDLA, MIME, NET, OKTA, PAYC, PCTY, PING, PLAN, QTWO, RNG, RPD, SAIL, SHOP, SMAR, SPT, SQ, SVMK, TDOC, TWLO, VEEV, VG, WIX, ZM, ZS. Some information contained herein has been obtained from third party sources and has not been independently verified by Polar Capital. Neither Polar Capital nor any other party involved makes any express or implied warranties or representations.

# **PCT** Positioning



#### Geographic exposure (%)



### **Top 15 positions**

Microsoft	10.7%
Apple	8.0%
Alphabet	7.8%
NVIDIA	7.7%
Meta Platforms (Facebook)	4.2%
Advanced Micro Devices	3.2%
Samsung Electronics	2.8%
TSMC	2.1%
Amazon	2.1%
Crowdstrike Holdings	1.7%
ServiceNow	1.6%
Disco	1.4%
Arista Networks	1.4%
Palo Alto Networks	1.4%
Pure Storage	1.4%

#### Sector exposure

Software	26.6%
Semiconductors and Semiconductor Equipment	24.9%
Interactive Media and Services	14.3%
Technology Hardware, Storage and Peripherals	12.2%
IT Services	3.9%
Electronic Equipment, Instruments and Components	2.4%
Broadline Retail	2.1%
Communications Equipment	1.4%
Financial Services	1.3%
Automobiles	1.3%
Other	4.7%
Cash	4.9%



#### Past performance is not indicative or a guarantee of future returns.

Source: Polar Capital, 29 September 2023. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request. Totals may not sum due to rounding.

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#### Largest overweights Largest underweights PCT relative market cap exposures vs benchmark<sup>1</sup> Advanced Micro Devices Adobe Systems 20% Alphabet Amazon Arista Networks Analog Devices 15% Crowdstrike Holdings Apple 10% CyberArk Software **Applied Materials** Broadcom Disco 5% Fabrinet **Cadence Design Systems** 0% HubSpot **Cisco Systems KLA** Tencor IBM -5% Infosys MongoDB Intel Monolithic Power Systems -10% **NVIDIA** LAM Research -15% Palo Alto Networks **Micron Technology** Pure Storage Microsoft -20% Samsung Electronics Oracle ServiceNow Salesforce.com -25% SAP Snowflake 2010 2010 2020 Tesla Tencent **Uber Technologies Texas Instruments** Mega Cap Large Cap Mid Cap Small Cap Unimicron Technology Corp TSMC

#### Past performance is not indicative or a guarantee of future returns.

Source: Polar Capital, 29 September 2023. Bold denotes a zero position. 1. The dynamic market cap bands are defined as follows: mega caps represent the top 40% of the benchmark capitalisation, large caps the next 30%, mid caps the next 20% and small caps the last 10%, any micro caps exposure has been included in small caps. Benchmark refers to the Dow Jones Global Technology Index. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request.



### A diversified portfolio, capturing secular growth potential of key themes

	Fund	Index	Active		Fund	Index	
Amazon	2.12%	-	2.12%	Apple	7.96%	16.16%	
Advanced Micro Devices	3.18%	1.07%	2.11%	Microsoft	9.87%	15.07%	
Crowdstrike Holdings	1.69%	0.24%	1.45%	Broadcom	-	2.20%	
Disco	1.44%	0.11%	1.34%	Alphabet	7.76%	9.26%	
Pure Storage	1.37%	0.07%	1.30%	Cisco Systems	-	1.41%	
Tesla	1.29%	-	1.29%	Oracle	-	1.07%	
HubSpot	1.34%	0.16%	1.18%	Intel	-	0.96%	
Arista Networks	1.44%	0.30%	1.14%	Texas Instruments	-	0.93%	
Samsung Electronics	2.83%	1.88%	0.95%	SAP	-	0.85%	
Palo Alto Networks	1.39%	0.46%	0.93%	IBM	-	0.82%	
Top 10 Overweights	18.08%	4.28%	13.80%	Top 10 Underweights	25.59%	48.72%	
Top 20 Overweights	34.78%	12.98%	21.80%	Top 20 Underweights	30.15%	58.71%	

