

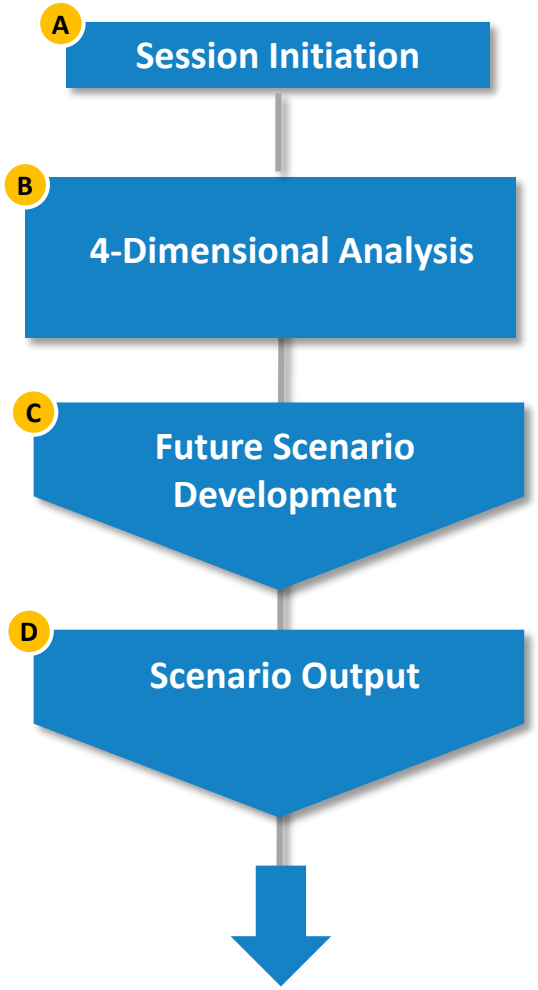
SCENARIO ANALYSIS WORKSHOP

GROWTH INNOVATION LEADERSHIP COUNCIL

OCTOBER 2026

The Growth Pipeline™ Company
Powering clients to a future shaped by growth

SCENARIO ANALYSIS: OVERALL FRAMEWORK



STEP A: SESSION INITIATION

Kick-off & set up to align the session scope & to conduct a belief audit.

STEP B: 4-DIMENSIONAL ANALYSIS

Long list of trends curated using Frost & Sullivan's BEETS^{TM} model prioritized based on conversations focused on client areas of interest.

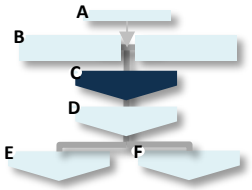
STEP C: FUTURE SCENARIO DEVELOPMENT

Converged ecosystems/Scenarios drafted by Frost & Sullivan and reviewed and refined in collaboration with participants.

STEP D: SCENARIO OUTPUT

Frost & Sullivan will derive opportunity scenarios from converged ecosystems and any additional scenarios as suggested by client. **Three opportunity scenarios will be prioritized for the top technology** based on market attractiveness and fit to internal capabilities.

STEP C1- FUTURE SCENARIO DEVELOPMENT *(WORKSHOP)*



C

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TRENDS & TECHNOLOGIES ARE CONNECTED

25 Years of Impact

75,000+ Tech (Entities) Assessed

Impact on Govt, Companies, Uni, Start Up's, Financial Sector etc.

Driving 3B's = To Build, To Buy or To Borrow

TRENDS (B.E.E.T.S. Model)

- Business Models
- Economic and Political
- Environment
- Technology
- Social

Horizon Scanning for Future State Anticipation (hundreds of trends per year)

9 TECHNOLOGY CLUSTERS

- Pharma & Biotech
- Med-Tech
- Ingredients & Chemicals
- Coatings & High-Tech Materials
- Sensor Technologies
- Automation Technologies
- Computing (Comms, SW, HW)
- Microelectronics
- Energy & Environment

Comprehensive Coverage of the Technology (thousands of technologies per year)

INDUSTRIES

- Aerospace and Defense
- Health, Med Devices, & Life Sciences
- Information & Communication Technologies
- Supply Chain & Logistics
- Fast-moving Consumer Goods
- Security
- Energy & Environment
- Business & Financial Services
- Mobility
- Industrial
- Food & Agriculture

Unparalleled Breadth of Industry Applications

25 YEARS OF THOUGHT LEADERSHIP (BEFORE LLM'S)



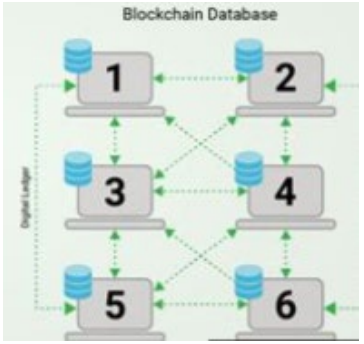
Sensor Fusion
identified in Jan 2014:
and is used across Mobility



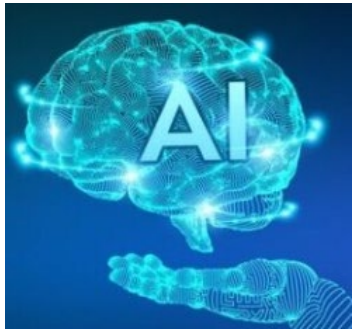
AI Chips
identified in 2018:
hardware "era" is here now



mRNA drugs
identified in Jan 2019:
2 years before Covid



Blockchain
identified in 2017:
the future of peer-to-peer digital

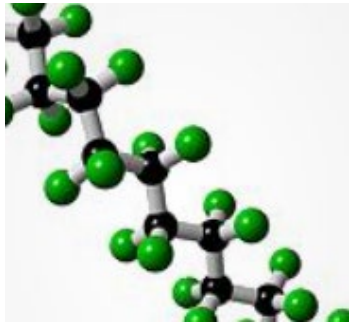


Machine Learning
identified in 2016:
is now, well, driving everything!

