

DNB Technology

A global long only equity technology, media and telecommunications (TMT) fund

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Portfolio Managers

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This presentation is intended to be marketing material and dedicated to professional investors only



Strategy Introduction

20+ Years of Proven Track Record with Global Technology Investments

Global Long-Only Equity Fund in Technology, Media and Telecom

KEY HIGHLIGHTS	STRATEGY ¹	FUND
Launch date	2001	2007
Structure		UCITS
SFDR		Article 8
Domicile		Lux SICAV

FUND HIGHLIGHTS

CAGR since inception (EUR, retail class)

16% / 13% Fund / Benchmark

Years since inception

17 Years

STRATEGY HIGHLIGHTS¹

CAGR since inception (EUR)

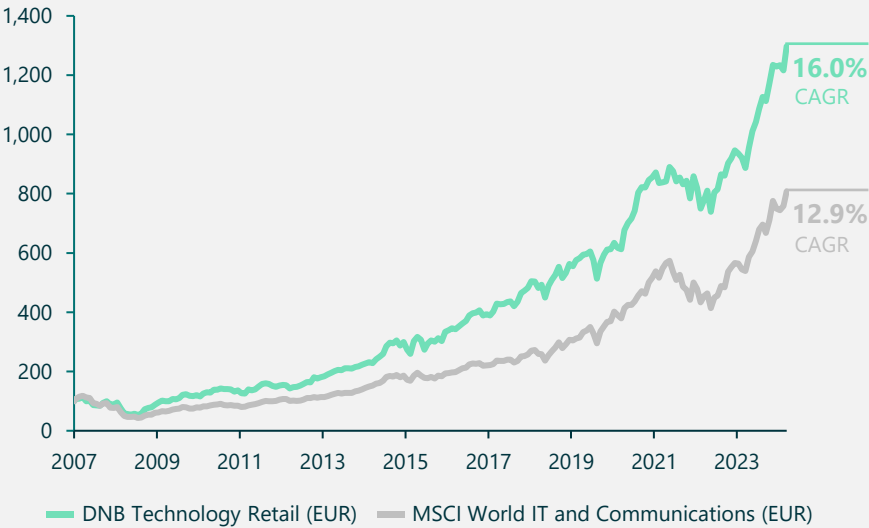
16% / 10% Fund / Nasdaq

Years since inception

23 Years

FUND PERFORMANCE SINCE INCEPTION (indexed to 100)

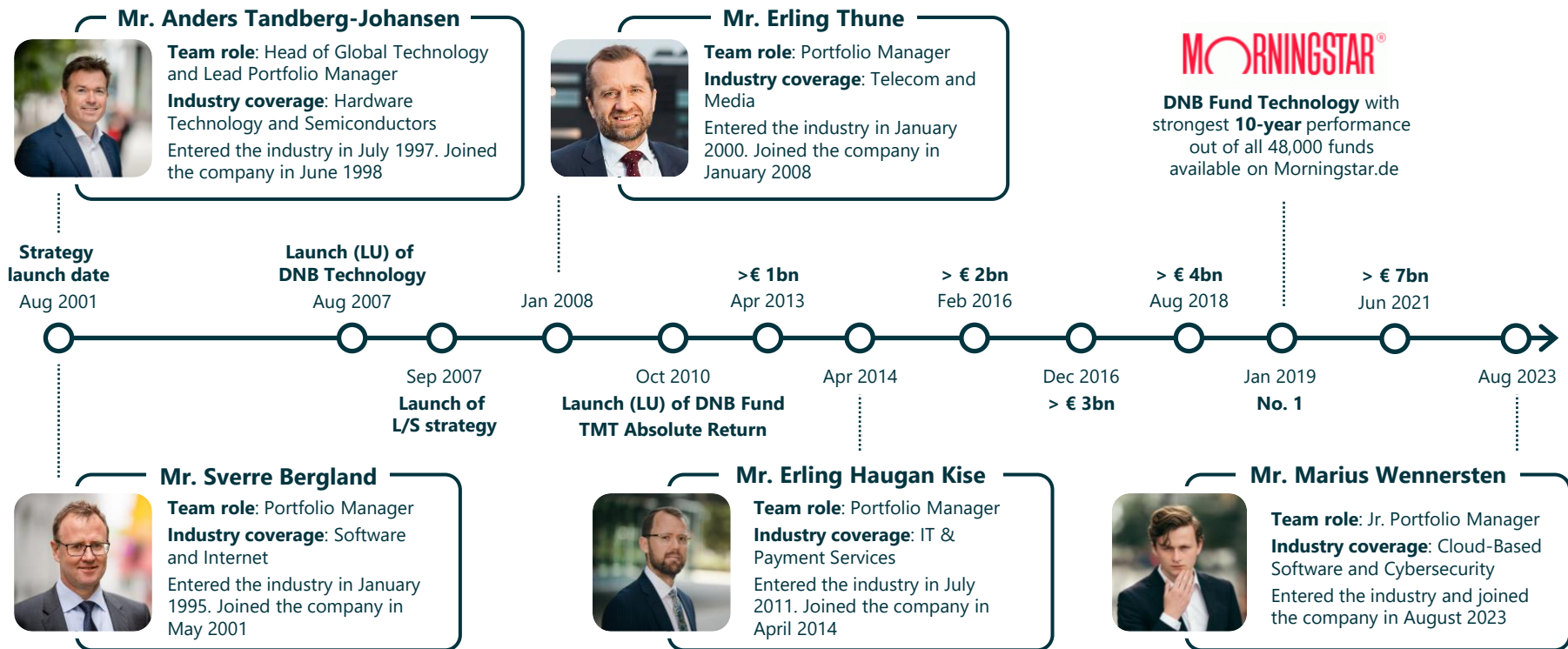
Solid Outperformance Since Fund Inception



Source: Bloomberg, DNB Asset Management as of October 29th, 2024. Note 1: Strategy refers to DNB Teknologi, the sister fund of DNB Technology, which is managed by the same team but domiciled in Norway

Strategy Introduction

Consistent Portfolio Management Team With No Turnover



Source: DNB Asset Management

Investment Process

Investment Process

Our Four Pillars of Stock Selection



Themes

What is the underlying thematic driver?

Artificial Intelligence

Cloud migrations

Mature smartphone market

Internet of Things, 5G

Regulation of Big Tech



Value Creation

How is value being created?

Management track record

Corporate Governance

Economies of scale

Barriers to entry

Regulatory risk



Momentum

What is fueling short-term price action?

Ownership and short interest

Market insight triangulation

Investor biases

Risk/reward around events

Assumptions in the share price



Valuation

Is the valuation warranted?

Relevant pricing ratios

Earnings estimates

CS Holt Lens

Bloomberg

Broker research

Source: DNB Asset Management

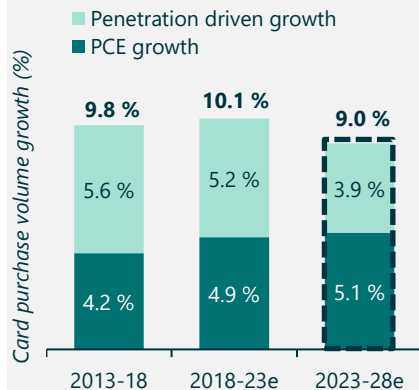
Investment Process

Our Four Pillars of Stock Selection | Illustrative Example: **VISA**



Themes

Continuing conversion from cash to card and increasing consumer expenditures



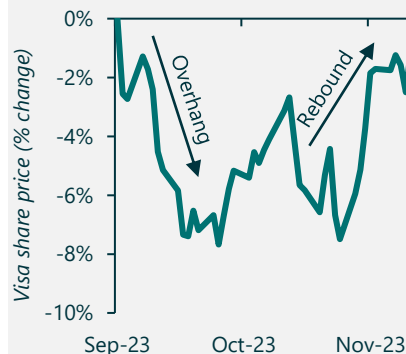
Value Creation

Duopoly with deep moats from large customer and merchant network effects



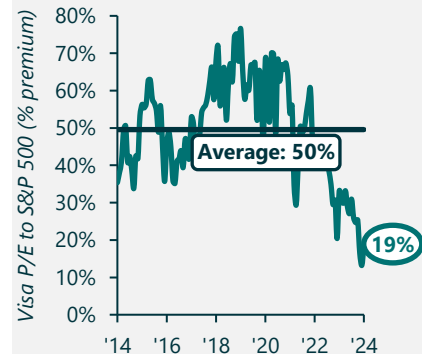
Momentum

Share class conversion overhang created attractive buying opportunity



Valuation

P/E multiple historically at 50% premium to market, currently at 19%



Source: Bloomberg, company reports, Bernstein, DNB Asset Management as of end of August 2024