Valuation Snapshot (4 October 2023) <sup>1</sup>		Technology Trust <sup>1</sup>	Index Top 100 <sup>1</sup>	Difference
P/E (Median)	CY (2023)	32.2	24.0	34.2%
	NY (2024)	27.1	20.7	30.9%
Earnings growth (Median)	CY	20.4	8.8	131.8%
	NY	19.6	12.9	51.9%
EV/Sales (Weighted)	CY	9.2	8.3	10.8%
	NY	7.6	7.0	8.6%
Sales Growth (Weighted)	СҮ	15.3	10.4	47.1%
	NY	18.2	14.3	27.3%
Gross Margin (Weighted)**		58.6	57.6	
Net Cash as % mkt cap	Weighted**	5.6	1.2	
Market Cap (US\$m)	Median	21,509	43,623	
	Weighted**	840,131	1,233,290	

Source: Polar Capital, 29 September 2023. Index refers to the Dow Jones Global Technology Index. 1. Polar Capital. Internal estimates for indicative purposes only and should not be relied upon. **Date:** As at 4 October 2023. References to future returns are not promises or estimates of actual returns Polar Capital may achieve. Forecasts contained herein are for illustrative purposes only and does not constitute advice or a recommendation. Forecasts are based upon subjective estimates and assumptions about circumstances and events that have not and may not take place. It should not be assumed that recommendations made in future will be profitable or will equal performance of the securities in this document. A list of all recommendations made within the immediately preceding 12 months is available upon request. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Totals may not sum due to rounding. \*\* weights take into account delta adjusted option exposure.



# Appendix

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Target (current)	Polar Capital Global Technology Fund	Polar Capital Technology Trust	Dow Jones Global Tech Net TR Index
Number of stocks	<b>60-85</b> (59)	<b>100-140</b> (90)	1034
Market-cap (mega/large %)	<b>30-65%</b> (12.5/39.9*)	<b>50-70%</b> (18.3/38.0*)	<b>70% (40/30)</b> (31.2/42.5*)
Market-cap (mid/small %)	<b>35-70%</b> (37.4/10.1*)	<b>30-50%</b> (33.6/10.1*)	<b>30% (20/10)</b> (20.0/6.2*)
Top 10 holdings (absolute weight)	49.4%	50.3%	61.4%
Index coverage	<b>25-60%</b> (45.70%)	<b>40-65%</b> (53.91%)	100%
Cash/gearing	0-10%	+/- 10%	0%

Source: Polar Capital, 29 September 2023. The table shows target exposure ranges; these are not limits/restrictions and therefore may be exceeded at times. \*The dynamic market cap bands are defined as follows: mega caps represent the top 40% of the benchmark capitalisation, large caps the next 30%, mid caps the next 20% and small caps the last 10%. This allows a natural progression of market cap data over time, to ensure they remain relevant. The figures in the brackets represent the percentage weighting in the fund of the respective market cap level.

### AI: 5 Years In The Making – Our Original Vision – AI Fund



#### At the launch of our Automation and AI Fund we said...

- Long term opportunity to automate "rote" knowledge work could be worth US\$5-7trn<sup>1</sup>
- Massive market opportunities. AI US\$734bn (2027)<sup>2</sup> and Industrial Automation US\$438 (2027)<sup>3</sup>

We believe AI has now reached the inflection point we anticipated at launch



Source: 1. < Disruptive technologies: Advances that will transform life, business, and the global economy> May 2013; 2. Grand View Research, July 2020; 3. <u>Transparency Market Research</u>, Feb 2020. All opinions and estimates constitute the best judgment of Polar Capital as of the date hereof, but are subject to change without notice, and do not necessarily represent the views of Polar Capital. Forecasts are based upon subjective estimates and assumptions about circumstances and events that may not yet have taken place and may never do so.





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Polar Capital, 16 Palace Street, London SW1E 5JD

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