

ANNUAL GENERAL MEETING



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2024

ทิศทางเศรษฐกิจไทยกับ 3 เทรนด์โลก
LOW CARBON, AI, AGING SOCIETY



ดร.กิริฎา เภาพิจิตร

ผู้อำนวยการวิจัย นโยบายเศรษฐกิจระหว่างประเทศและการพัฒนา และผู้อำนวยการโครงการวิเคราะห์เศรษฐกิจเชิงลึก



เศรษฐกิจไทย ภายใต้ MEGA-TRENDS

ดร. กิริฎา
เกาพิจิตร

19 มี.ค. 2568

Mega trends to be discussed

- 1. Climate change**
- 2. AI**
- 3. Aging society**
- 4. Trump Effect**

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Climate change

Pressures from all directions urge business to think seriously about sustainability

SEVERE PHYSICAL IMPACT FROM CLIMATE CHANGE

Extreme weather, floods and droughts happening around the world.

OPPORTUNITIES FOR RESPONSIBLE BUSINESS

Businesses in different sectors see the opportunity to adjust their business models and come up with innovative products/services that have low adverse impacts to the society and the environment, while adding value to customers.

HIGHER CONSUMER AWARENESS OF ENVIRONMENTAL AND SOCIAL IMPACT

Consumers are increasingly aware of consumption impacts; they favour products/services with lower impacts and expect transparency.

ESG CRITERIA USED BY INVESTORS FOR INVESTMENT DECISIONS

ESG rating/performance is required for companies to be included in ESG funds and affects their market activity and pricing. This raises the requirement for non-financial disclosures.



NATIONAL ASPIRATION AND COMMITMENT

E.g. many countries around the world, including Thailand, have made commitment for Net Zero Emission at COP26.

INCREASING NATIONAL & INTERNATIONAL REGULATIONS/Frameworks

E.g. 56-1 One Report, IFRS S2 and S2; EU's Carbon border adjustment mechanism (CBAM); Right to Repair; Extended Producer Responsibility; CSRD; CSDDD

MNS'S EFFORTS TO ENHANCE SUPPLY CHAIN TRANSPARENCY

Large multi-national companies (MNCs) with global supply chains set numerical targets for their suppliers to accelerate decarbonization efforts; and conduct human rights due diligence in their supply chain.

Trump 2.0 will delay climate actions



***"Trump 2.0"** presidency can have profound impact on climate policy, given the record in his first term and the US withdrawal from the Paris Agreement for the second time.*

Based on Trump's stated positions, we can expect

- **Rollback of Federal Climate Policies:** Deregulation and weaken EPA authority
- **Shift in Energy Policy:** Promotion of fossil fuel
- **Reduced global climate leadership and climate finance:** Detachment from global climate actions
- **Reaction from state government and private sector:** Advancement of climate initiatives independently by several US states, cities, and corporations (i.e. California pursuing ambitious climate goals)
- **Polarization:** More politicized climate change issues, further polarizing public opinion and delaying bipartisan solutions.

- On 17 January 2025, the US Federal Reserve Board officially announced its decision to withdraw from the Network for Greening the Financial System (NGFS) giving the reason that NGFS's work is out of their statutory mandate.

- BlackRock and Six of the largest U.S. left climate alliances ahead of Trump's second term.

- The main reasons could be **political pressure** from Trump 2.0, **fiduciary concerns** and **strategic flexibility**.



