



Navigating IT in volatile times

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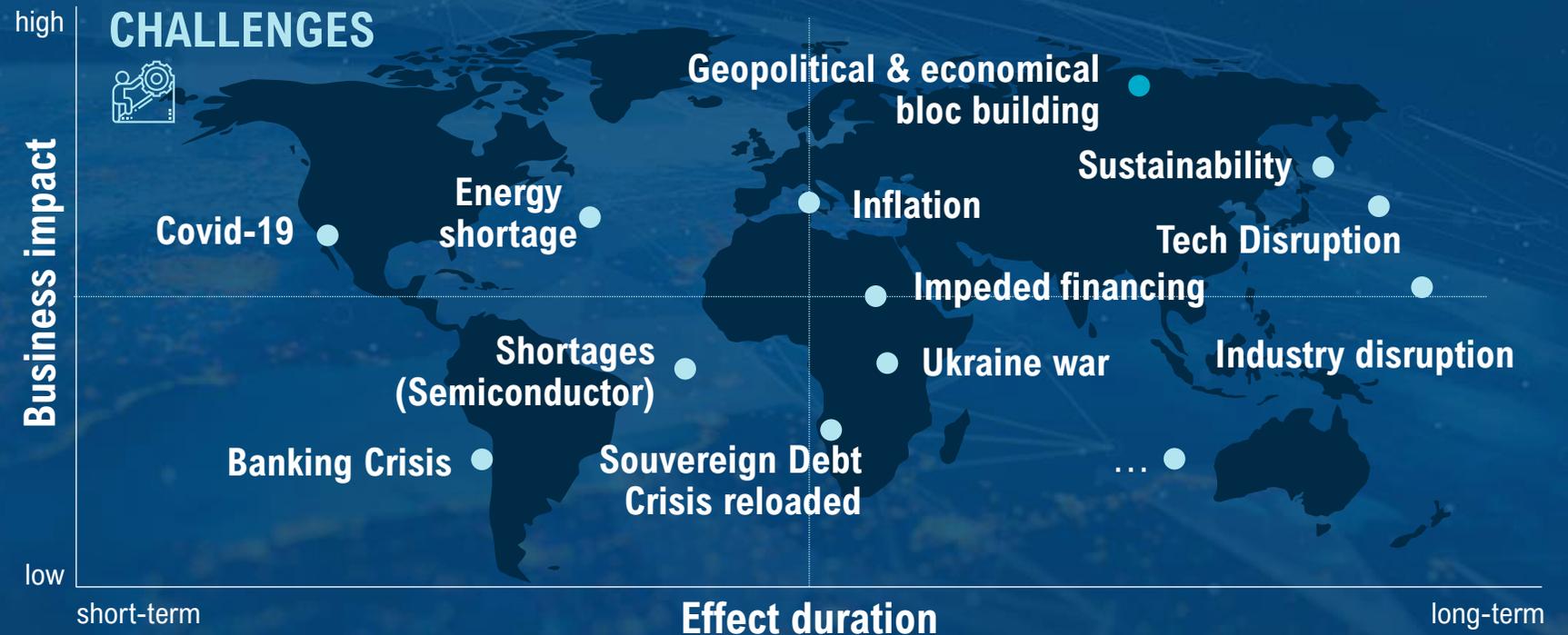
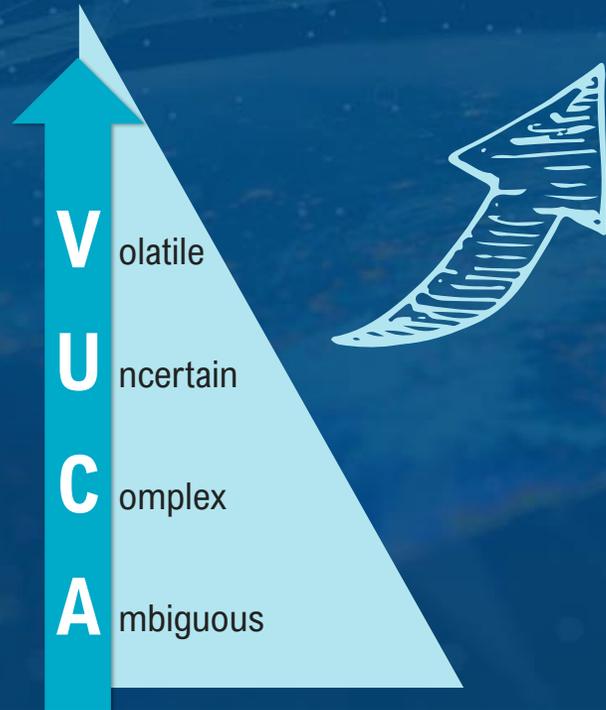
March 2023

The challenges resulting from the VUCA world are manifold – Geopolitical & economical bloc building on top of many CEO agendas



Situation

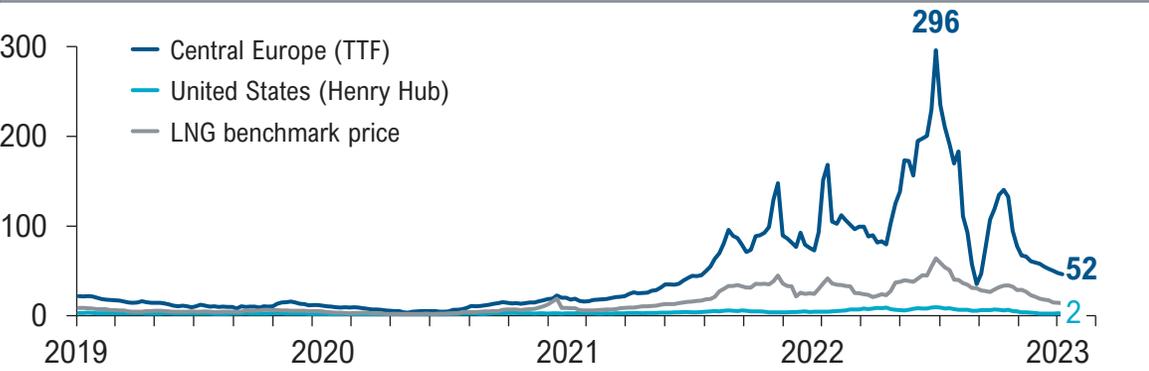
WORLD



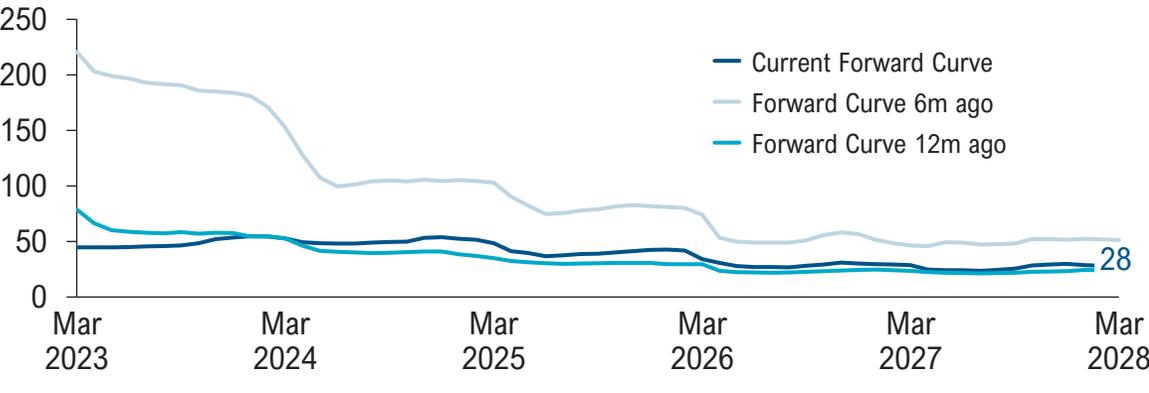
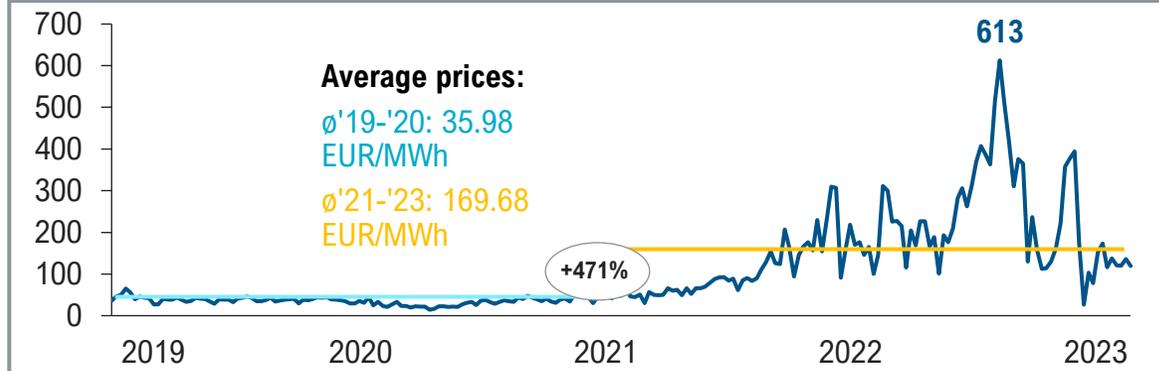
2023