Investment Process

The DNA of DNB Technology



Valuation Conscious

Assess whether the valuation reflected in the stock price is warranted by the fundamentals

Bad companies can be good stocks

Premium valuations can be justified

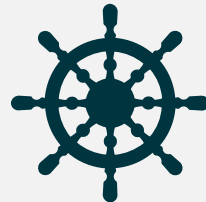


Contrarian

Act on adverse stock movements as opportunities, if the thesis remains intact

No stop-loss methodology

Double-down on underperformers



Discretionary

Exercise discretion to capitalize on opportunities, w/o guideline constraints

Factor-aware, not factor-led

No holding periods

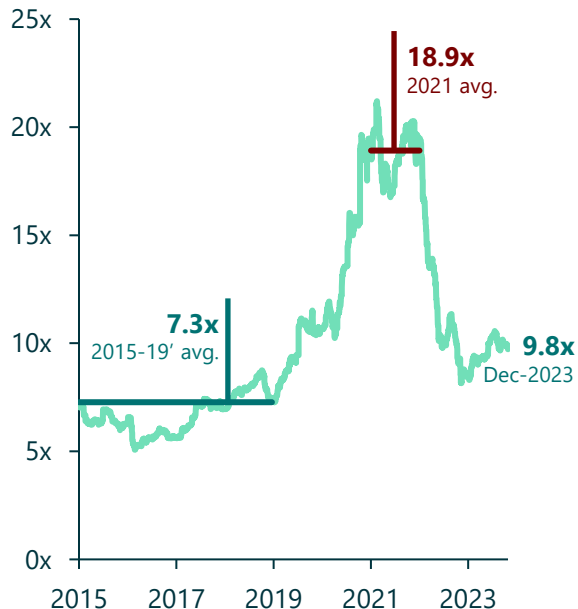
Source: DNB Asset Management

Investment Process

Valuation Conscious: a Case Study

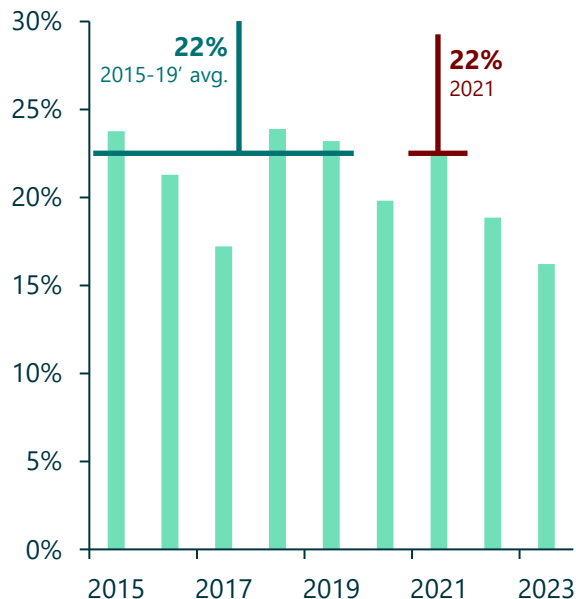
Re-Rating of Software Multiples...

Avg. NTM EV/sales, 20 largest software companies (x)



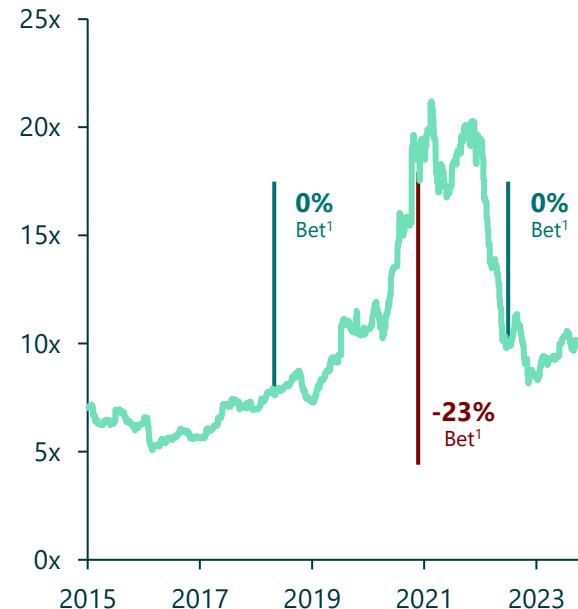
...Not Supported by Fundamentals...

Median sales growth rate, 20 largest software companies (%)



...Caused Portfolio Pivot

Avg. NTM EV/sales, 20 largest software companies (x)



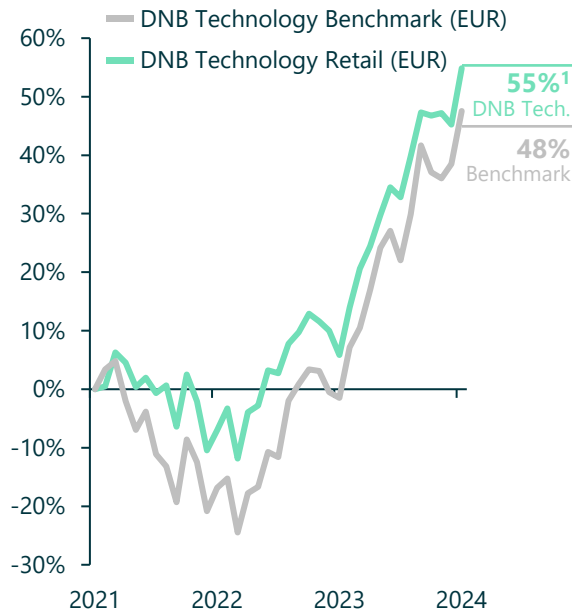
Source: Bloomberg, DNB Asset Management as of 31st of December 2023. Note 1: Fund Software exposure relative to Benchmark

Investment Process

Downside Protection Has Yielded Strong Long-Term Performance

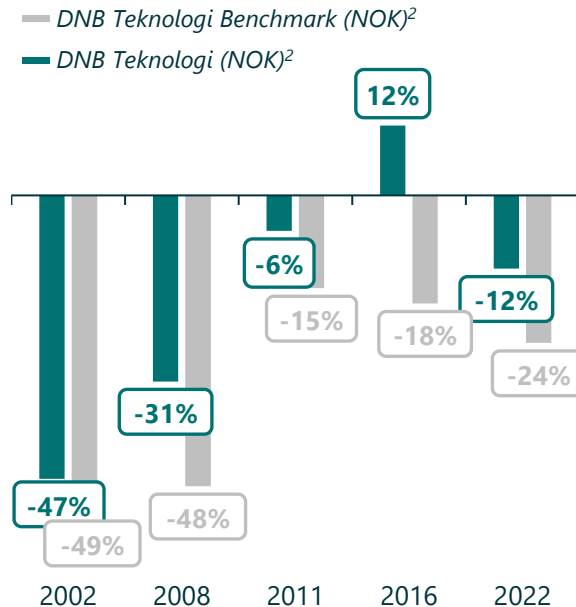
Ahead of Benchmark Last 3 Years...

Return last 3 years (%)



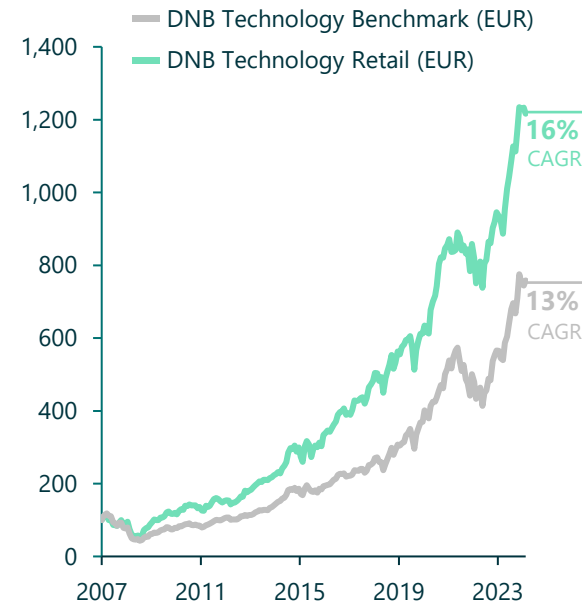
...in All Bear Markets²...