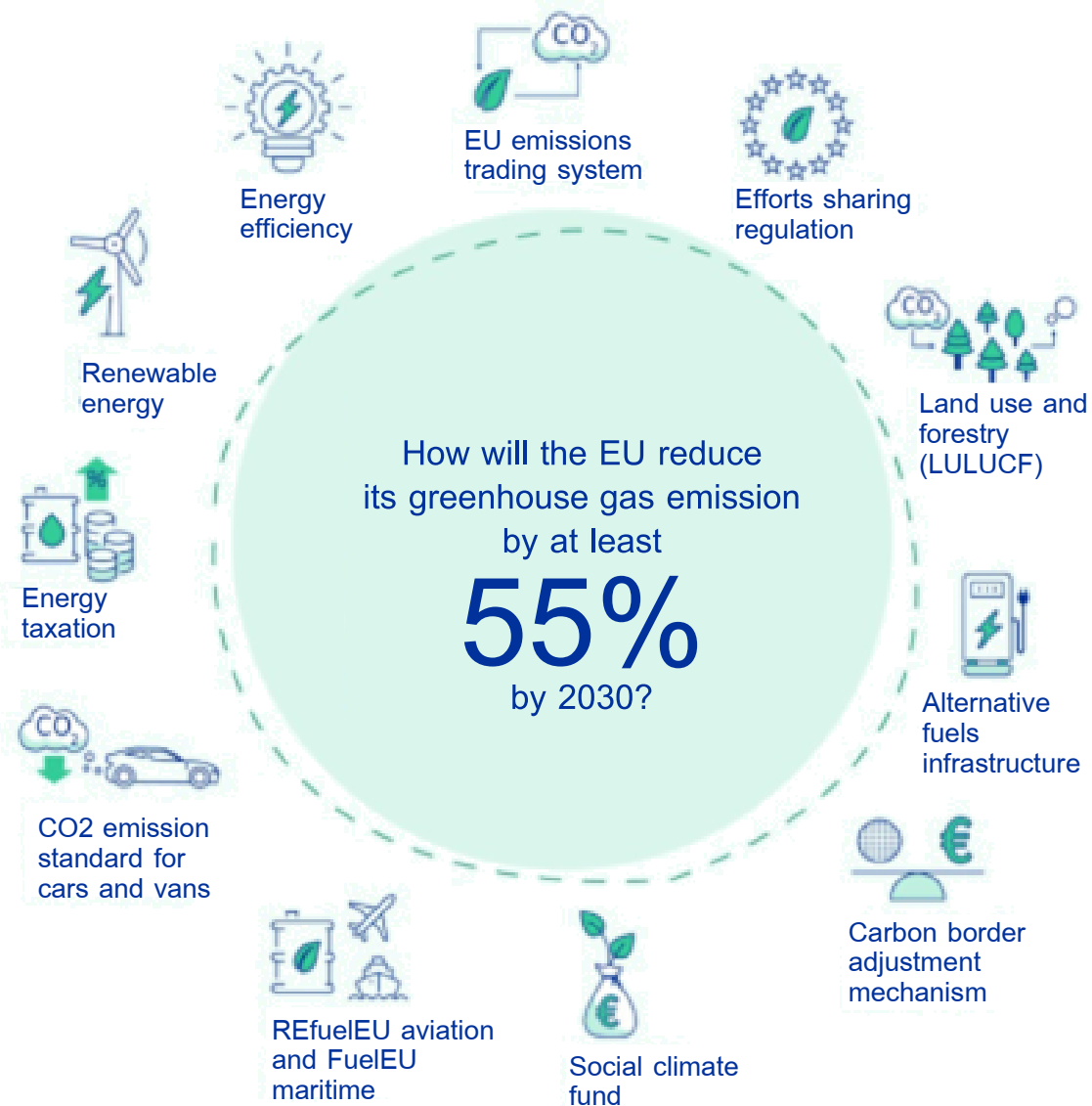
Image: Reuters

EU will be the sole leader in global climate initiatives

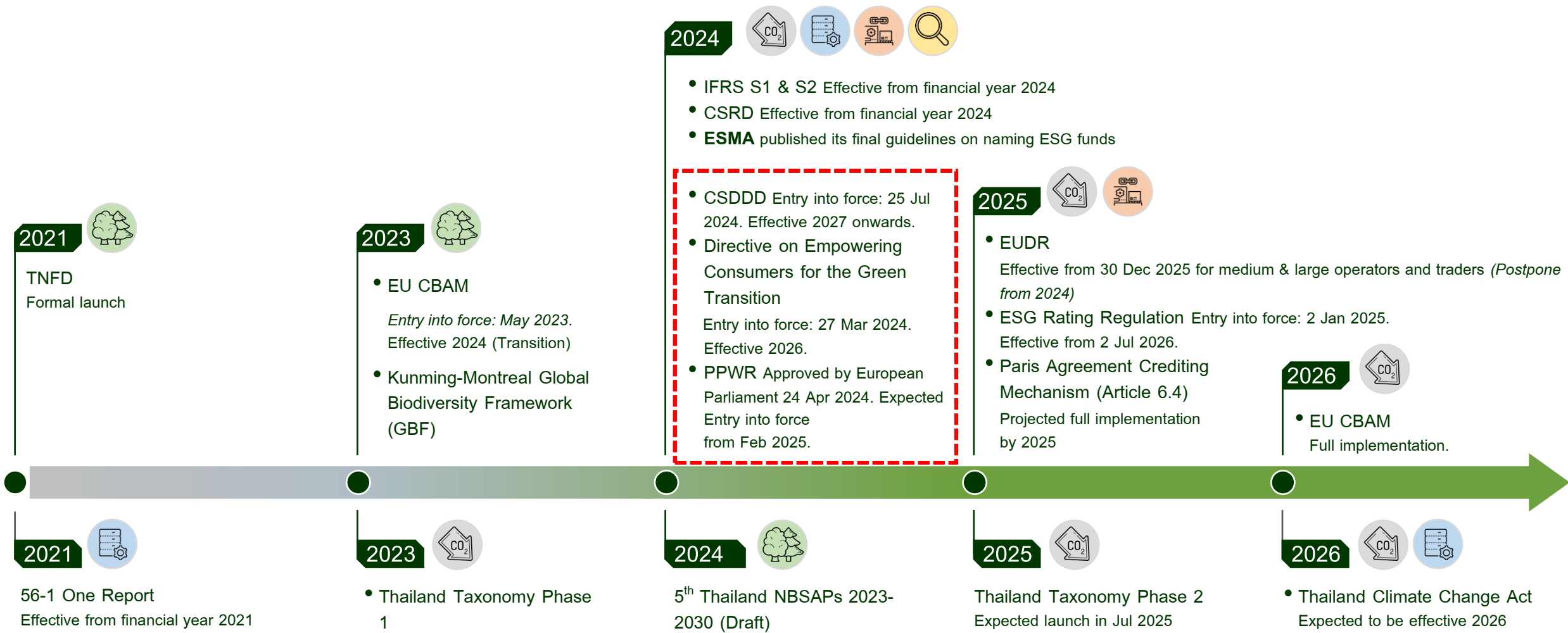
- EU launched “Fit for 55 package”, underlying the European Green Deal, aiming to cut GHG emissions by at least 55% by 2030 (compared to 1990 levels).
- This leads to a shift toward a low-carbon economy and more stringent environmental regulations and trade requirements.
- Green Deal goals
 - Become climate-neutral by 2050.
 - Protect human life, animals and plants, by cutting pollution.
 - Help companies become world leaders in clean products and technologies.
 - Help ensure a just and inclusive transition.



European businesses are increasingly burdened by the complexity and volume of regulations. The Budapest Declaration (2024) called for a "simplification revolution" to streamline reporting obligations and reduce regulatory burdens, aiming to enhance competitiveness.