Europe saw energy prices skyrocketing in 2022 – Though prices have been going down recently, the price level for energy in Europe will remain high in the future

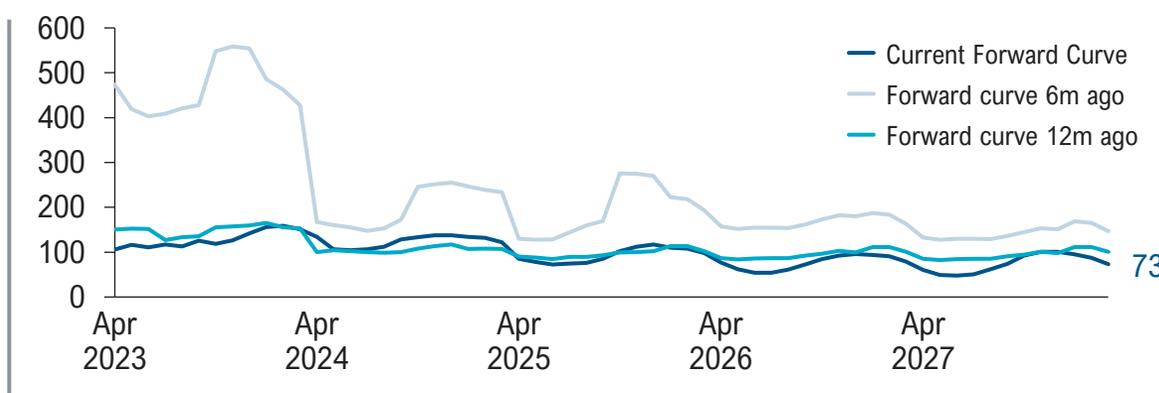
Gas spot prices [EUR/MWh]



Day-ahead power price Germany [base, EUR/MWh]



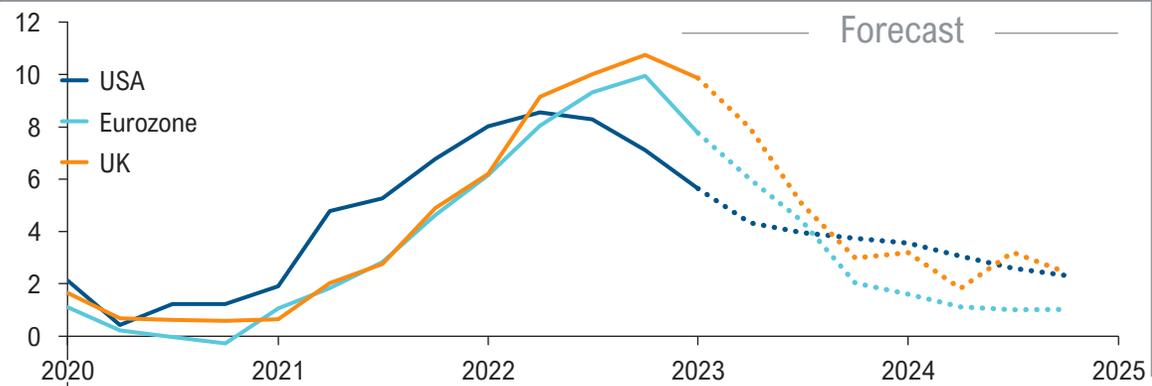
TTF natural gas price forwards [EUR/MWh]



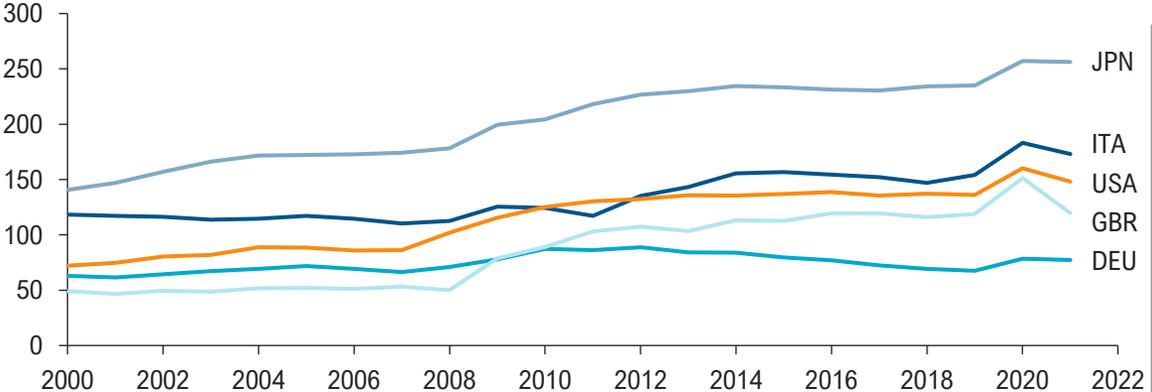
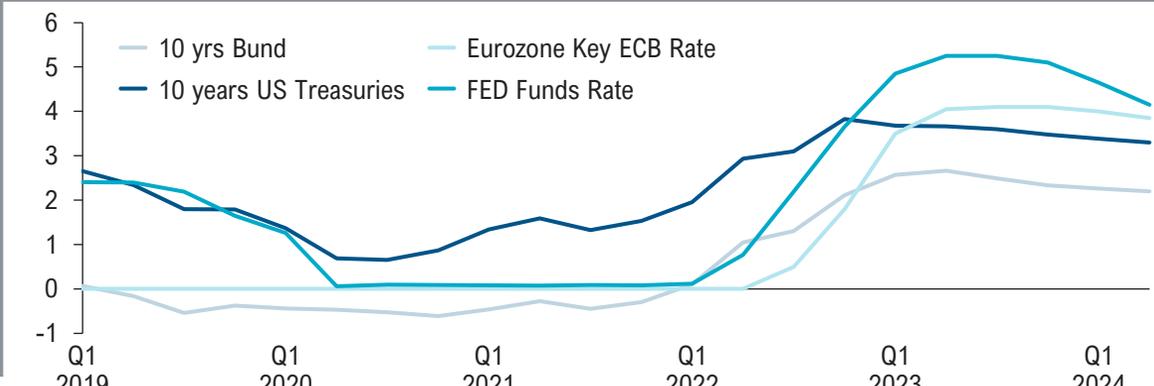
German power forwards [base, EUR/MWh]

High Inflation Rates, Central Bank's Rates Hikes and turbulences in the American Banking Sector drive up uncertainty in global economies

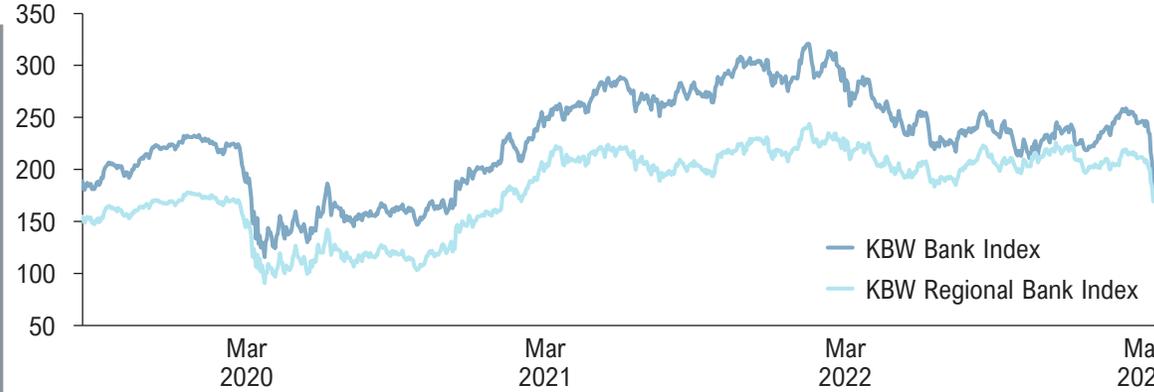
Inflation Rates



Interest Rates & Interest Rates Expectation (ECFC)



Government Debt



Banking Stocks

Prioritization of challenges: Next to geopolitical & economical bloc building, other challenges must be factored in

What it takes to stay on course – Challenge prioritization

IMPACT ON (ILLUSTRATIVE)

CHALLENGES



Geopol. & econ. bloc building

Ukraine war

Natural catastrophes

Semiconductor shortages

Covid-19

Inflation

Impeded funding/financing

Sustainability

Demand volatility

Change in customer behavior

Industry disruption

Dev

Ops

Shoring

...