Return in BM's neg. years since DNB Teknologi inception (%)



...and Overall Since Inception

Return since DNB Technology inception (indexed to 100)



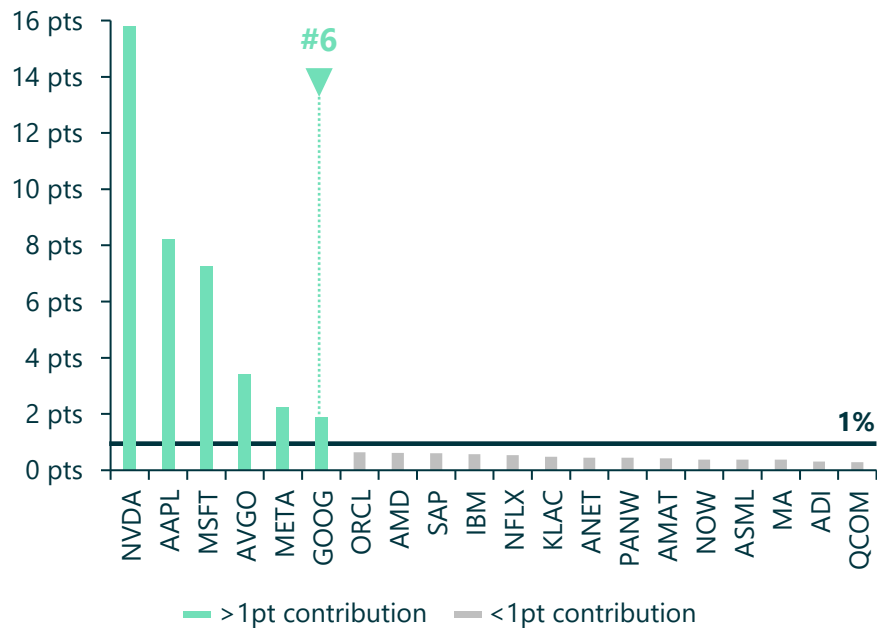
Source: Bloomberg, DNB Asset Management as of October 29th, 2024. Note 1: 3-year return for DNB Technology Institutional is 59%. Note 2: Performance shown for DNB Teknologi (NOK) as DNB Technology (EUR) was not inception until 2007

Investment Process

Top Return Contributors More Diversified than Benchmark, Last 3 Years

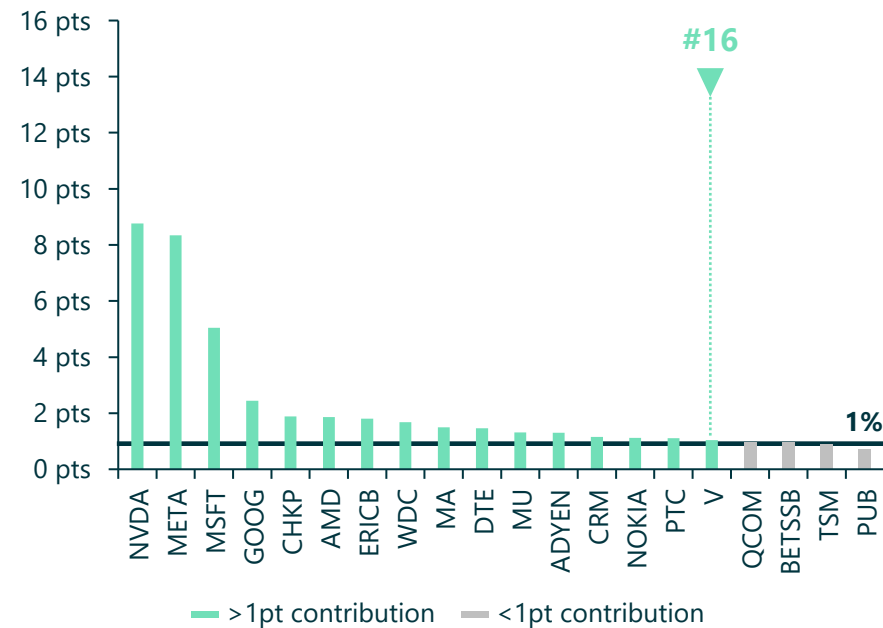
Only 6 Stocks Contributed >1pt to Benchmark Return...

Contribution to absolute return last three years, top 20 stocks, Benchmark (pts)



...Versus 16 Stocks for DNB Technology

Contribution to absolute return last three years, excl. fees, top 20 stocks, DNB Technology (pts)



Source: Bloomberg, DNB Asset Management as of end of August 2024

Investment Universe

Investment Universe

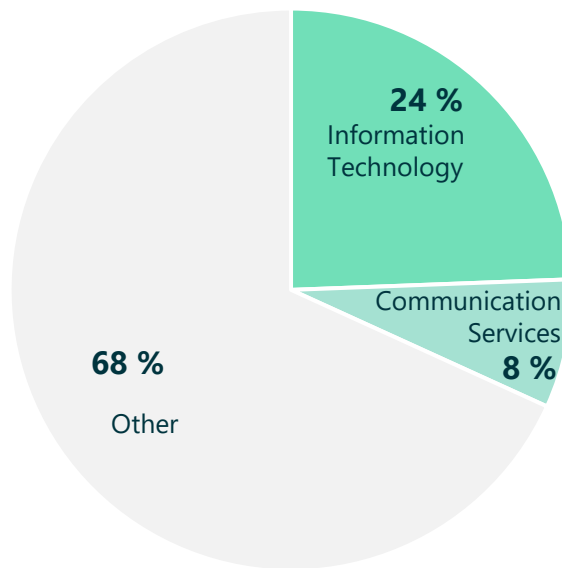
A Large and Diverse Investment Universe

A Diverse Investment Universe...



...Making Up >30% of MSCI World...

MSCI World Index by sector (%)



...Including 7/10 Largest Companies

Largest companies globally by market capitalization (\$bn)

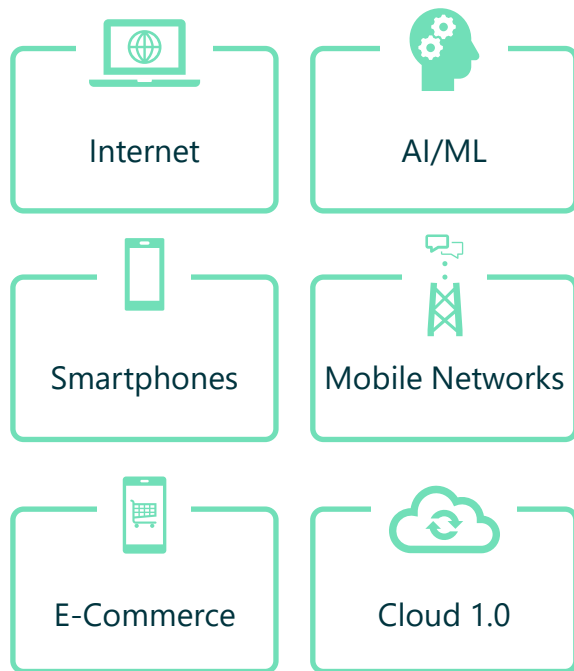
Company	MCAP (\$bn)
Apple	3,053
Microsoft	3,773
Nvidia	2,410
Alphabet	1,883
Amazon	1,610
Saudi Arabian Oil Co	1,587
Meta Platforms	1,128
Berkshire Hathaway	843
Eli Lilly & Co	698
Broadcom	611