and

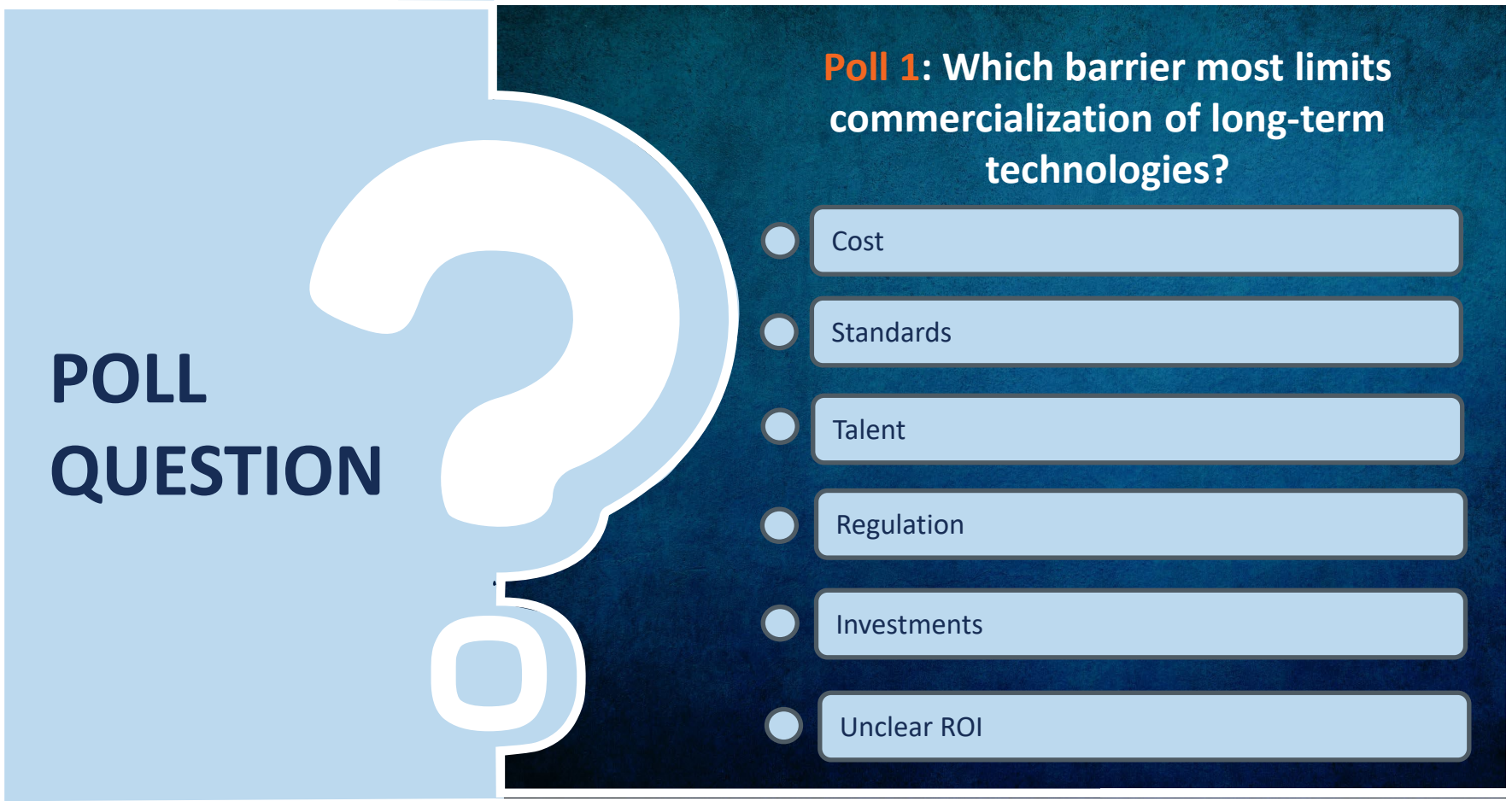


Hybrid Energy Systems
identified in 2012:
took a while, but now is most part of most country strategy

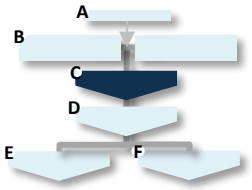


Super Engineered Polymers
identified in 2018:
key differentiator for most applications

POLL QUESTION



STEP C1- FUTURE SCENARIO DEVELOPMENT *(WORKSHOP)*



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10 MEGATRENDS FOR THE NEXT DECADE



FROST & SULLIVAN

4 EMERGENCE OF CENTENNIAL HUMAN



What Are The Enablers For A Centennial Human?

Advances in Precision Medicine
Genomics, biomarkers, and AI-driven diagnostics reduce risk extend lifespan

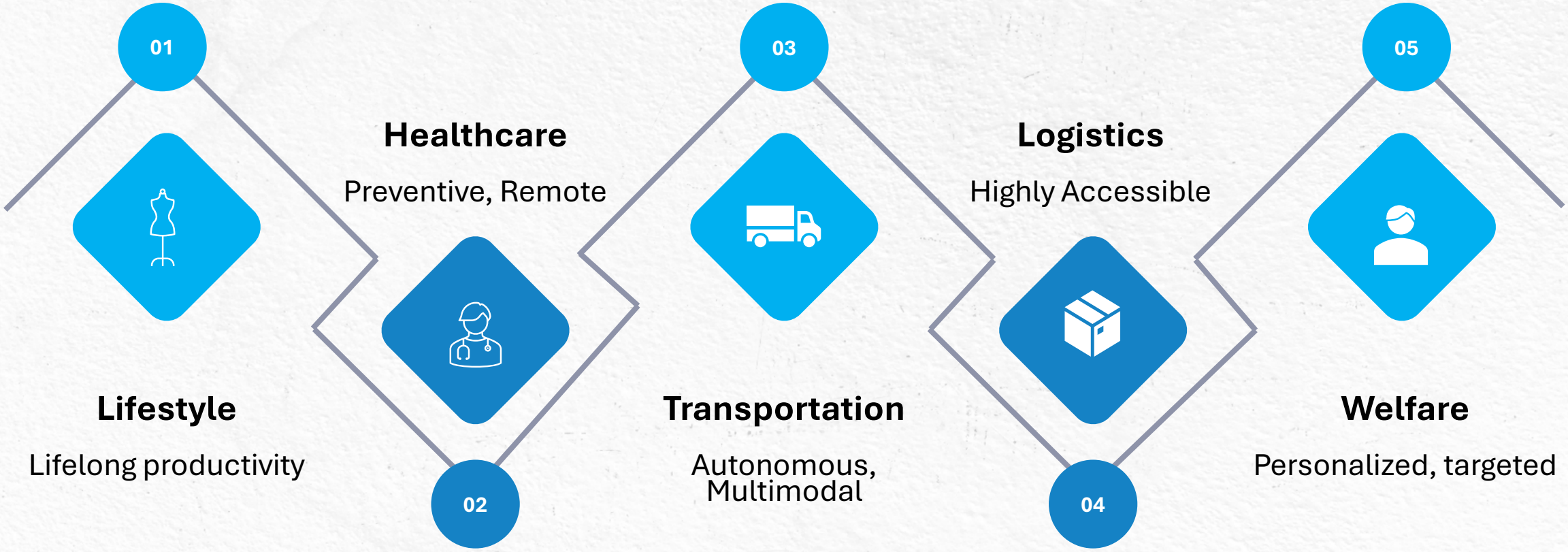
Continuous Health Monitoring
Reactive to predictive diagnosis Wearables, implants, and remote diagnostics



Lifestyle Reengineering through Data
AI-based nutrition, sleep, and fitness personalization at individual level.