Total

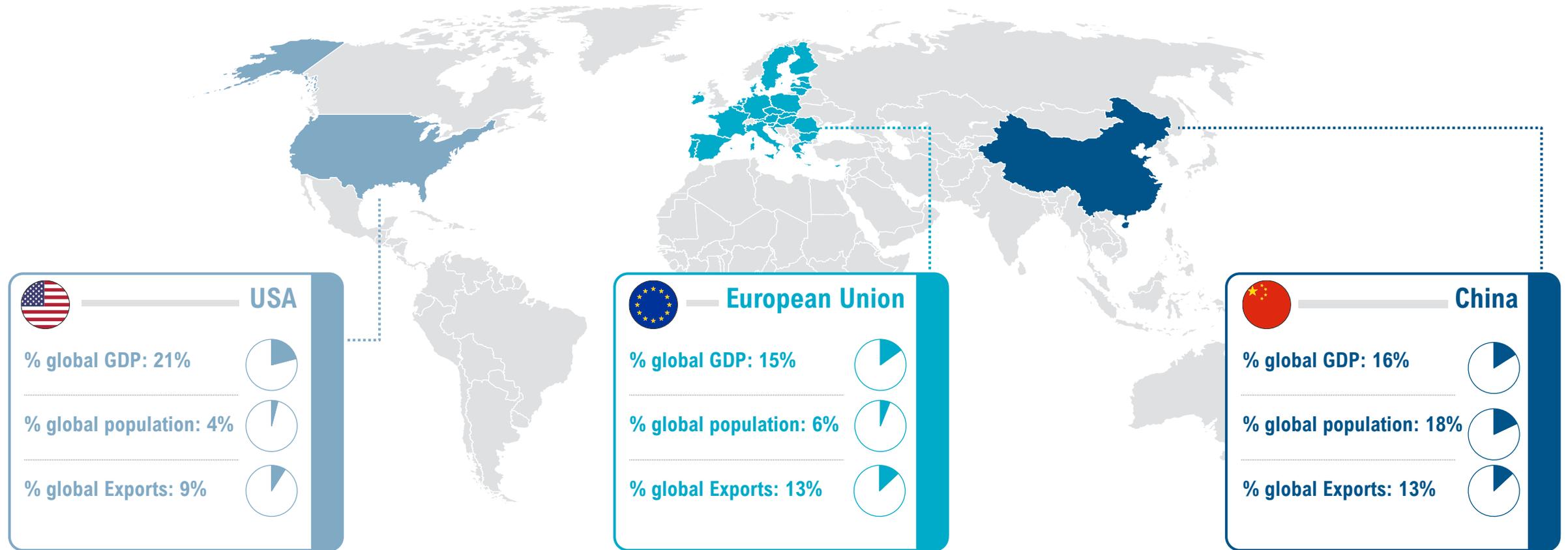


Very high High Low Very low

- The identified challenges are used to assess the impact on key business dimensions
- Based on an initial qualitative assessment (as illustrated), the quantitative impact is approximated
- The quantitative assessment then serves as decision basis which risks the company wants to address

Today's economic world is shaped and challenged by three major blocs that produce more than half of the global economic output

Socio-economic key indicators of the world's three major blocs

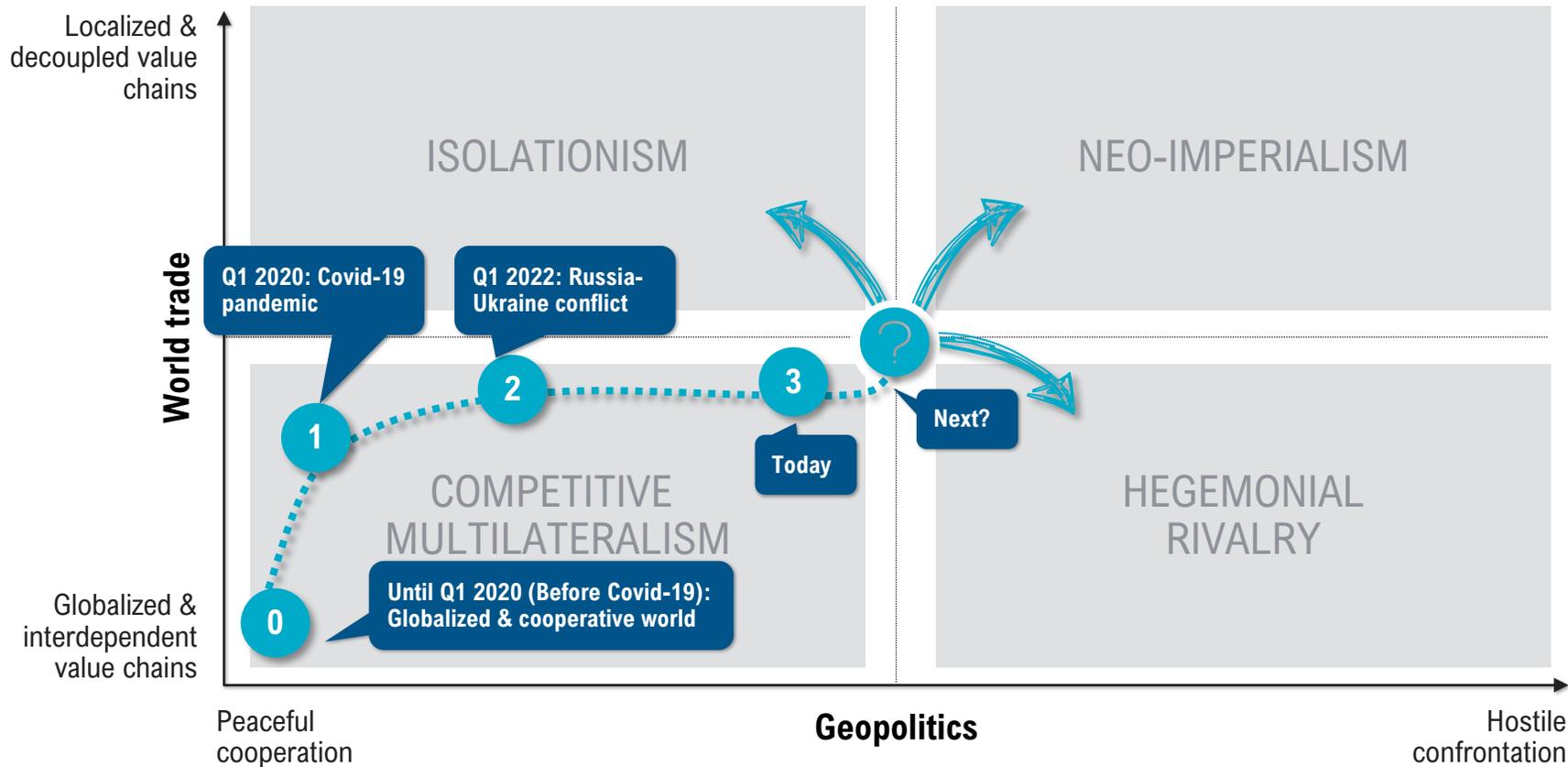


GDP data from 2021 (constant 2015 USD)
Export data from 2019

Source: World Bank, WITS, Eurostat

Recently, world trade has slowed down and geopolitical confrontation hiked in the wake of Russia's invasion of Ukraine – We see four scenarios for the world order