global and local environmental/ESG regulations are on the rise



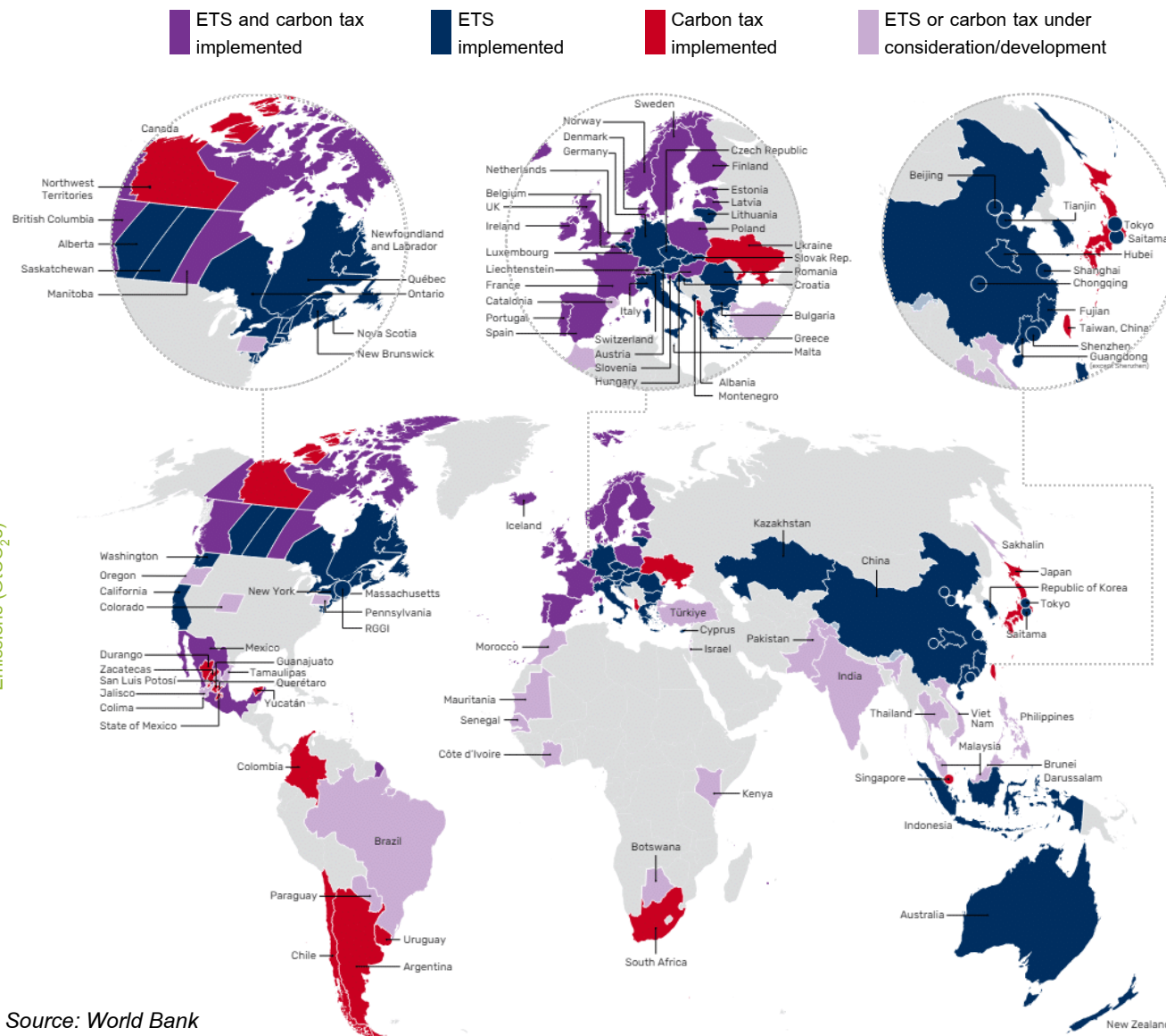
Note: Detailed timelines for the regulations are included in the Appendix

Abbreviation list CSRD = Corporate Sustainability Reporting Directive; CSDDD = Corporate Sustainability Due Diligence Directive; ESMA = European Securities and Markets Authority; EU CBAM = European Union Carbon Border Adjustment Mechanism; EUDR = European Union Deforestation Regulation; IFRS = International Financial Reporting Standards; NBSAP = National Biodiversity Strategies and Action Plans; PPWR = Packaging and Packaging Waste Regulation; TNFD = Taskforce on Nature-related Financial Disclosures