Socioeconomic and Environmental Upgrades
Health-wellness awareness, Improved sanitation, cleaner energy, reduced pollution

Implications for key sectors

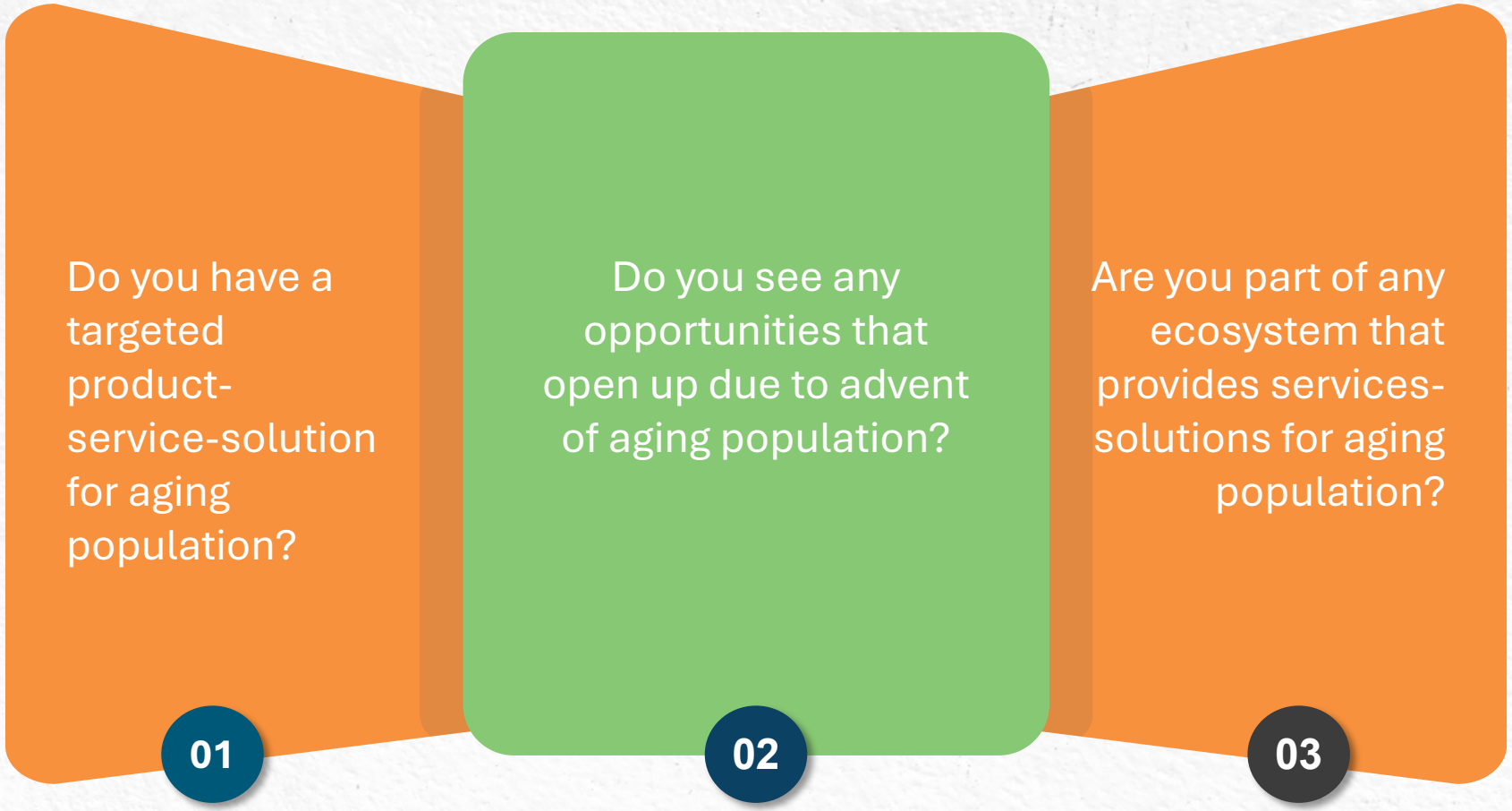


Country Case Studies: Japan, Italy, and Germany

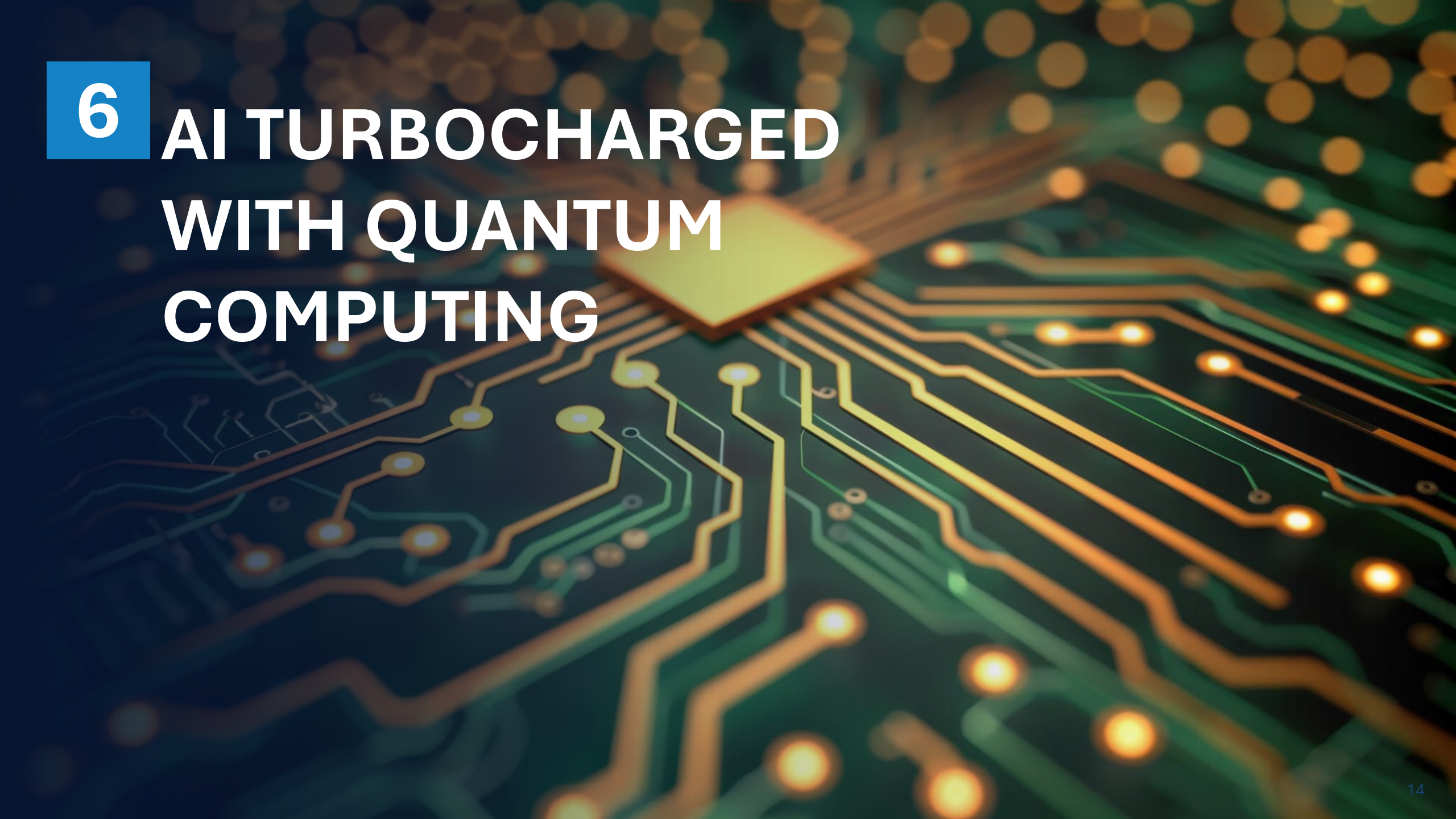
	Challenge	Japan	Italy	Germany
	**Workforce Shortage**	Rehiring seniors Relaxing immigration policies	Some measures like tax relief but need comprehensive policy	Industrial automation and robotics
	**Fiscal Pressure**	Concept of lifelong productivity is common	Highest ratio of pensions to GDP; tax reforms to reduce deficit	Focus on increasing retirement age, increase pension contribution pool
	**Caregiving**	Leader in Robotic care giving	Migrant caregivers thru private arrangements	Combination of robotics care and foreign health professional
	**Transport Infrastructure**	Ubiquitous public transport, need autonomous pods	Largely Car based must transform to public transport	Modal shift towards public transportation should grow