International order scenario matrix¹⁾

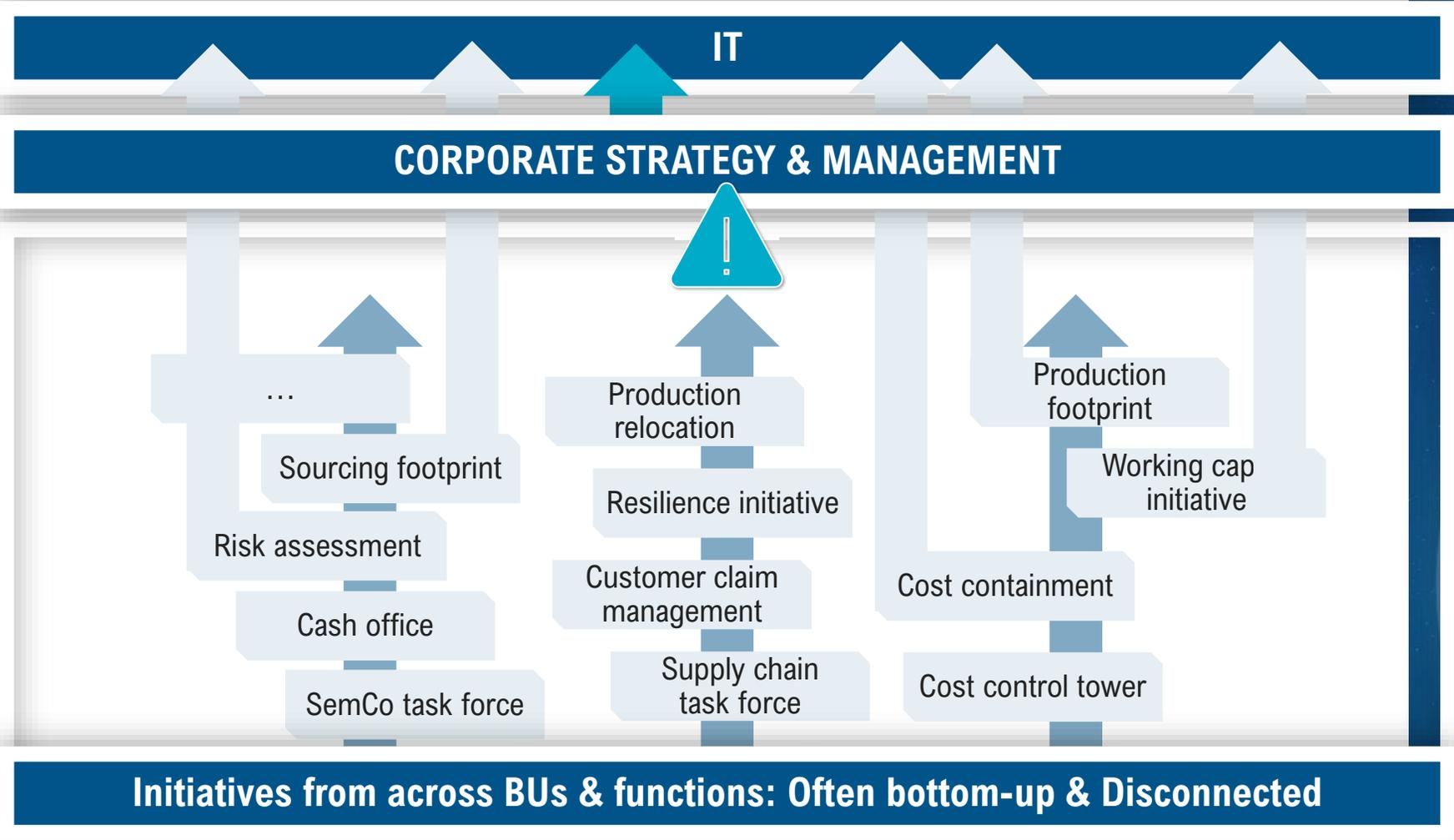


- The Russian invasion of Ukraine has shown that the liberal world order which current value chains rest on cannot be taken as given
- The sanctioning of the Russian invasion by predominantly Western states has further exacerbated already existing economic disruptions like shortages and inflation resulting from Covid-19
- At the same time, this has raised the question of what the relationship of Western states with authoritarian regimes may look like in the future



1) Scenarios as of July 2022

Resulting initiatives often bottom-up and disconnected



⚠️ Risky
Expensive
Inconsistent
Inefficient

⚠️ Backlash
on IT

Flashback Financial Crisis 2008-2009 – Sudden crisis mode

Recap 2008:

Financial system instability

Consumer demand uncertainty

IT investment austerity

Large bankruptcies

"Keep the lights on"



Roland Berger
Strategy Consultants

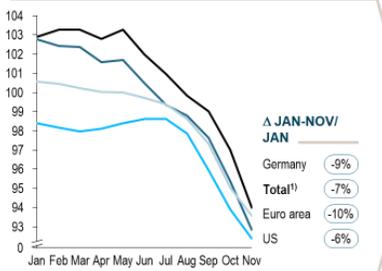
Managing IT in difficult times – How to navigate the turbulent waters of the automotive crisis

Munich, January 21, 2009

Roland Berger
Strategy Consultants

The financial crisis and global economic downturn have already severely affected business and consumer expectations in 2008

OECD Business Confidence Indicator 2008



Region	Δ JAN-NOV/ JAN
Germany	-9%
Total ¹⁾	-7%
Euro area	-10%
US	-6%

Comments

- > Dramatic drop in business confidence, reflecting expected impact of financial crisis
- > Consumer confidence in some countries at the lowest levels in decades
- > Significant decline in business investments and consumption expected for 2009

1) Includes 29 countries: excl. Brazil, India, China, Russia, South Africa
Source: OECD, Roland Berger
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Roland Berger
Strategy Consultants

Consequently, the executive agenda in the automotive industry now focuses primarily on securing cash flows and reducing working capital

What the crisis changes	What this means for executives
<ul style="list-style-type: none"> > Higher borrowing costs due to investors asking for hefty risk premiums > Increased carefulness for giving out loans by banks; concentration on companies with high credit profile > Increasing equity less attractive and more difficult due to weak stock market > Reversed expectations of shareholders: Safety bonus for solid cash position, discount for high working capital > Like in banking, either wave of bankruptcies or big increase in the amount of restructuring mergers to be expected 	<ul style="list-style-type: none"> > Focus on cash flow and reduction of working capital > Conservative reassessment of dividend, leverage ratio and buy-back policies to secure financing > Cost-cutting and improvement of organizational efficiency; the tough market situation can be used to justify transformation moves (e.g. outsourcing) > "Room to maneuver" to proactively exploit strategic opportunities and to make acquisitions > Development of scenarios dealing with the possible effects of a recession (breakdown of prices, volume, etc.) > Continuing increase of market/competitive pressure – shift in the competitive landscape

Source: Roland Berger
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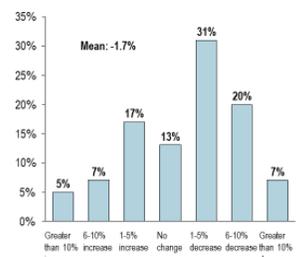
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Companies move at different levels of speed when it comes to reacting to the crisis – overall decline in IT spending to continue in '09

Segmentation of companies regarding their reaction speed

- "Early birds"**
Companies that have already started to cut their IT spending in Q1-Q3 '08
- "Recent movers"**
Companies that have started to cut their IT spending in Q4 '08 or are just about to start
- "The unimpressed"**
Companies that have not significantly reduced their IT spending as a response to the crisis or that have even increased their IT spending

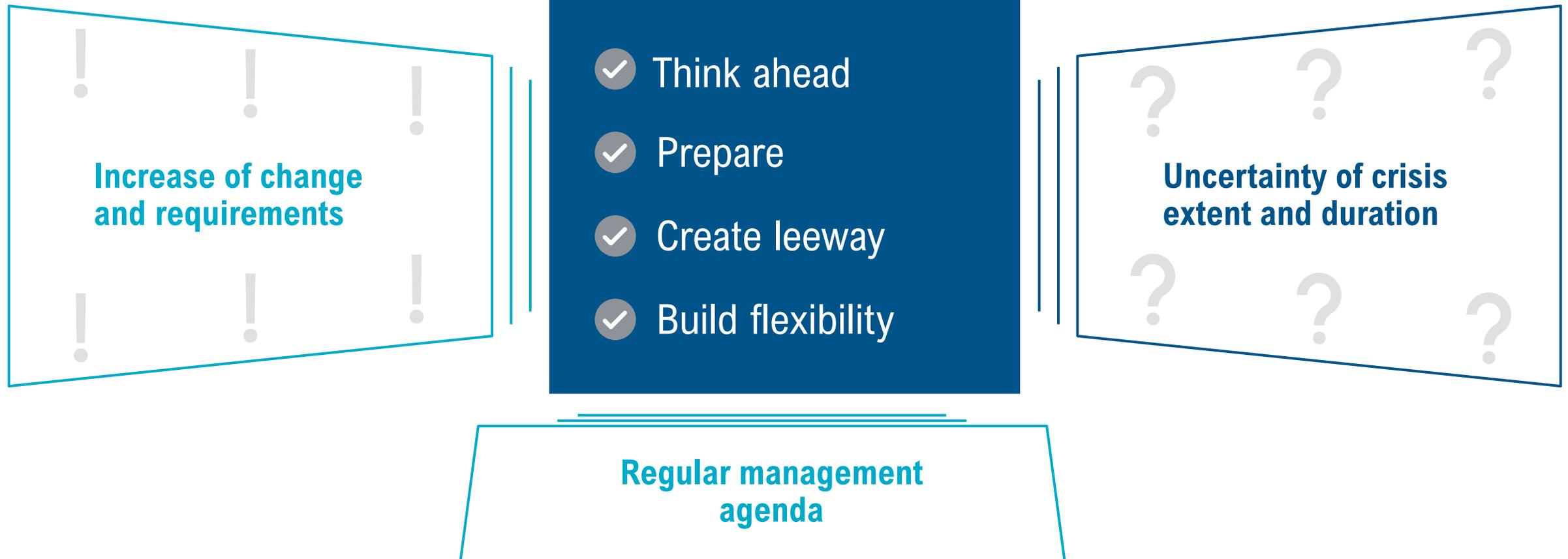
Expected changes in IT spending in '09 vs. '08