Source: Bloomberg, DNB Asset Management as of end of July 2024

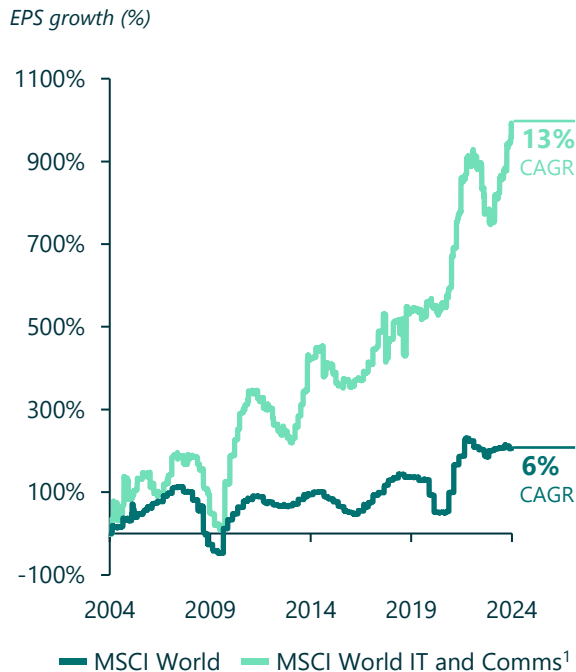
Investment Universe

The Economy's Productivity Growth Driver Is a Stock Market Winner

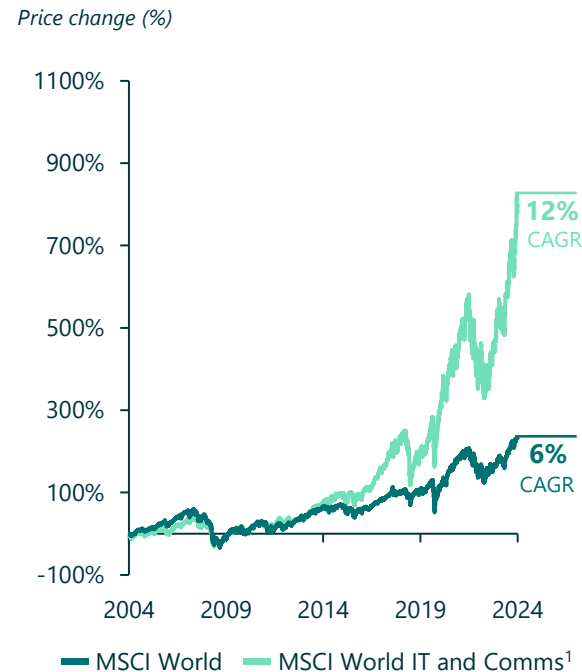
TMT Fueling Productivity Growth...



...Driving Greater Earnings Growth...



...Powering Outperformance



Source: Bloomberg, DNB Asset Management as of end of July 2024. Note 1: MSCI World Information Technology and MSCI World Communications Services, composite, weighted by market capitalization

Investment Universe

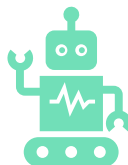
"Do You Think Technology Will Be More or Less Important in the Future?"



Generative Artificial Intelligence



Cloud 2.0 and Accelerated Compute



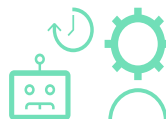
Automation & Robotics



Superfast Mobile Broadband – 5G



Self-Driving Transportation



Internet-of-Things

Source: DNB Asset Management

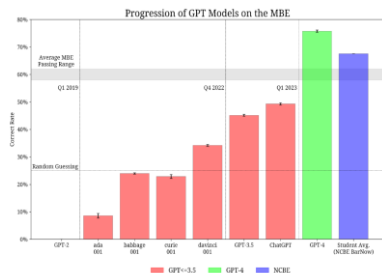
Investment Universe

Right Now, It's All About Generative AI

GPT-4 Passes the Bar Exam

Daniel Martin Katz, law professor at Illinois Tech's Chicago-Kent College of Law, demonstrates that OpenAI's latest deep learning model excels in complex legal reasoning and has profound implications for the legal system

03/15/2023



A Twitter user claims GPT-4 saved his dog's life after a vet couldn't correctly diagnose her symptoms



Cooper 🍌 @peakcooper · Mar 25

In the meantime, it occurred to me that medical diagnostics seemed like the sort of thing GPT4 could potentially be really good at, so I described the situation in great detail.

I gave it the actual transcribed blood test results from multiple days, and asked for a diagnosis 4/



Teaching at your level



Explain what "Transformers" mean in Generative Pretrained Transformers (GPT) so that a ten year old would understand



Imagine you have a bunch of LEGO blocks, and you can build many different things with them. Transformers in the GPT are like those LEGO blocks. They are small pieces that work together to help the computer understand and create sentences. By putting these Transformers together in different ways, the computer can learn new things and get better at understanding what we say and what we want it to do. It's like building a smarter and better robot friend using special LEGO blocks!



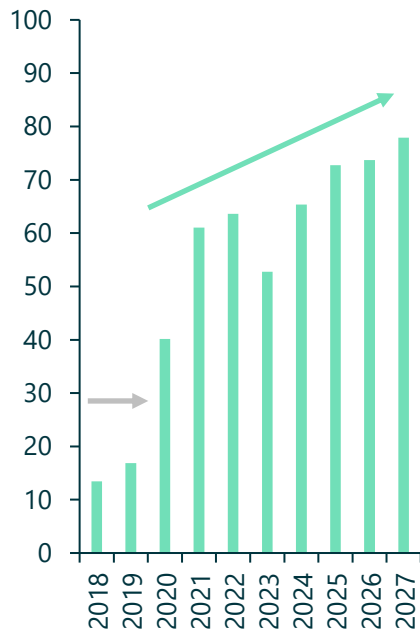
Source: DNB Asset Management

Investment Universe

The Hyperscalers Have Accelerated Their Capital Expenditures

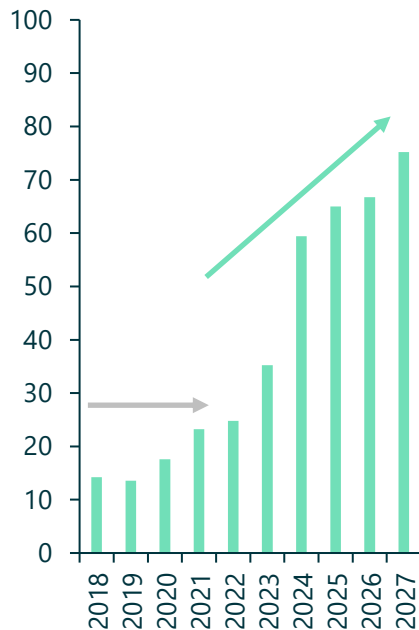
Amazon

Amazon CAPEX (\$bn)



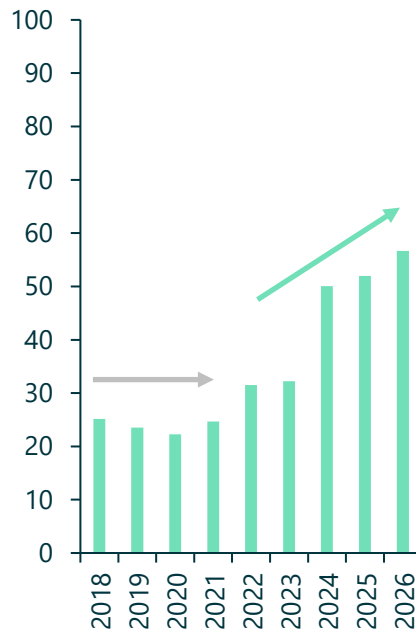
Microsoft

Microsoft CAPEX (\$bn)



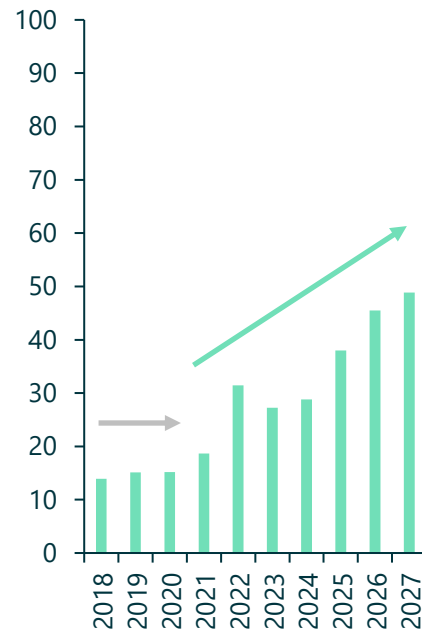
Alphabet

Alphabet CAPEX (\$bn)



Meta

Meta CAPEX (\$bn)



Source: Bloomberg, DNB Asset Management as of end of August 2024

Portfolio Positioning

Portfolio Positioning

We Positioned the Portfolio to Capitalize on GenAI in First Half of 2023...