Megatrend Alignment Strategy

Key Strategic Questions



FROST & SULLIVAN



6 AI TURBOCHARGED WITH QUANTUM COMPUTING

Wide range of possibilities when AI turbocharged with Quantum

Automotive – Quantum-Accelerated Mobility Innovation



- Enables ultra-fast vehicle design simulations and advanced battery material discovery.
- Empowers automakers to develop safer autonomous systems, enhance EV performance, and reduce time-to-market

Industrial – Quantum-Driven Smart Manufacturing



- Unlocks hyper-accurate digital twins, process optimization, and predictive maintenance.
- Enables industries to achieve near-zero downtime, boost efficiency, and accelerate innovation in product design and automation.

Logistics – Quantum-Optimized Global Supply Chains



- Quantum-enhanced algorithms can optimize routing, inventory, and demand forecasting in near real time across complex networks.
- Cost reduction, resilient operations, and sustainability through dynamically adaptive logistics ecosystems.

Energy – Quantum-Enabled Clean Energy Systems



- Simulate entire energy grids, predict consumption, and optimize renewable generation and storage.
- Facilitates breakthroughs in energy efficiency, grid stability, and transition toward low-carbon and decentralized power systems.

Healthcare – Quantum-Accelerated Precision Medicine



- Quantum-AI fusion enables rapid simulation of molecular interactions, protein folding, and disease modeling.
- Drives faster drug discovery, personalized treatment design, and real-time predictive diagnostics at a population scale.

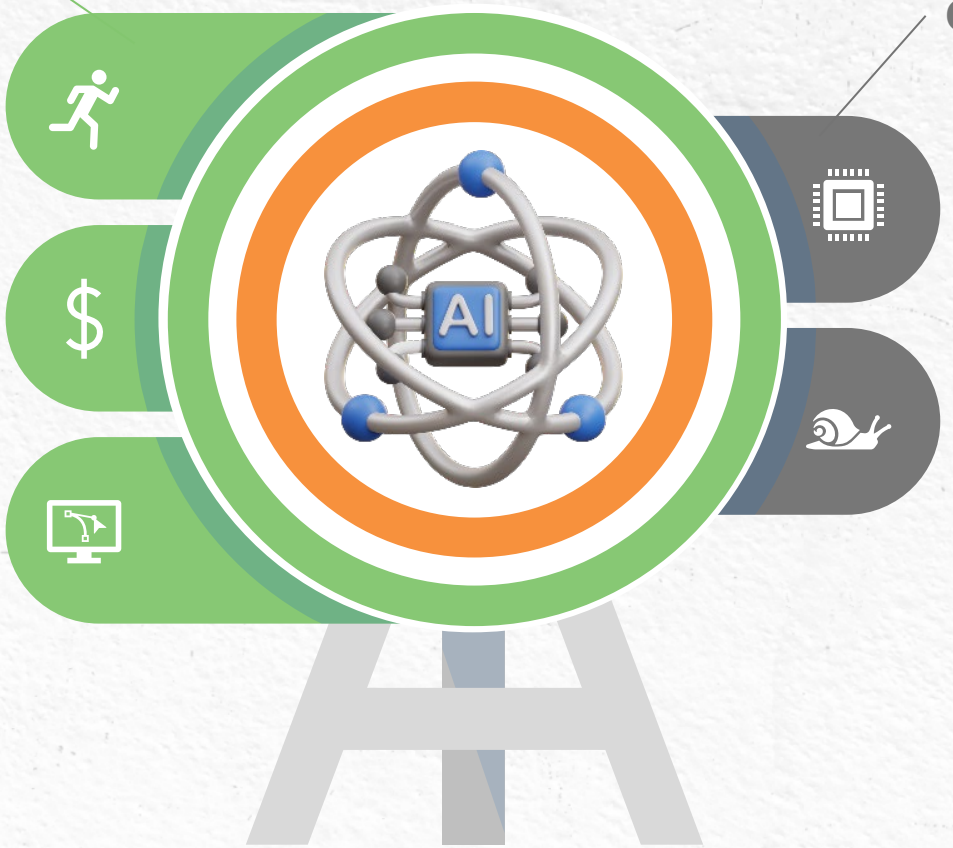
Why AI + Quantum Computing Will Likely Happen

Factors Supporting the megatrend

Rapid Tech Progress
Qubits, error correction, and hybrid AI-quantum architectures are advancing steadily.

Strong Investment & Focus
Governments and corporations are funding billions into quantum AI research and startups.

Industrial Demand
Industries face problems too complex for classical AI; quantum acceleration offers solutions.