Change Category	Percentage
Greater than 10% increase	5%
6-10% increase	7%
1-5% increase	17%
No change	13%
1-5% decrease	31%
6-10% decrease	20%
Greater than 10% decrease	7%
Mean	-1.7%

Source: USG survey dating from 12/2008 among CEOs from 100 companies across Europe and the US, original question: "to what level would you expect your IT spending to change in 2009 vs. 2008?"
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Challenge for CIOs/CDOs – Reacting to business decisions vs. thinking ahead and creating degrees of freedom (room to maneuver)

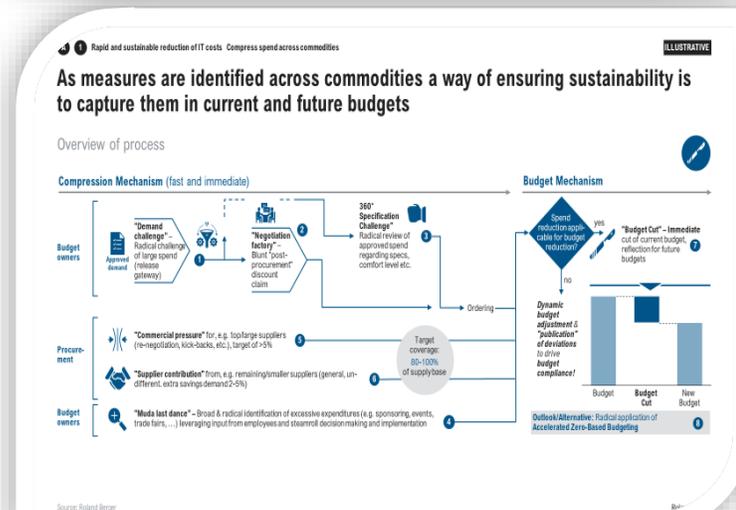
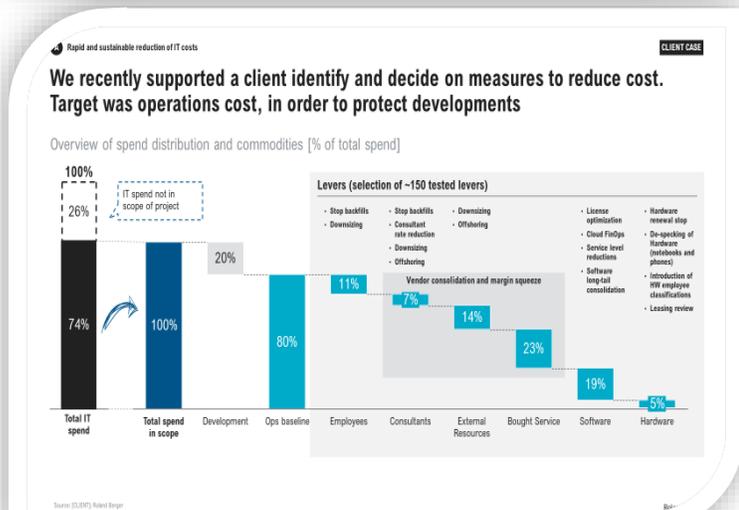
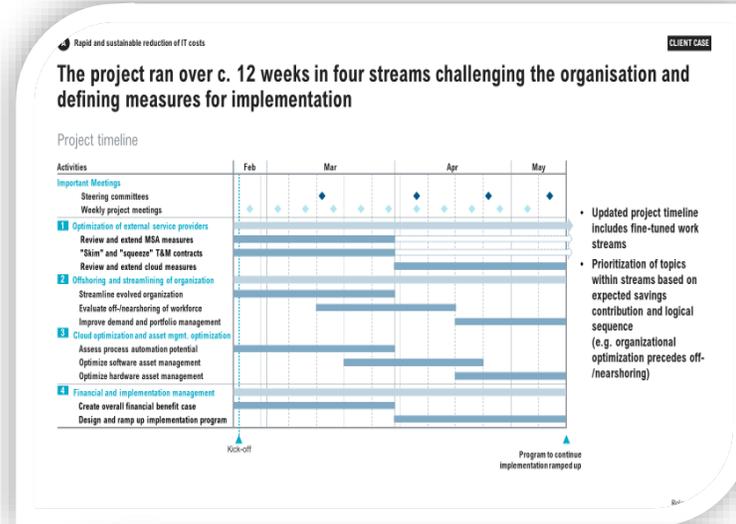
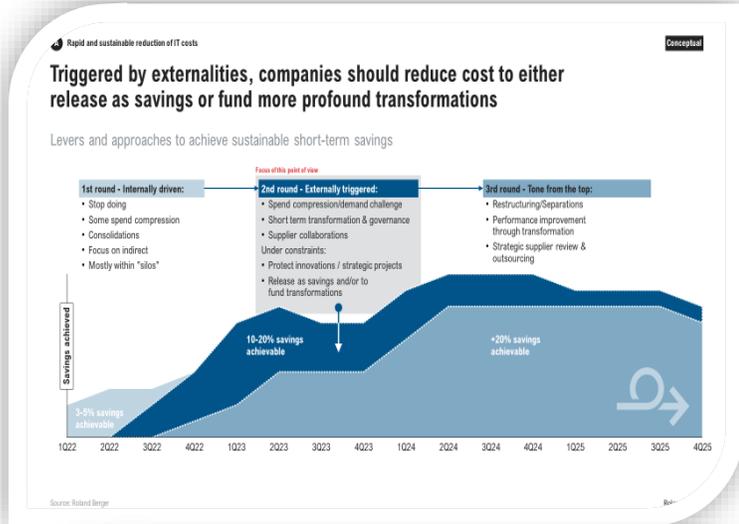


8 hypotheses for no-regret moves to create resilience and room-to-manuever



- 1 Do **cost homework** in IT Ops
- 2 Drive **efficiency in Dev** and prune project portfolio
- 3 Drive & build skills in **(hyper)automation**
- 4 **Revisit shoring** strategy and footprint
- 5 Keep and **strengthen cyber defense** & information security
- 6 Advise **OT on IT** learnings and capture synergies
- 7 Expect **more regulatory burden** and **potentials** through ESG
- 8 Continuously **modernize IT TOM & Skills** for profitability