8 Out of 15 Largest Holdings with Generative AI as Key Value Driver

Largest holdings as of June 1 st , 2023	% of Fund
Microsoft	9.4 %
Meta Platforms	7.9 %
Telefonaktiebolaget Ericsson	6.3 %
Alphabet	5.5 %
Nvidia	4.5 %
Sony	3.6 %
Samsung	3.5 %
Salesforce	2.9 %
Nokia	2.7 %
Take-Two Interactive Software	2.6 %
Criteo	2.4 %
Visa	2.3 %
Mastercard	2.2 %
Adobe	2.2 %
Western Digital	2.2 %



Source: DNB Asset Management

Portfolio Positioning

...But Have Divested From the GenAI Stories We Deem “Fully Priced”

Reduced in AI Winners That Turned Too Expensive...

Largest holdings, June 1 st , 2023	% of Fund	Change
Microsoft	9.4 %	-3.4 pts
Meta Platforms	7.9 %	-3.5 pts
Telefonaktiebolaget Ericsson	6.3 %	-1.8 pts
Alphabet	5.5 %	+2.4 pts
Nvidia	4.5 %	-0.2 pts
Sony	3.6 %	-1.9 pts
Samsung Electronics	3.5 %	+5.0 pts
Salesforce	2.9 %	-1.7 pts
Nokia	2.7 %	+2.4 pts
Take-Two Interactive Software	2.6 %	-1.3 pts
Criteo	2.4 %	-0.8 pts
Visa	2.3 %	+2.1 pts
Mastercard	2.2 %	+2.2 pts
Adobe	2.2 %	-1.7 pts
Western Digital	2.2 %	+2.6 pts



...and Increased in Overlooked Stocks

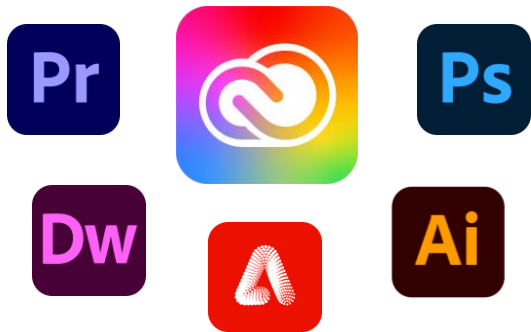
Largest holdings, October 31 st , 2024	% of Fund
Samsung Electronics	8.5 %
Alphabet	7.9 %
Microsoft	6.0 %
Nokia	5.1 %
Amazon.Com	4.9 %
Western Digital	4.8 %
Ericsson	4.5 %
Visa	4.4 %
Mastercard	4.4 %
Meta Platforms	4.4 %
Nvidia	4.3 %
Electronic Arts	2.2 %
Embracer	2.1 %
STMicroelectronics	1.8 %
Deutsche Telekom	1.8 %

Source: DNB Asset Management as of October 31st, 2024

Portfolio Positioning

Market May Have Been Too Optimistic on Adobe's GenAI Opportunity

GenAI in Adobe Creative Cloud...



Adobe has augmented its flagship products (Photoshop, Illustrator, etc.) with generative AI and integrated Adobe Firefly to offer e.g., generative fill

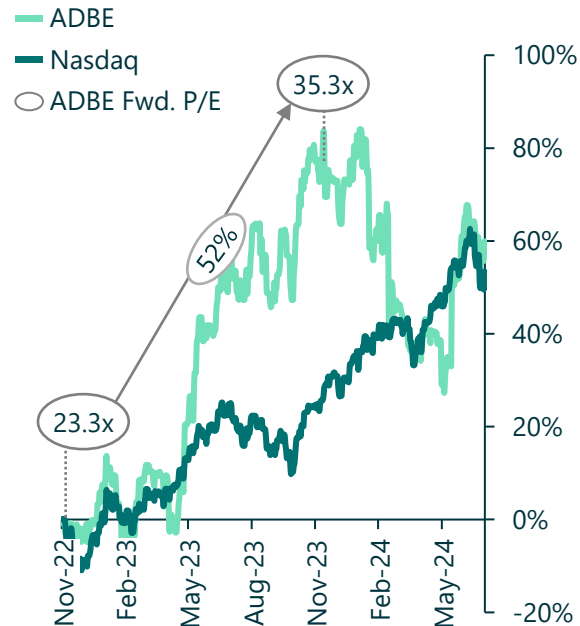
...Could Drive 9% Revenue Uplift...

Estimated Revenue Impact, FY24	
FY24 Revenue	\$21,779m
GenAI Uplift	+9%
GenAI Revenue	\$1,990m
Total FY24 Revenue	\$23,769m

Monetization will be subscription and consumption based, with estimates expecting ~9% revenue uplift from GenAI

...and Resulted in 52% P/E Uplift

Price performance (ex. dividend) since ChatGPT Launch (%)



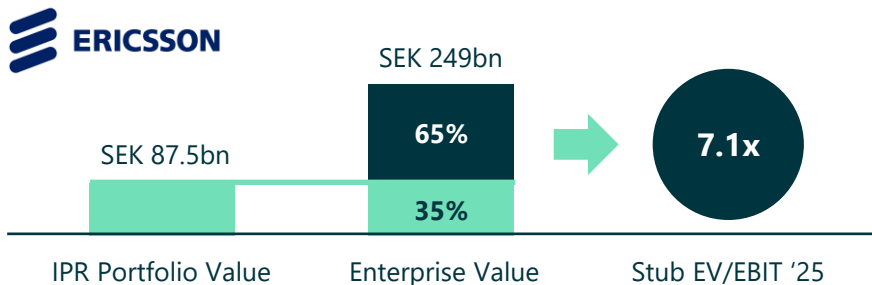
Source: Bloomberg, Morgan Stanley Research, DNB Asset Management as of end of July 2024

Portfolio Positioning

Much of Nokia's and Ericsson's EVs Can Now Be Justified by Patents Alone

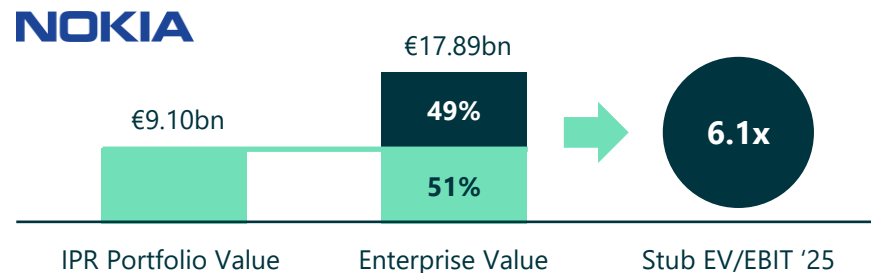
Ericsson's Patents are Worth 35% of Current EV

Ericsson IPR Portfolio Valuation	
2024 Guidance (Midpoint)	SEK 12.5bn
EBIT Margin	70%
EBIT Contribution	SEK 8.75bn
Multiple	10x
IPR Portfolio Value	SEK 87.5bn



Nokia's Patents are Worth 51% of Current EV

Nokia IPR Portfolio Valuation	
Run-Rate	€1.3bn
EBIT Margin	70%
EBIT Contribution	€0.91bn
Multiple	10x
IPR Portfolio Value	€9.10bn



Source: Bloomberg, Svenska Handelsbanken, DNB Asset Management as of end of August 2024. Note: assuming IPR EBIT flat from 2024 to 2025 in calculation of EV/EBIT for stub

Portfolio Positioning

Current Largest Overweight Is Samsung, Largest Underweight Is Apple

15 Largest Overweighted Stocks

Stock	Bet	Holding
Samsung Electronics	8.5 %	8.5 %
Nokia	5.0 %	5.1 %
Amazon.Com	4.9 %	4.9 %
Western Digital	4.7 %	4.8 %
Visa	4.4 %	4.4 %
Mastercard	4.4 %	4.4 %
Ericsson	4.4 %	4.5 %
Embracer	2.1 %	2.1 %
Electronic Arts	2.1 %	2.2 %
Sony Group	1.7 %	1.7 %
Adyen	1.7 %	1.7 %
STMicroelectronics	1.7 %	1.8 %
Criteo	1.6 %	1.6 %
SK Hynix	1.5 %	1.5 %
Taiwan Semiconductor	1.4 %	1.4 %

15 Largest Underweighted Stocks

Stock	Bet	Holding
Apple	-14.5 %	
Nvidia	-10.5 %	4.3 %
Microsoft	-7.2 %	6.0 %
Broadcom	-3.4 %	
Oracle	-1.2 %	
Meta Platforms	-1.2 %	4.4 %
Netflix	-1.1 %	0.3 %
Advanced Micro Devices	-1.0 %	
Accenture	-0.9 %	
Texas Instruments	-0.8 %	
International Business Machines	-0.8 %	
Qualcomm	-0.8 %	
Verizon	-0.8 %	
Intuit	-0.8 %	
The Walt Disney Co	-0.7 %	