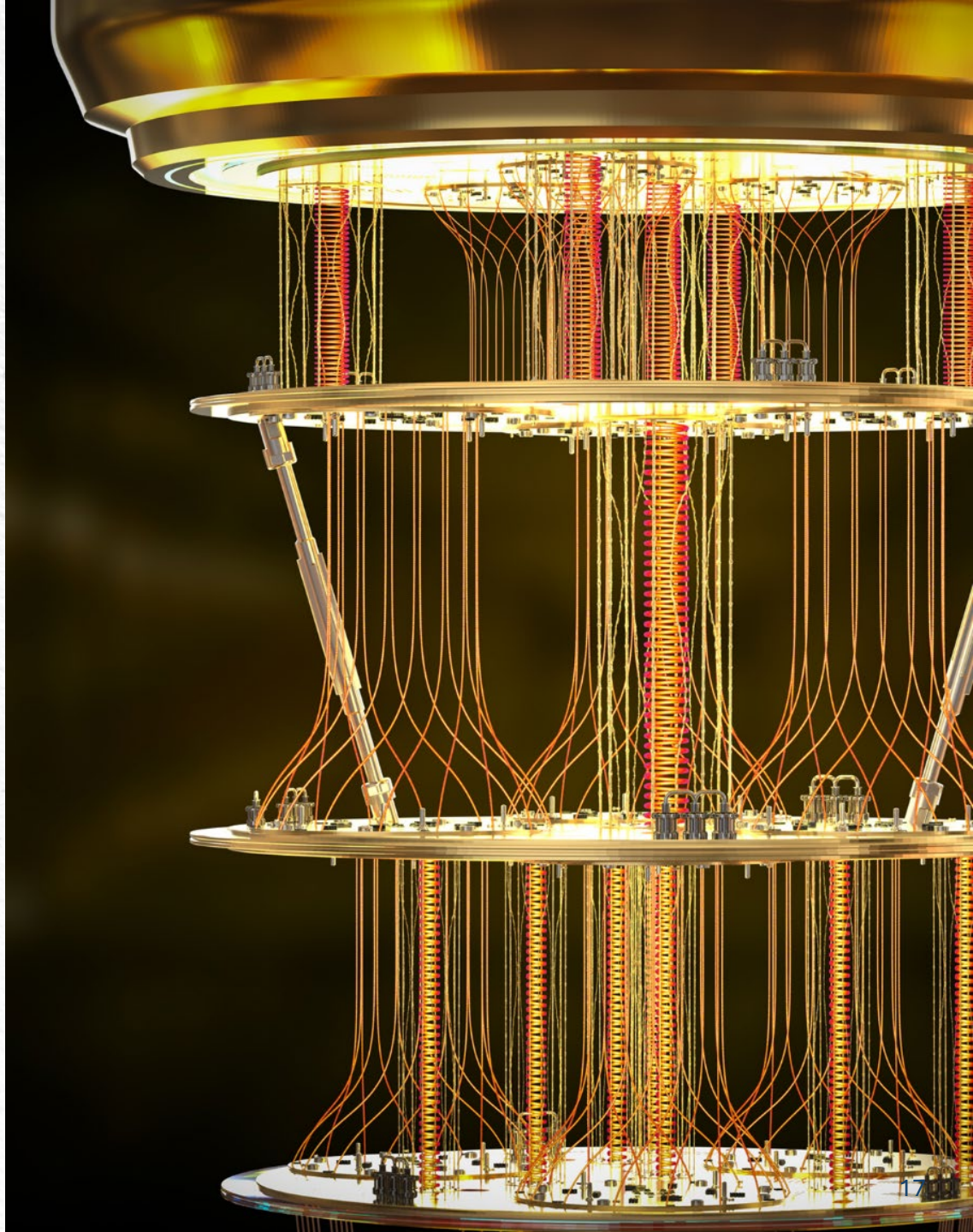
Caveats / Risks

Hardware Scaling Challenges
Building fault-tolerant, large-scale quantum computers remains difficult.

Adoption Lag
Widespread enterprise deployment may be gradual due to cost and reliability constraints.

Leading Companies & Players
in AI + Quantum Computing

IBM	Quantum computers with Qiskit for AI applications; enterprise-focused quantum solutions.
Google	Quantum AI research; Sycamore processor and quantum supremacy experiments for machine learning.
Microsoft	Azure Quantum platform integrating AI workloads with quantum simulation and optimization.
Intel	Developing scalable qubit architectures and quantum accelerators for AI computation.
D-Wave / Rigetti	Quantum annealing and hybrid cloud-based quantum AI solutions targeting optimization problems.

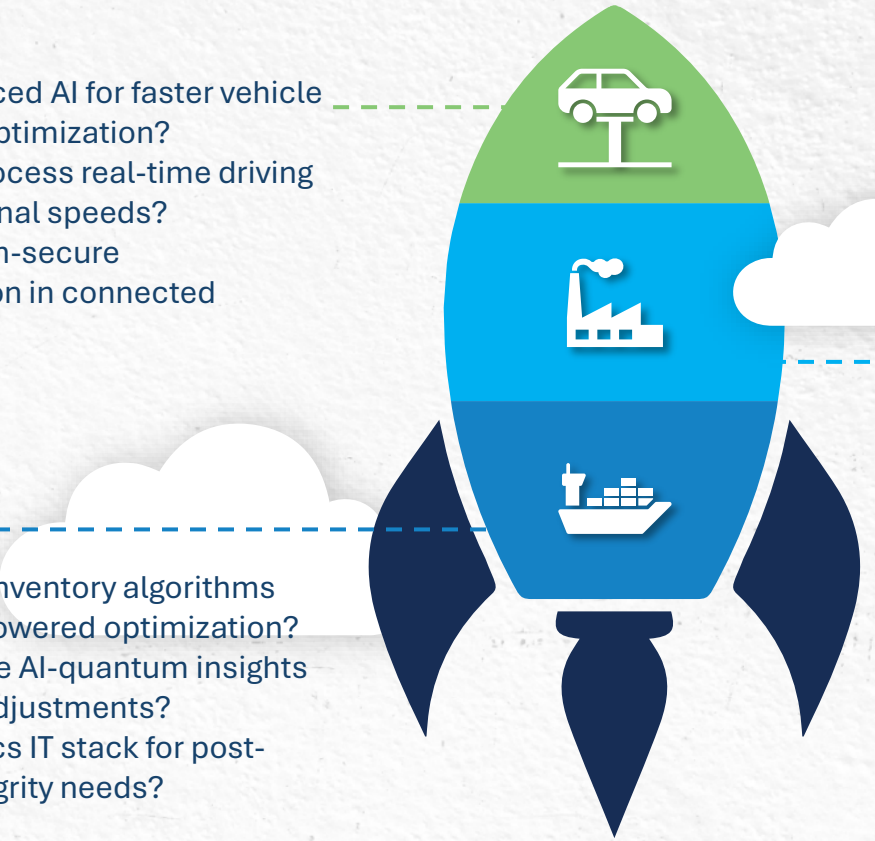


FROST & SULLIVAN

Megatrend Alignment Strategy

AUTOMOTIVE

- Are you exploring quantum-enhanced AI for faster vehicle design, simulation, and material optimization?
- Can your autonomous systems process real-time driving data at quantum-level computational speeds?
- How are you preparing for quantum-secure communication and data protection in connected vehicles?



INDUSTRIAL

- Are your R&D and production systems leveraging quantum AI for process optimization and predictive maintenance?
- Can your digital twin models scale with the computational power quantum AI will bring?
- Are you collaborating with quantum technology partners to future-proof your industrial automation roadmap?