#1 - Do cost homework in IT Ops

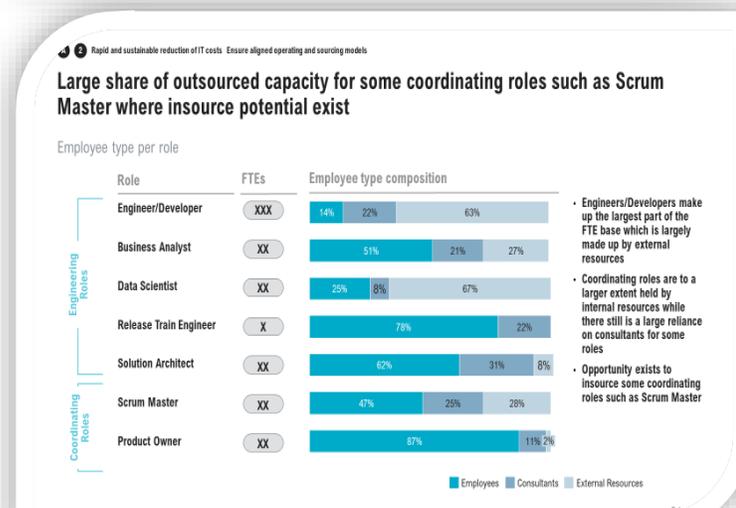
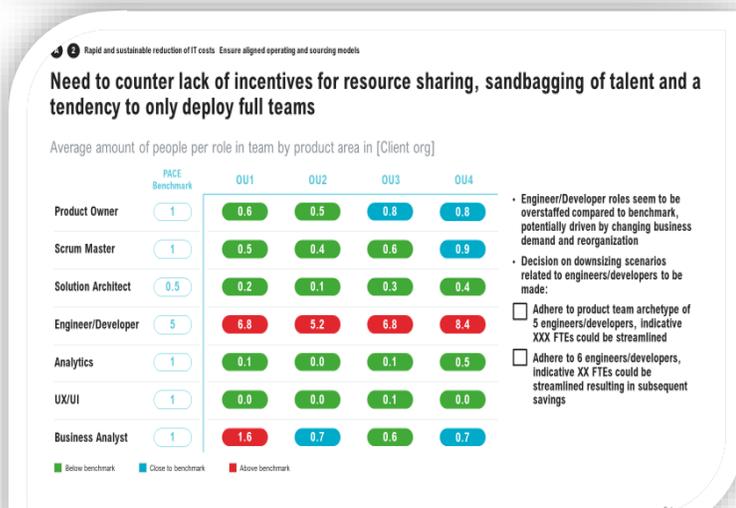
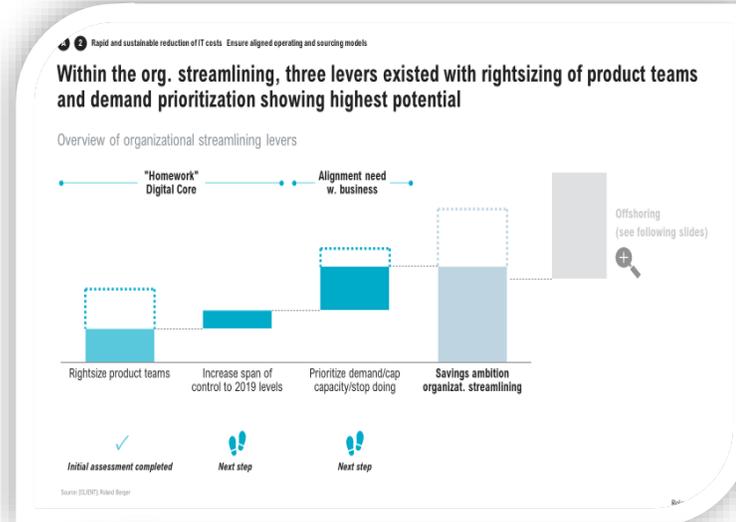
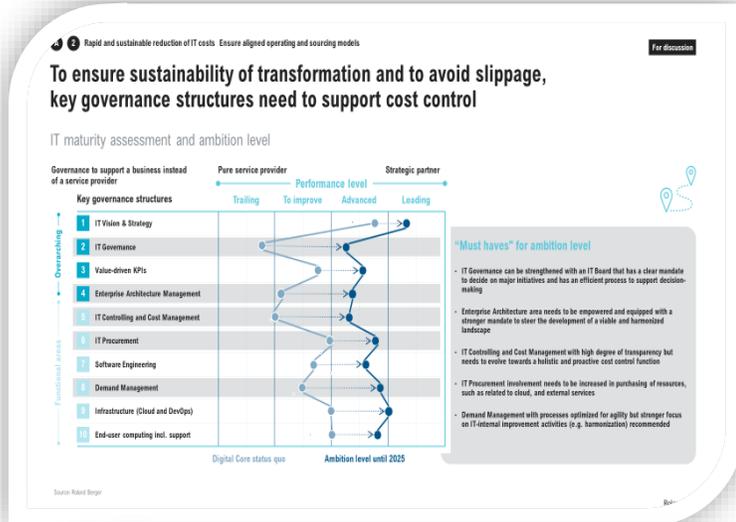


New or additional cost reduction targets

Need for lean IT operations

Resource savings for new development projects

#2 - Drive efficiency in Dev and prune project portfolio



Make development efficient

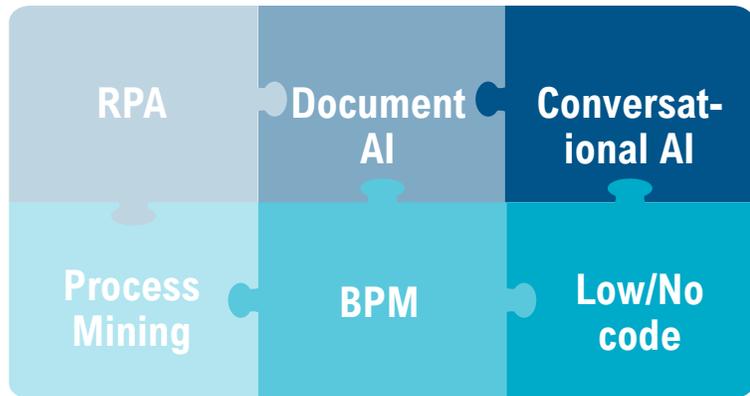
Systematically prioritize development portfolio

Secure but focus strategic projects

Question candy store topics

#3 – Drive & build skills in (hyper)automation

RPA goes Hyperautomation...



- Growth potential**
- Relevant supply market CAGR '21-'30 of +21%
 - Major growth in Process Mining (CAGR +40%) and Document AI (CAGR +30%)

...& Power of large language models

Starting with the now publicly available ChatGPT, there will be options of different complexity for companies to use language models

How to use

	ChatGPT BETA	ChatGPT PREMIUM	ChatGPT WITH API	INDIVIDUAL USE CASE	TRANSFORM YOUR KNOWLEDGE	BUILD YOUR OWN MODEL
Model data	Generic public model	Generic public model	Generic public model	Finetuned public model	Embedded content in public model	Individual model and data
Access	Public via web	Freemium via web	Public via API	Public via API	Public via API	Private, full access
Requirements	N/A	N/A	Product owner Data scientists Software developers	Product owner Data scientists Software developers	Product owner Data scientists Software developers	Product owner Data scientists Data engineers DevOps engineers Enterprise architects
Time to implement (estimate)	Zero	Zero	Low	Medium	High	Very High
Scalability	Low: no SLA yet	Low	High	High	High	High
Customization	No	No	No	Low	Medium	High
Cost assumption ¹⁾	Free	\$20/month per user	~\$0.02 per request	~\$0.12 per request	~\$0.12 per request	Exceptionally high (kind of rebuilding ChatGPT)

1) Used Databricks as comparison

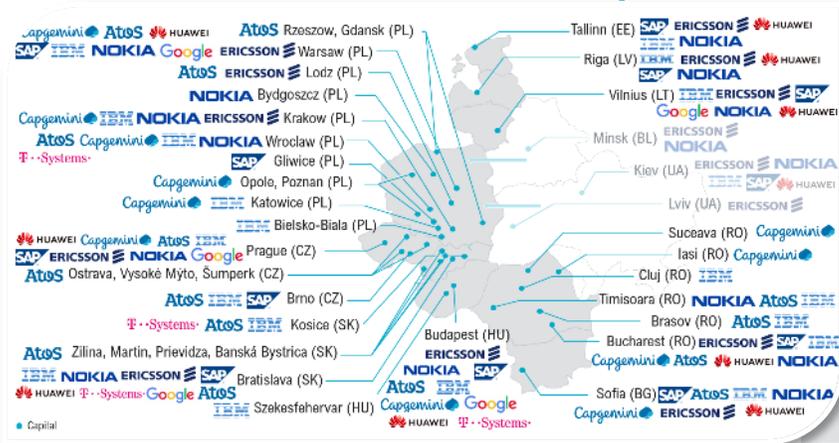
Traditional RPA has become mainstream

Hyperautomation integrates multiple automation domains

ChatGPT-4, Bard, ... show glimpse into future automation potentials

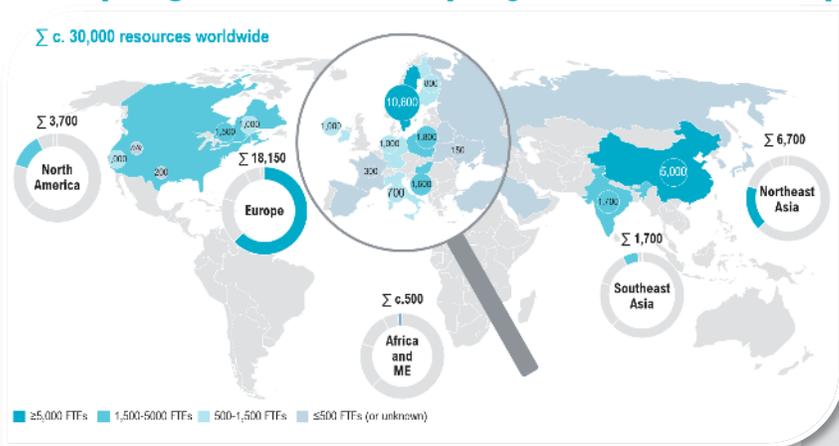
#4 – Revisit shoring strategy and footprint

CEE locations of selected Tech companies



- Price increases/crowding out in CEE
- War for talent and capacity restrictions
- ...