Source: DNB Asset Management as of October 31st, 2024

Generative AI

Generative AI

The Generative AI Ecosystem



Source: DNB Asset Management

Generative AI

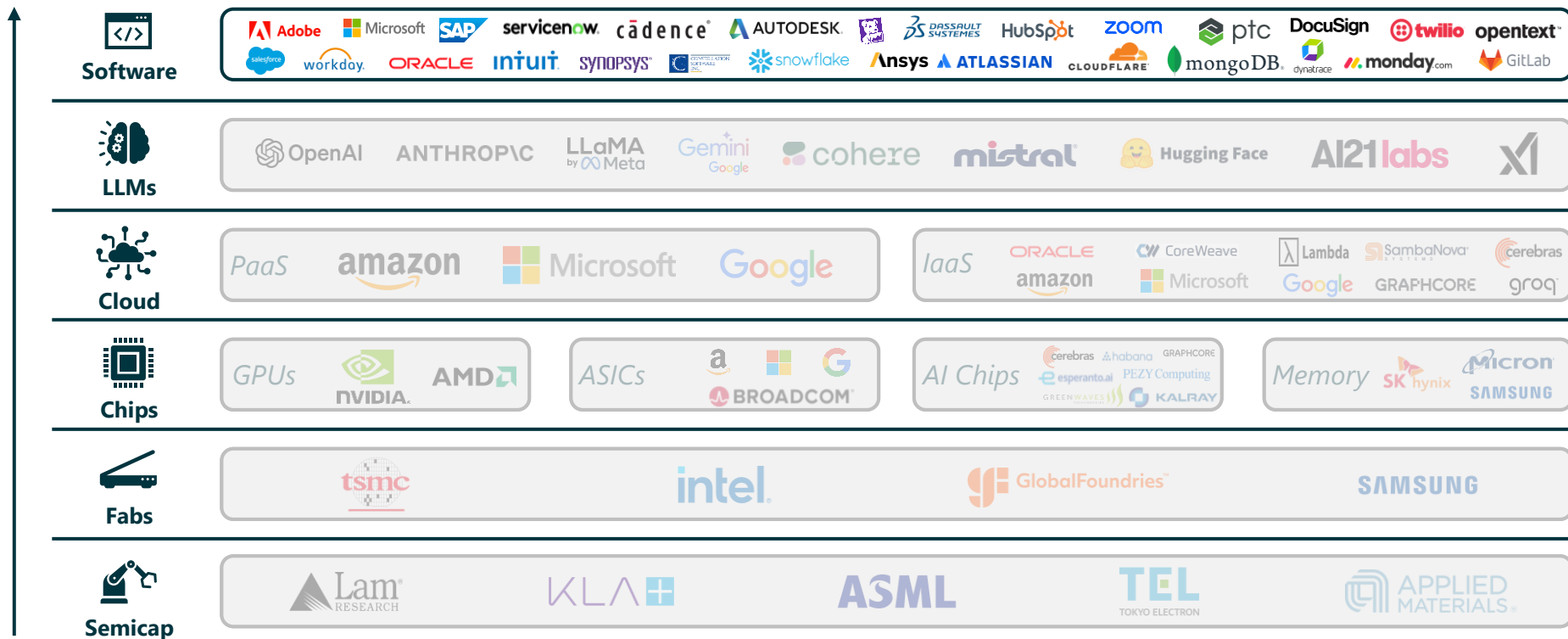
We Believe PaaS and Memory Players Are Attractively Priced and Positioned



Source: DNB Asset Management

Generative AI

Will GenAI Be Disrupting or Benefitting Software Companies?



Source: DNB Asset Management

Determining the Future Leaders of GenAI: Incumbents VS Start-Ups | Pt. I

Distribution vs Disruption



Can the incumbents build
cool stuff...



...before the start-ups build
distribution?



Augment vs Architect



Will Generative AI
augment...



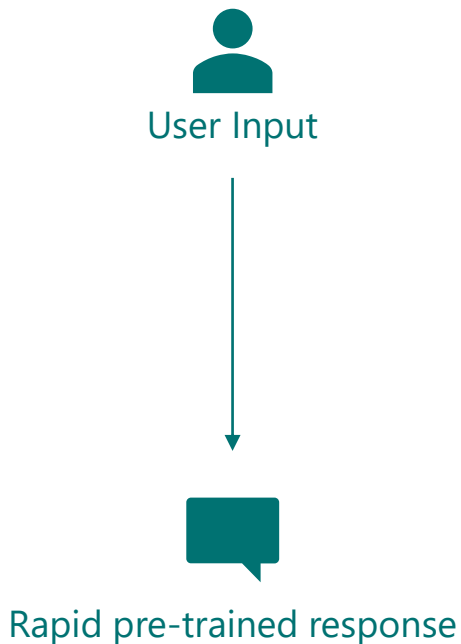
...or re-architect the
business?



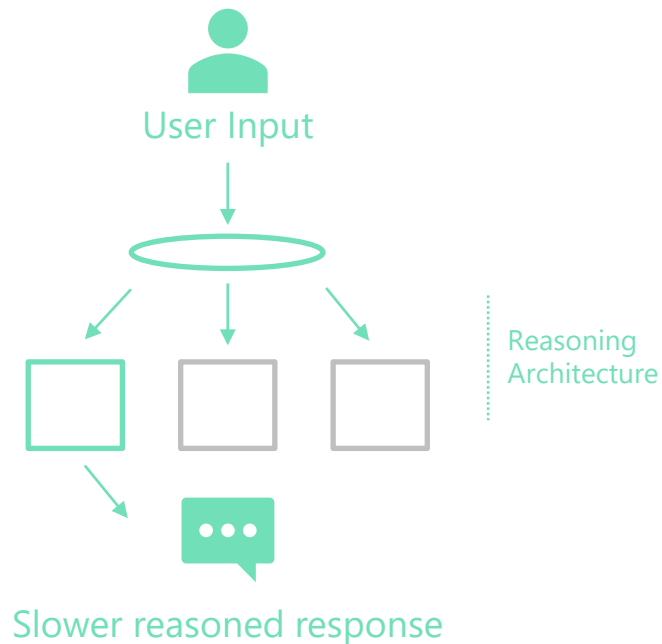
Generative AI

Determining the Future Leaders of GenAI: Incumbents VS Start-Ups | Pt. II

LLM "System 1" Thinking (e.g., GPT-4)



LLM "System 2" Thinking (e.g., GPT-4o1)



Source: DNB Asset Management

Generative AI

Snippets on CAPEX from Q2 2024 Conference Calls

Alphabet:

“... the risk of underinvesting is dramatically greater than the risk of overinvesting”

Amazon:

“... we continue to see strong demand in both generative AI and our non-generative AI workflows”

Meta:

“... the amount of compute needed to train Llama 4 will likely be almost 10 times more than what we used to train Llama 3”

Microsoft:

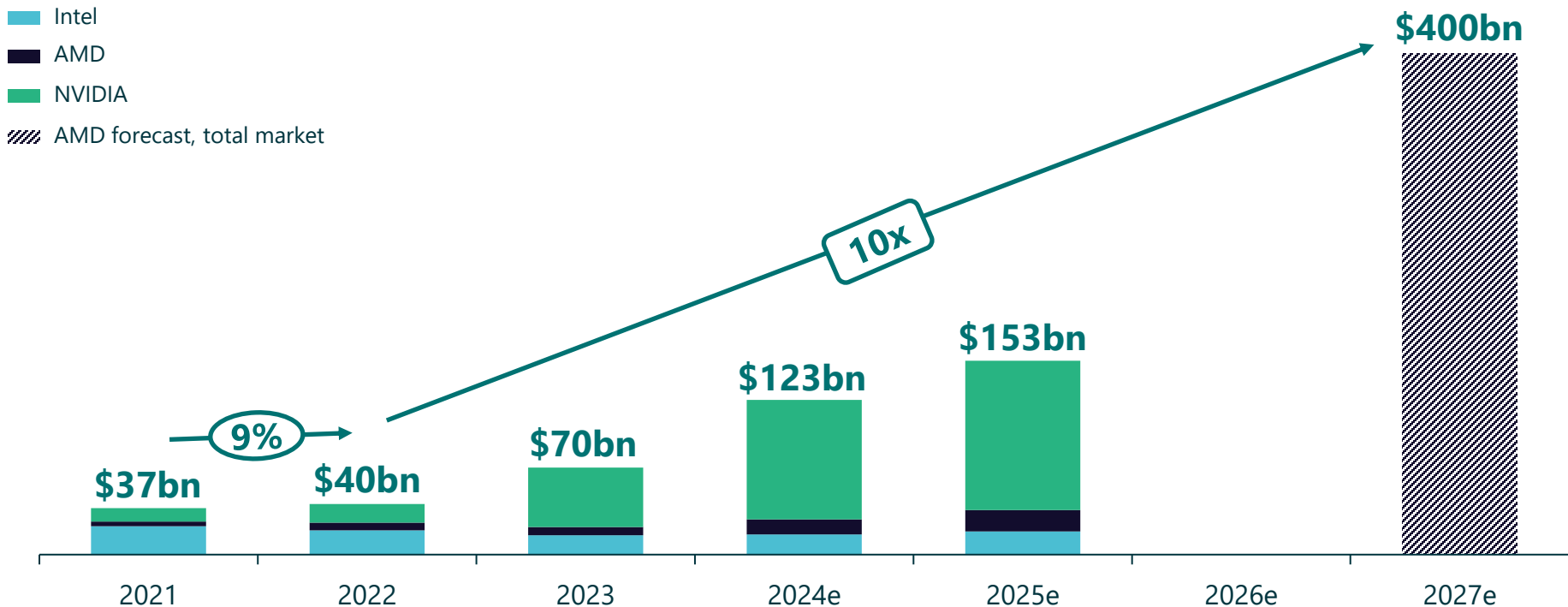
“...we expect capex to increase on a sequential basis give our cloud and AI demand as well as existing AI capacity constraints”

Source: Bloomberg, company websites, DNB Asset Management as of end of August 2024

Generative AI

Will Chip Manufacturers Eat the World?

Data center revenue (\$bn), actuals (2021 - 2023), consensus estimates (2024 - 2025), AMD forecast (2027)

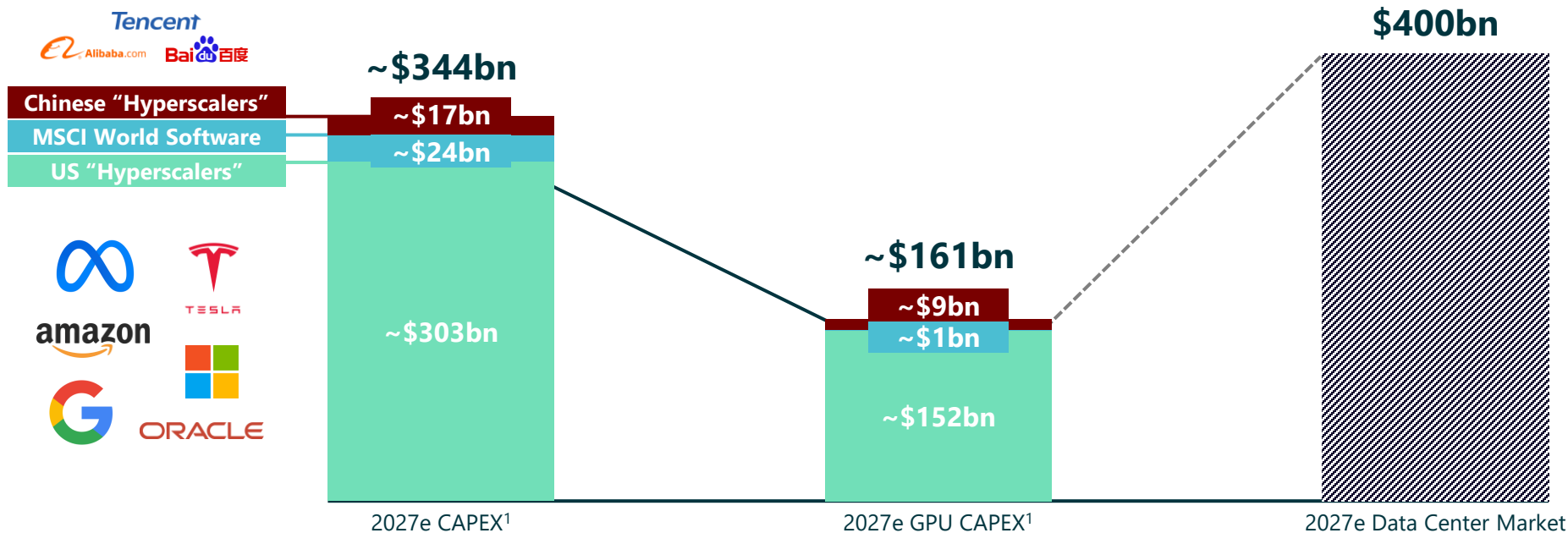


Source: Bloomberg, company websites, DNB Asset Management as of Q1 2024

Generative AI

Who Are the Buyers of AMD's \$400bn Market?

Comparison of 2027 estimated capex and estimated GPU capex for US and Chinese "Hyperscalers" and MSCI World Software companies, with AMD's 2027 data center market forecast, (\$bn)



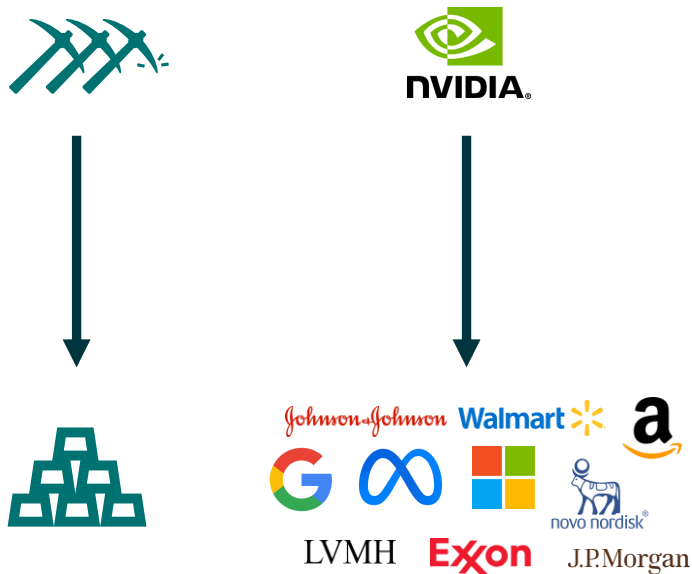
1: Assuming constant capital intensity from 2024 to 2027, assuming 50% of "Hyperscaler" (MSFT, AMZN, GOOG, ORCL, META, TSLA, BABA, BIDU, Tencent) capex goes to GPUs, assuming GPU % of CAPEX for software is in-line with that of ServiceNow
Source: Bloomberg, company websites, DNB Asset Management as of end of June 2024

Generative AI

The Demand Environment for Compute is Murkier Than at First Glance

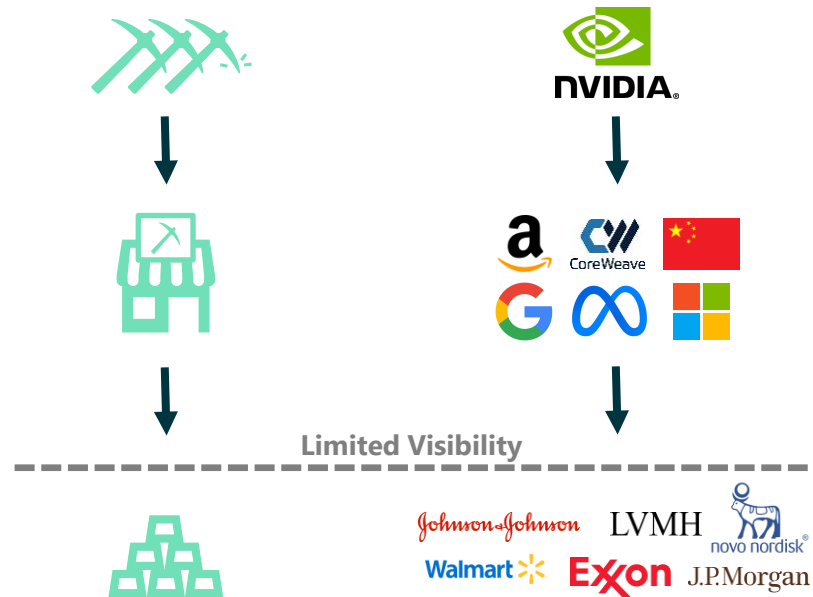
The Companies Buying Pickaxes to the Gold Rush...