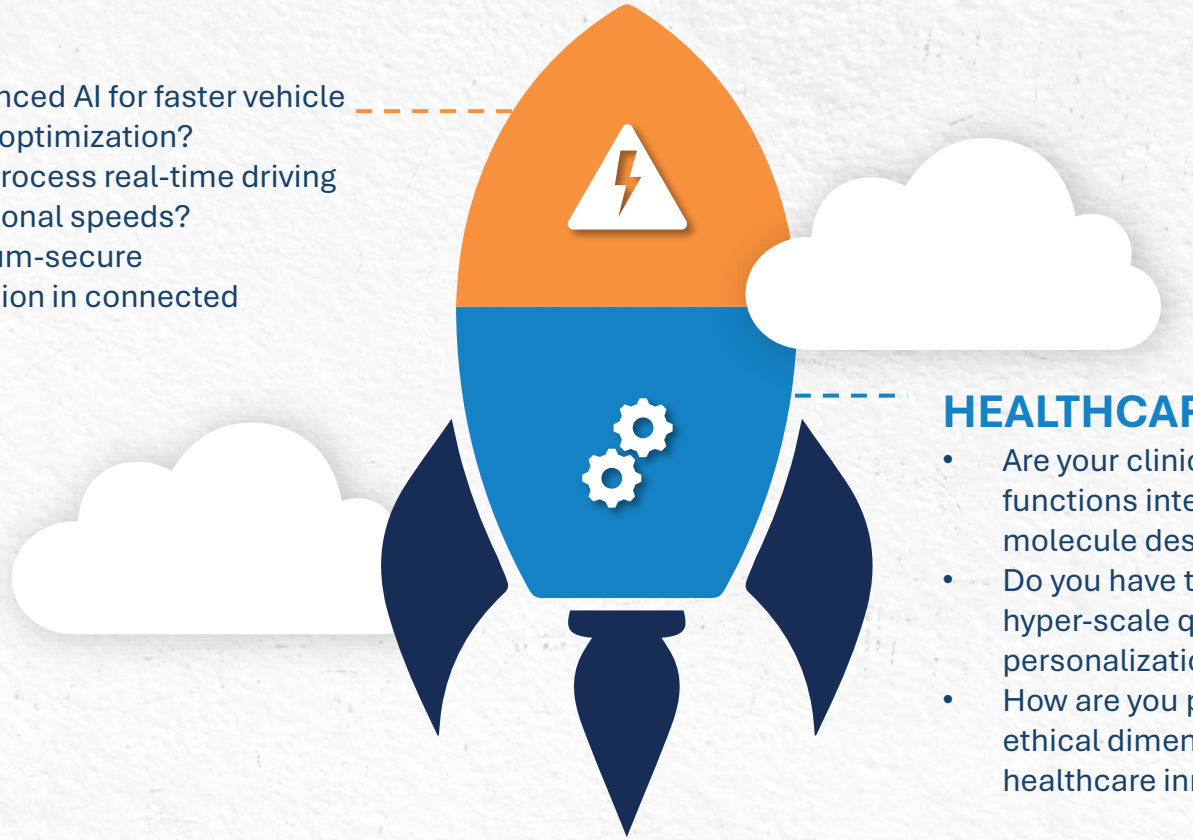
LOGISTICS

- Are your routing, scheduling, and inventory algorithms ready to integrate with quantum-powered optimization?
- Do you have infrastructure to utilize AI-quantum insights for real-time global supply chain adjustments?
- How are you preparing your logistics IT stack for post-quantum encryption and data integrity needs?

Megatrend Alignment Strategy

ENERGY

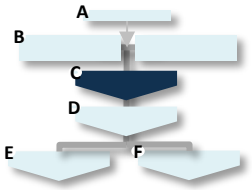
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- Can your autonomous systems process real-time driving data at quantum-level computational speeds?
- How are you preparing for quantum-secure communication and data protection in connected vehicles?



HEALTHCARE

- Are your clinical research and drug discovery functions integrating quantum-AI simulations for molecule design?
- Do you have the data infrastructure to handle hyper-scale quantum-driven diagnostics and personalization?
- How are you preparing for new regulatory and ethical dimensions of quantum-accelerated healthcare innovation?

STEP C1- FUTURE SCENARIO DEVELOPMENT *(WORKSHOP)*



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4-DIMENSIONAL ANALYSIS:

SCENARIO PILLAR FOR FUTURE OPPORTUNITY IDENTIFICATION

4-DIMENSIONAL ANALYSIS

Scenario pillar for future opportunity identification

Objective	• Select 3 Technologies from Top 50 + 2 Technologies of Importance to Your Business
Format	• Individual
Instructions	For each of the 5 technologies: • Identify application opportunities or new growth ideas that can be generated from this technology. *For e.g.* ***Self-healing material*** *could be used in reinforced material for industrial; flexible stretchable conductive polymers for electronics* • And then, assess technologies in the context of dimensions: i. AI use cases: specific machine learning algorithms being used for structured and unstructured data set evaluations ii. Geopolitics: changing alliances amongst countries – extended BRICS with Japan and South Korea joining iii. Supply chain: impact of tariffs on nearshoring, friendshoring, reverse logistics for tech deployment
Timing	• 30 mins

CHEMICALS & ADVANCED MATERIALS

- Bio-Based Commodity Chemicals
- Multifunctional Coatings
- Multiscale Materials Modeling
- Emission Valorization
- Engineered Carbon Materials (ECMs)
- CCUS Material

ADVANCED MANUFACTURING & AUTOMATION

- Adaptive Cobots
- AI-enabled Manufacturing
- Execution Systems
- Digital Thread
- Industrial Foundation Models

ENERGY & UTILITIES

- Ferro Phosphate Batteries
- Sodium Ion Batteries
- Process Heat Electrification
- Small Modular Reactors
- Ultra-high Voltage Power Transmission

SENSORS & INSTRUMENTATION

- Battery-Less Sensors
- Self-Calibrating Autonomous Sensors
- Quantum Sensors
- Edge AI Sensors
- ToF (Time-of-Flight) Sensors

INFORMATION & COMMUNICATION TECHNOLOGIES

- NeoClouds
- Spatial Cloud
- High-Altitude Platform Stations (HAPS)
- Edge Brain Computing
- Adaptive Security Mesh
- Small Language Models
- Cognitive Sensing
- native Networks

ENVIRONMENT & SUSTAINABILITY

- Targeted Carbon Capture
- Critical Battery Material Recovery
- Plastic-to-Hydrocarbon Fuels
- Hydrogen Transport Mediums
- e-Fuels

HEALTH & WELLNESS

- Non-Invasive Molecular Diagnostics
- Multispecific Antibodies
- Radiopharmaceutical Theranostics
- Biomanufacturing 5.0
- Targeted Protein Degraders
- GLP-1 Receptor Agonists
- Intelligent Drug Discovery

MEDICAL DEVICES & IMAGING

- Multiparameter Wearables
- Advanced Surgical Guidance and Navigation
- High-res X-rays
- Next-generation Tumour ablation systems
- Precision Surgical Systems

MICROELECTRONICS

- Heterogenous System Integration
- Gate-All-Around (GAA) Transistors
- Chiplet-Based Architectures
- Wafer-on-Wafer (WoW) 3D DRAM
- Edge AI Accelerators
- GaN-on-Si