Example global Tech company's current Development footprint



- China Dev capabilities: Supply chain risk for solutions sold in West
- India Dev Capabilities: Fosters locally rising competitors
- UKR capacities moved to CEE
- ...

Implications

High geopolitical impact in nearshore/offshore footprint

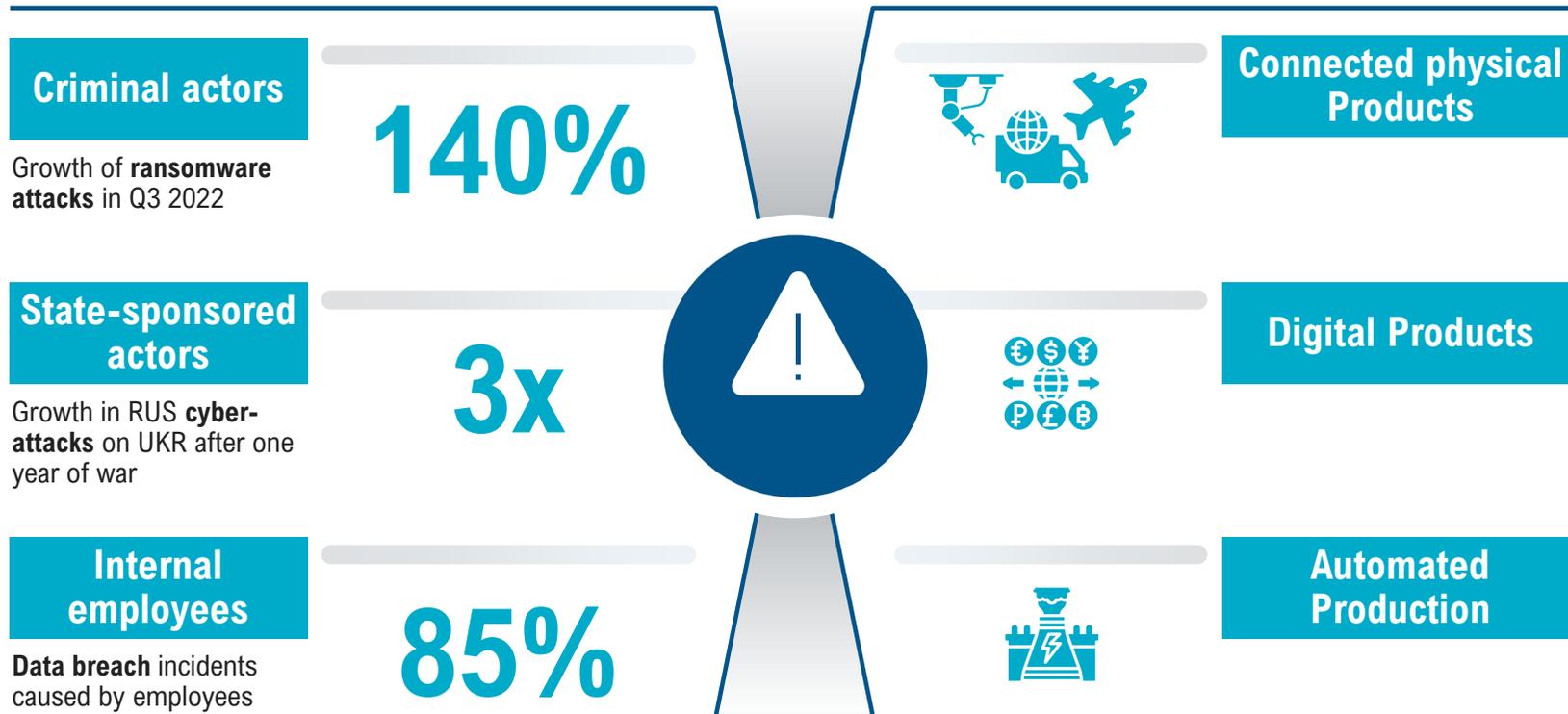
War on Ukraine with strong impact on nearshore including adjacent countries, e.g. Belorussia

Other geopolitical implications also for regions such as China or India

#5 – Keep and strengthen cyber defense & information security

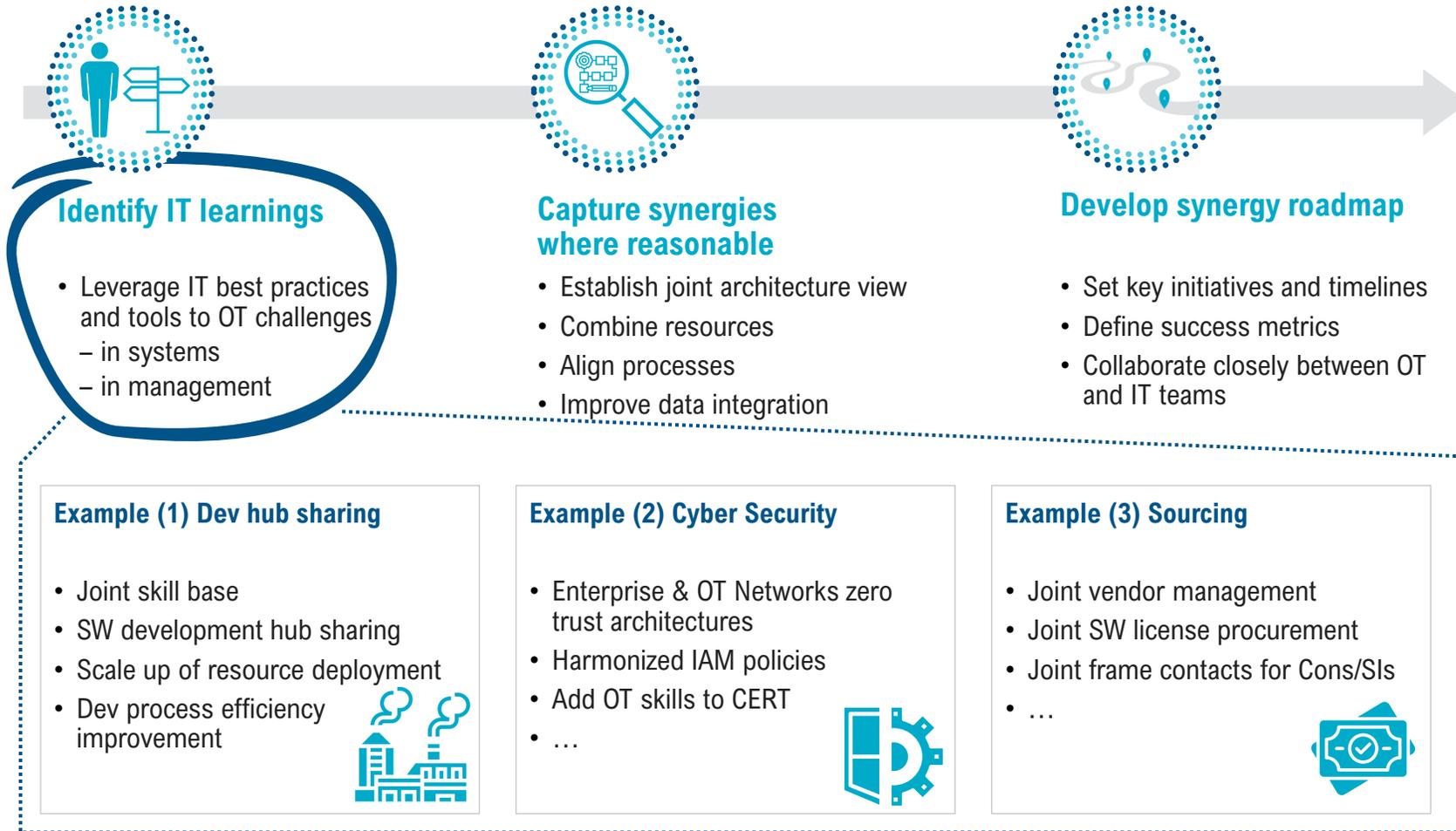
Threat vector landscape steadily increases in dynamics

Vulnerabilities increase with ongoing digitization of products, services, production



Do not sacrifice cyber defense posture even with reduced budgets

#6 – Advise OT on IT learnings and capture synergies



Identify IT learnings relevant for OT

Evaluate resource & skills leverage between OT & IT

Create synergy plan for action

#7 - Expect more regulatory burden from ESG – but proactively identify potentials for IT-enabled sustainability



First wave of environmental regulation is being implemented, e.g.