The Incomplete Gold Rush Analogy...



...Do Not Have Direct Visibility of How Many are Needed

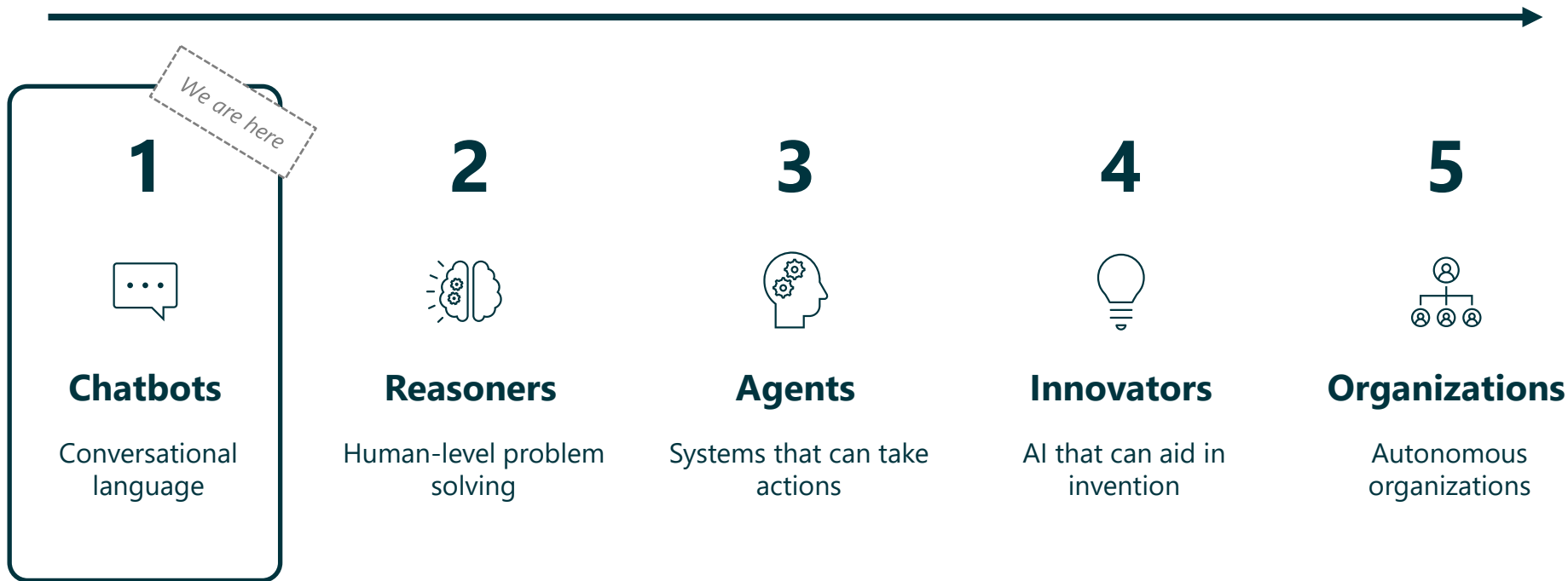
...Needs Some Refining



Source: DNB Asset Management

Generative AI

OpenAI's 5 Stages of Artificial Intelligence



Source: Forbes, DNB Asset Management



Asset Management

Performance

Absolute (+25.4%) and Relative (-2.9%) Net Return So Far in 2024

10 Largest Relative Contributors, 2024

Stock	Contribution	Current Holding
Apple	1.6 %	0.0 %
Microsoft	1.6 %	6.0 %
Nokia	1.1 %	5.1 %
Meta Platforms	1.0 %	4.4 %
Ericsson	0.7 %	4.5 %
Taiwan Semiconductor	0.7 %	1.4 %
Adobe	0.6 %	0.5 %
Advanced Micro Devices	0.5 %	0.0 %
Qualcomm	0.5 %	0.0 %
Salesforce	0.5 %	1.2 %

10 Largest Relative Detractors, 2024

Stock	Detraction	Current Holding
Nvidia	-5.1 %	4.3 %
Samsung Electronics	-3.9 %	8.5 %
Nordic Semiconductor	-1.0 %	1.2 %
Sony Group	-1.0 %	1.7 %
STMicroelectronics	-0.9 %	1.8 %
Broadcom	-0.6 %	0.0 %
Skyworks Solutions	-0.6 %	0.5 %
Ubisoft	-0.5 %	0.2 %
TomTom	-0.4 %	0.6 %
Amazon.Com	-0.4 %	4.9 %

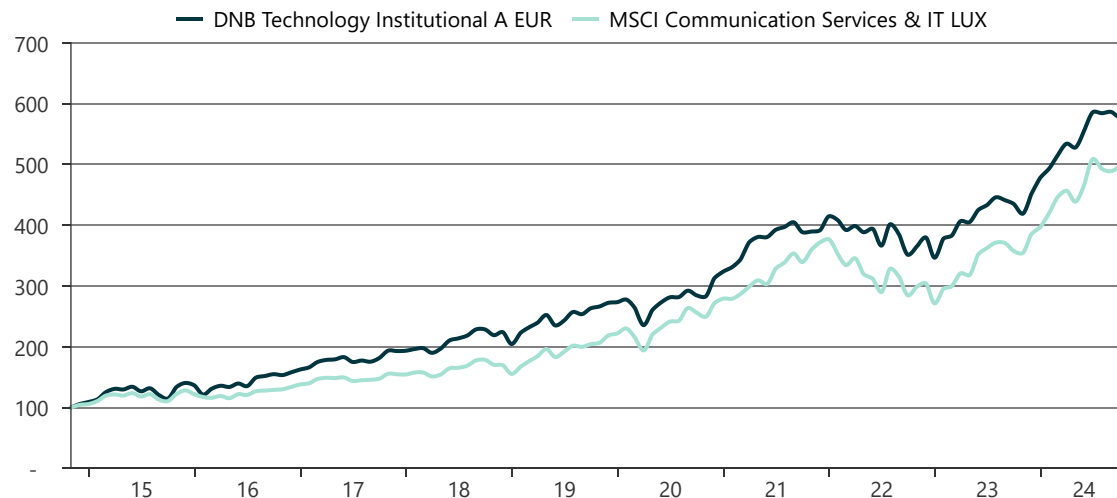
Source: Bloomberg, DNB Asset Management as of October 31st, 2024

Performance

Fund Characteristics and Performance Versus Benchmark

Characteristics	Explanation	Yearly returns, %	Fund	Index	Relative
Benchmark	MSCI Communication Services & IT LUX	YTD ¹	25.4	28.3	-2.9
Report Currency	EUR	2023	37.9	46.3	-8.4
Return Type	Net of Management Fee	2022	-16.4	-28.0	11.6
Report Period	31.10.14 - 29.10.24	2021	28.1	35.0	-6.9
Last NAV	687.6	2020	18.4	25.7	-7.3

Performance of DNB Fund Technology last ten years



* Period limited by start of period or fund inception.

Accumulated returns, %	Fund	Index	Relative
3 Years	58.6	47.5	11.0
5 Years	131.7	156.9	-25.2
Report Period	517.5	430.0	87.5
Annualized returns, %	Fund	Index	Relative
3 Years	16.6	13.8	2.8
5 Years	18.3	20.8	-2.5
Report Period	20.0	18.1	1.8
Annualized risk measures 3 yrs, %	Fund	Index	
Volatility		15.6	20.5
Tracking Error		8.7	

Source: Bloomberg, DNB Asset Management as of October 29th, 2024. Note 1: As of October 31st, 2024

Fund Characteristics

Fund name	DNB Fund Technology
Fund type	Unhedged, long only equity fund
Legal structure	SICAV, Luxembourg
Inception date	16 th of August 2007
Base currency	EUR
Liquidity	Daily
Management company	FundPartner Solutions (Europe) S.A.
Investment manager	DNB Asset Management AS, Norway
Investment universe	Global equities within the technology, media and telecommunication sectors
Benchmark	MSCI World Communication Services & Information Technology
Portfolio targets	25-60 holdings, 5-10% tracking error

Source: DNB Asset Management

DNB Asset Management

Disclaimer

This document is a marketing material. Please refer to the prospectus of the UCITS, the KID, semi-annual and annual report, and the summary of investor rights before making any final investment decision.

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