★ 16TH EDITION ★
2026

TOP 50 TECHNOLOGIES

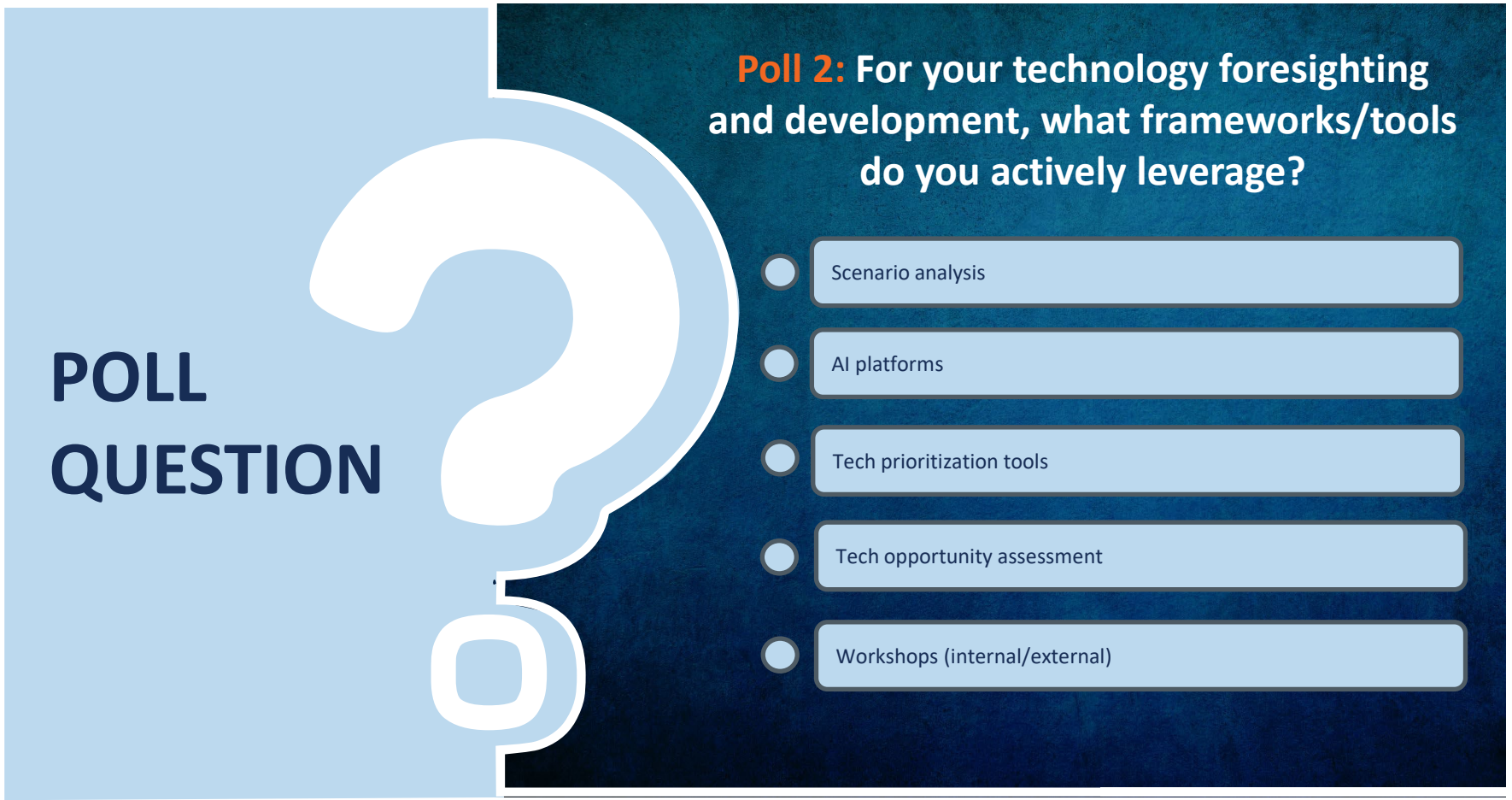
Fueling Global Growth Opportunities

4-DIMENSIONAL ANALYSIS

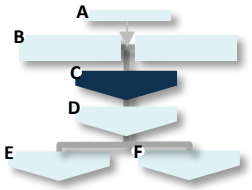
Exercise Sheet 1

Tech Name	Application Opportunities or New Growth Ideas (List those)	AI Use Cases (Low, Medium or High)	Geopolitics Impact (Low, Medium or High)	Supply Chain Impact (Low, Medium or High)
Tech 1				
Tech 2				
Tech 3				
Tech 4				
Tech 5				

POLL QUESTION



STEP C1- FUTURE SCENARIO DEVELOPMENT *(WORKSHOP)*



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FUTURE SCENARIO DEVELOPMENT:

OPPORTUNITY FIT V. ATTRACTIVENESS VECTORING

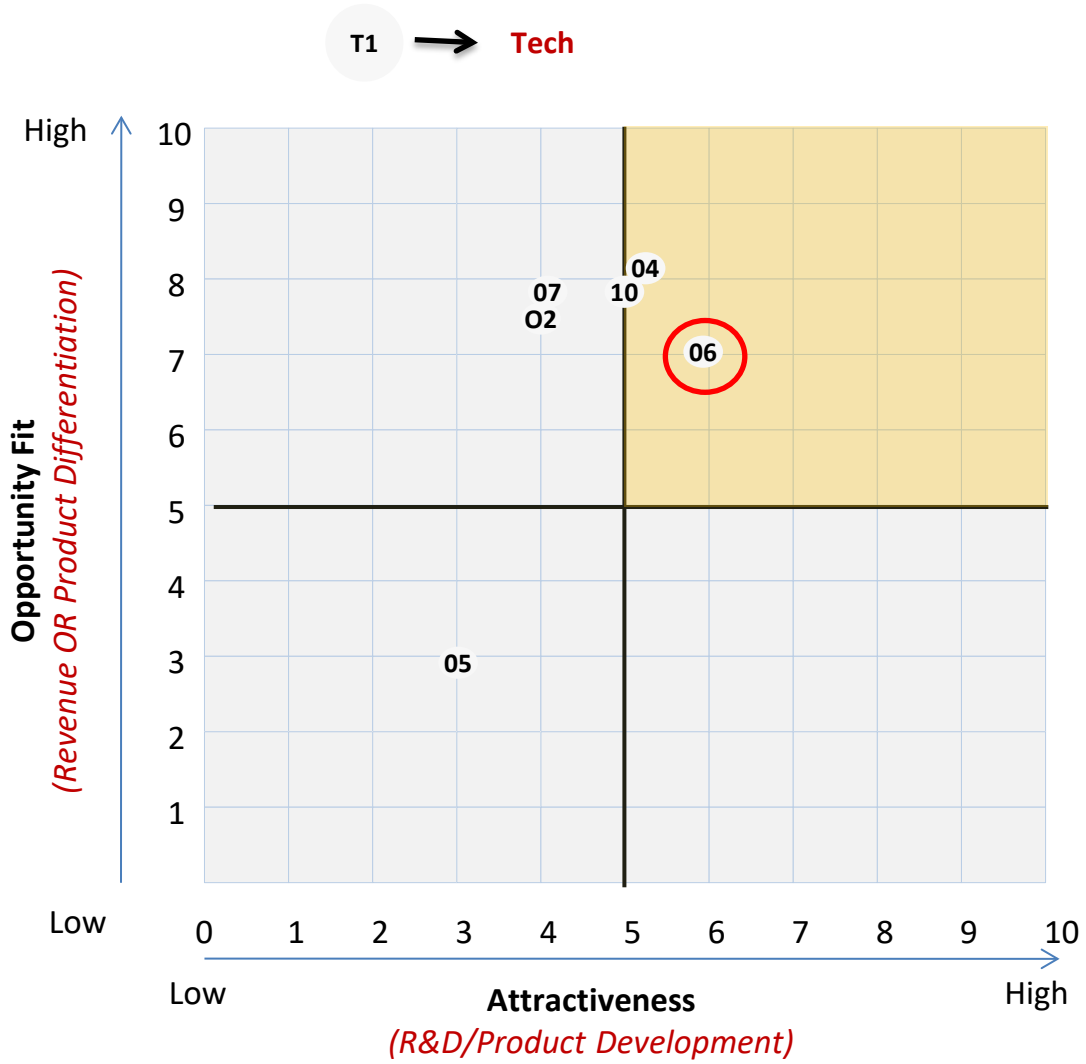
FUTURE SCENARIO DEVELOPMENT

Opportunity Fit v. Attractiveness Vectoring

Objective	• Plot the 5 technologies into a 2x2 matrix
Format	• Individual
Instructions	• Map the 5 technologies (from 1 above) and the applications/growth opportunities by scoring (0 to 10) technology on the following 2 criteria: - Opportunity Fit (Revenue OR Product Differentiation for Your Business) - Attractiveness (R&D/Product Development Impact on Your Business) • To develop scenarios through converged ecosystems i.e. based on technology affinity and how the tech could combine to lead to new business models, solutions or services.
Timing	• 15 mins

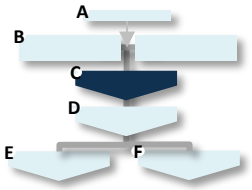
FUTURE SCENARIO DEVELOPMENT

Exercise Sheet 2



No	Technology	Opportunity Fit (Score 0-10)	Attractiveness (Score 0-10)
T1	Tech 1		
T2	Tech 2		
T3	Tech 3		
T4	Tech 4		
T5	Tech 5		

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SCENARIO OUTPUT:

OPPORTUNITY STRATEGY TABLE

SCENARIO OUTPUT

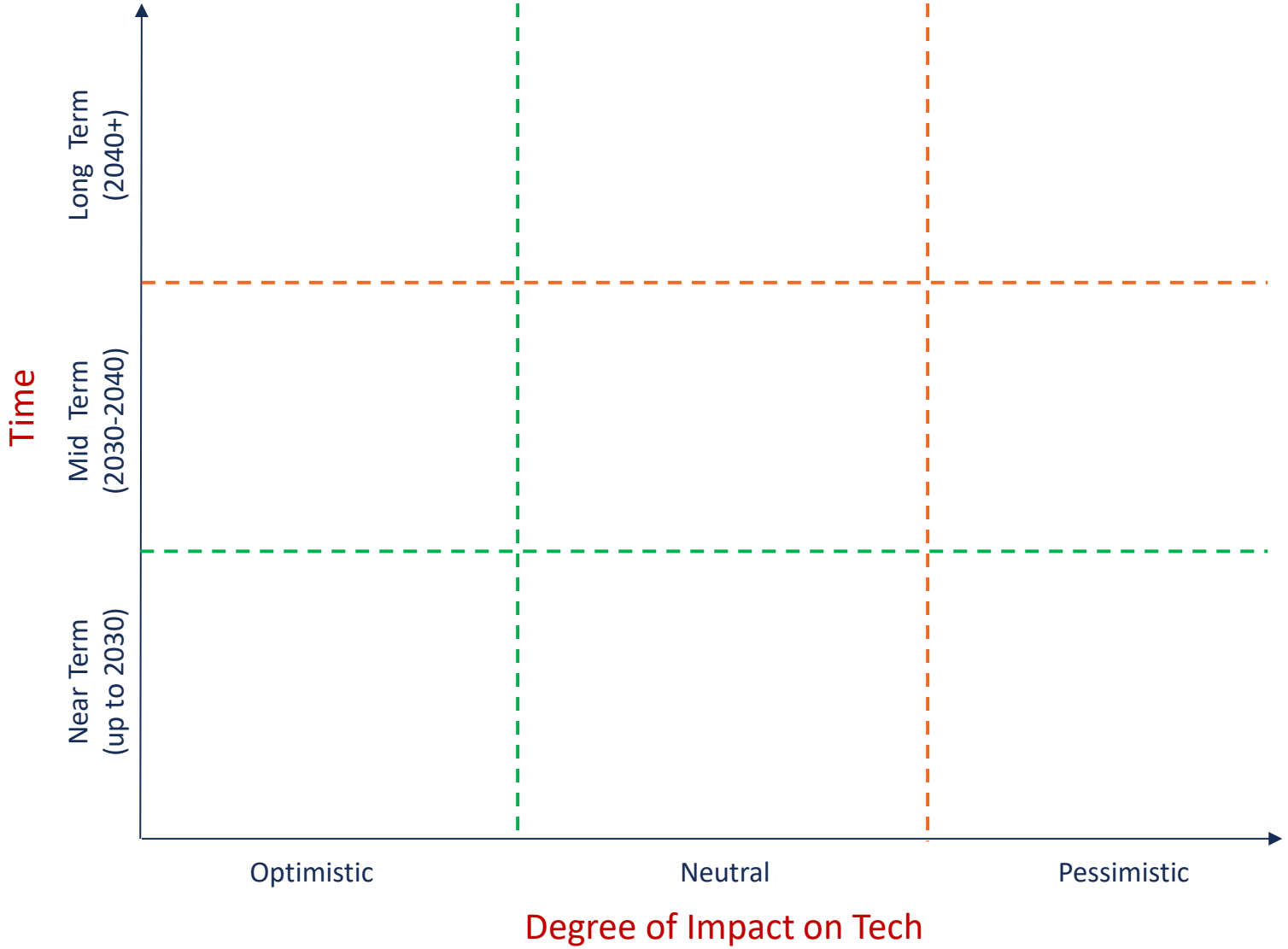
Opportunity Strategy Table

Objective	• Build 3 Scenarios for your Top Technology
Format	• Individual
Instructions	• To identify growth opportunities and risk for 1 technology based on the converged ecosystems of the scenario • To build 3 scenarios on 2 key axis (time v/s degree of impact on tech): - Optimistic: factors supporting positive development and deployment of tech - Neutral: factors influencing growth of some tech in certain regions and slow down in other regions - Pessimistic: delay of tech development and deployment in all regions
Timing	• 15 mins

SCENARIO OUTPUT

Exercise Sheet 3

S1 → Scenario



Scenario	Scenario Explain (in 20 words each)
Optimistic	
Neutral	
Pessimistic	



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FROST & SULLIVAN

THANK YOU