- EU Green Taxonomy
- CO2 pricing and offsetting
- Scope 1-3 emissions monitoring
- ESG external reporting
- Internal corporate dashboards
- ...

1 Manage IT environmental footprint

- Managing and reducing own emissions, e.g. DCs
- Scope 3 still an industry challenge
- Further work being done, e.g. by ETSI, GeSi,...

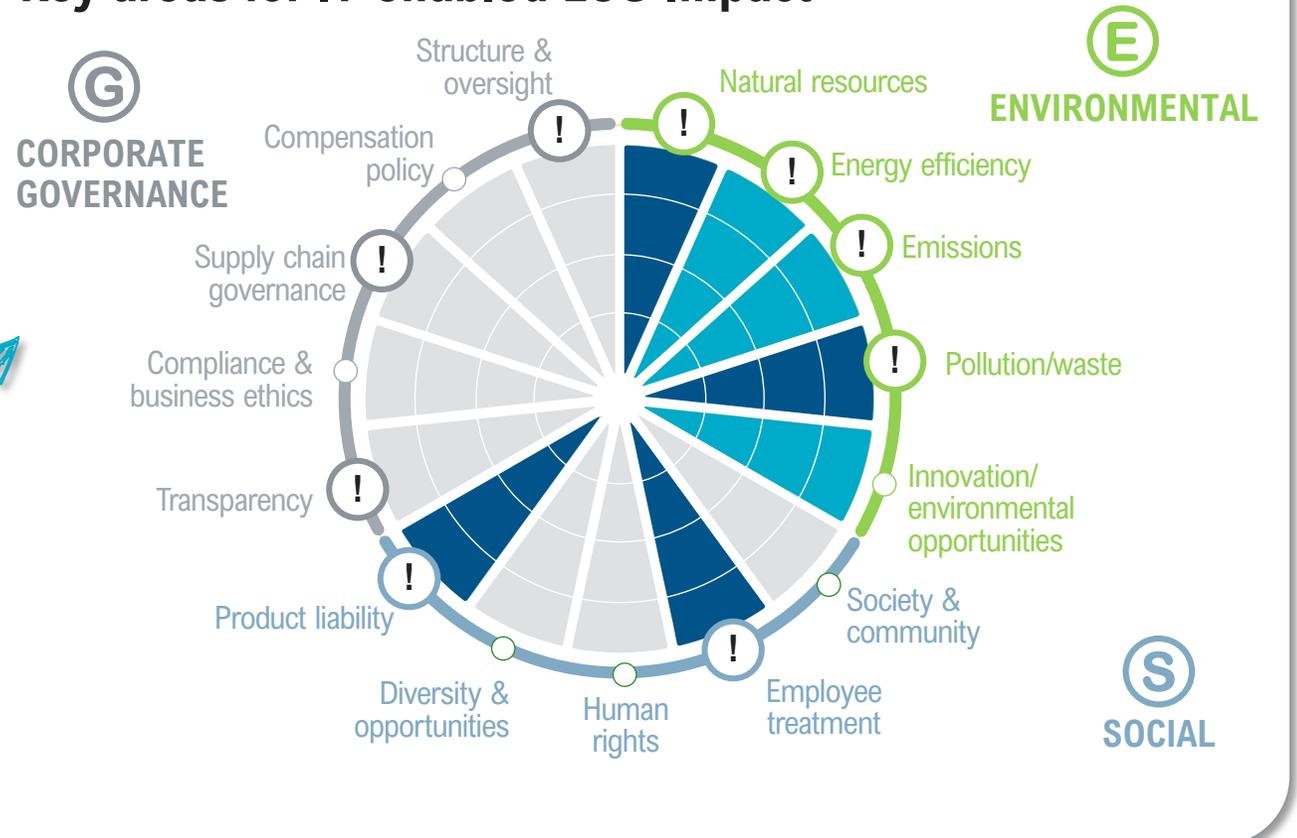
2 Support Business footprint management

- IT-enabled sustainability in core business with much higher potential

3 Anticipate upcoming new regulation

- Social Taxonomy in EU 2024-2025 upcoming
- Continuous governance regulation expansion e.g., banking, crypto,..
- Requires IT to invest in further compliance monitoring & reporting

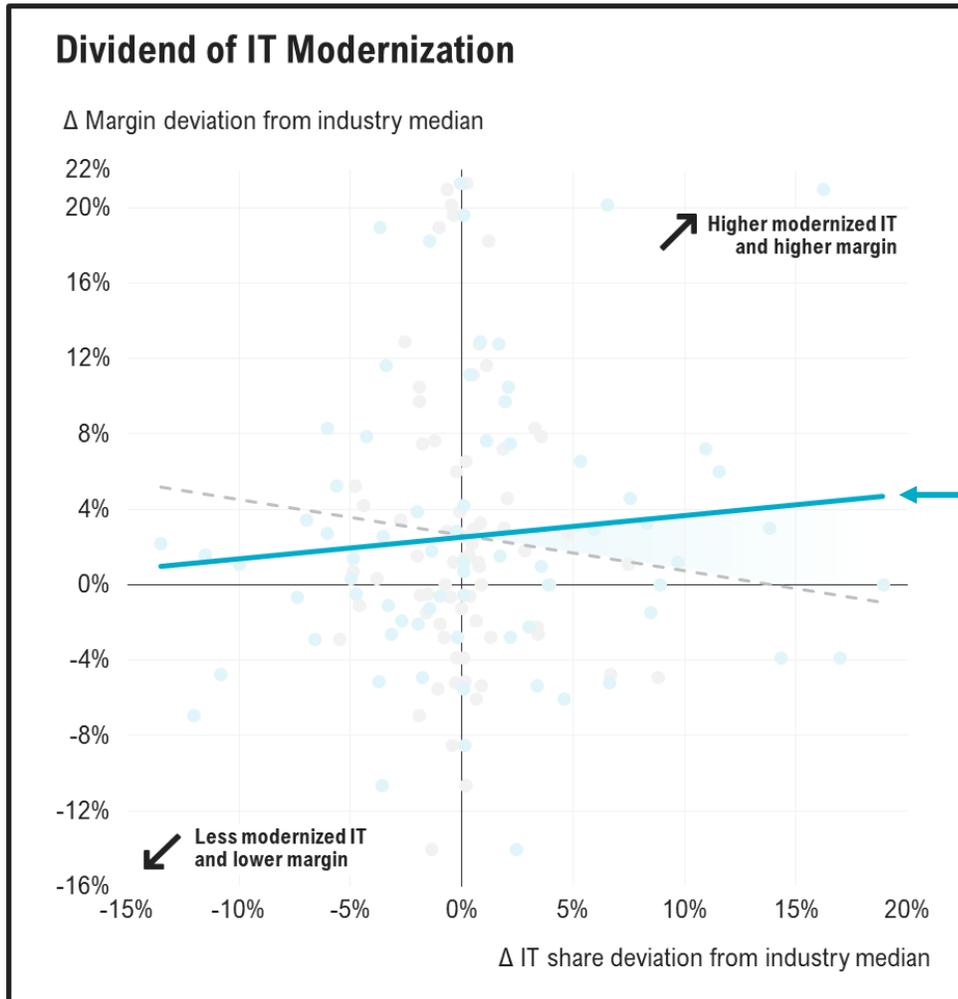
Key areas for IT-enabled ESG Impact



#8 – Continuously modernize IT TOM & Skills – with positive impact on overall corporate profitability

Modern IT capabilities correlate with **Success**

- IT employees, as a share of total headcount
- Modern IT roles¹⁾, as a share of all IT employees



1) Share of "progressive" roles (e.g., AI, Data, Cloud, Cyber, Distributed Ledger, Scrum,...) used as proxy for IT modernization

Embrace "modern" IT roles and operating model

Data shows correlation (!) between profitability and share of modern roles

Degree varying with industry

Revisit your IT management agenda



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- 8 Continuously **modernize IT TOM & Skills** for profitability

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