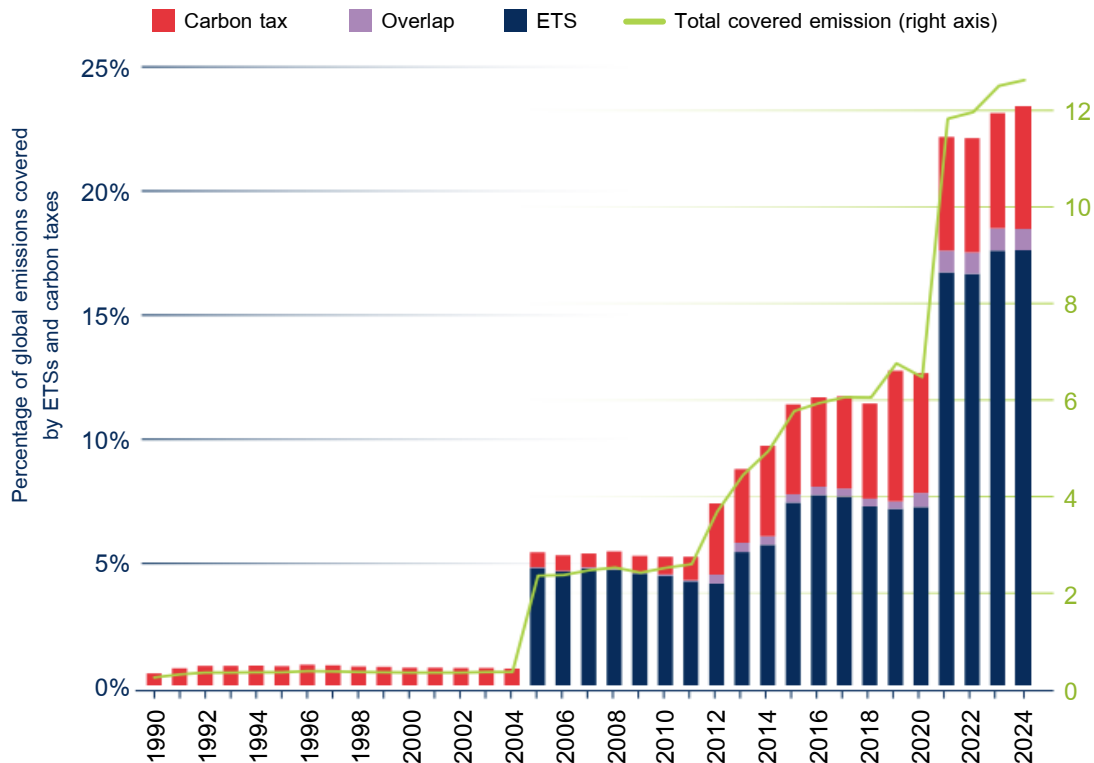
Carbon pricing instruments are increasingly used around the world

- There are now 75 carbon pricing instruments (taxes and trading schemes) in operation worldwide. As of April 1, 2024, emission trading systems (ETs) and carbon taxes in operation covered 24% of global GHG emissions, or almost 13 gigatons of CO₂.

Map of Carbon Taxes and ETs



Global GHG emissions covered by ETs and carbon taxes



Source: World Bank

Preparation for regulations turns challenges into competitive advantages

- Short-term regulations might be uncertain, but long-term preparation and action are essential to ensure compliance and future competitive advantage.



PREPARING FOR REGULATIONS

- Stay proactive to meet upcoming environmental regulations.
- Embed regulatory changes into strategic plans and set targets.
- Train teams on regulatory impacts and prepare for phased implementation.



HARNESSING TECHNOLOGY AND INNOVATION

- Utilize technologies such as satellite monitoring and centralized data platforms.
- Engage stakeholders through digital tools.
- Streamline reporting processes for regulatory alignment.
- Innovate with sustainable materials and solutions.



POTENTIAL OPPORTUNITIES

- Participate in carbon markets.
- Secure financial incentives for green investments and GHG reduction.
- Optimize operational efficiency to reduce costs and minimize carbon tax liabilities.
- Achieve market differentiation with eco-friendly solutions and practices.

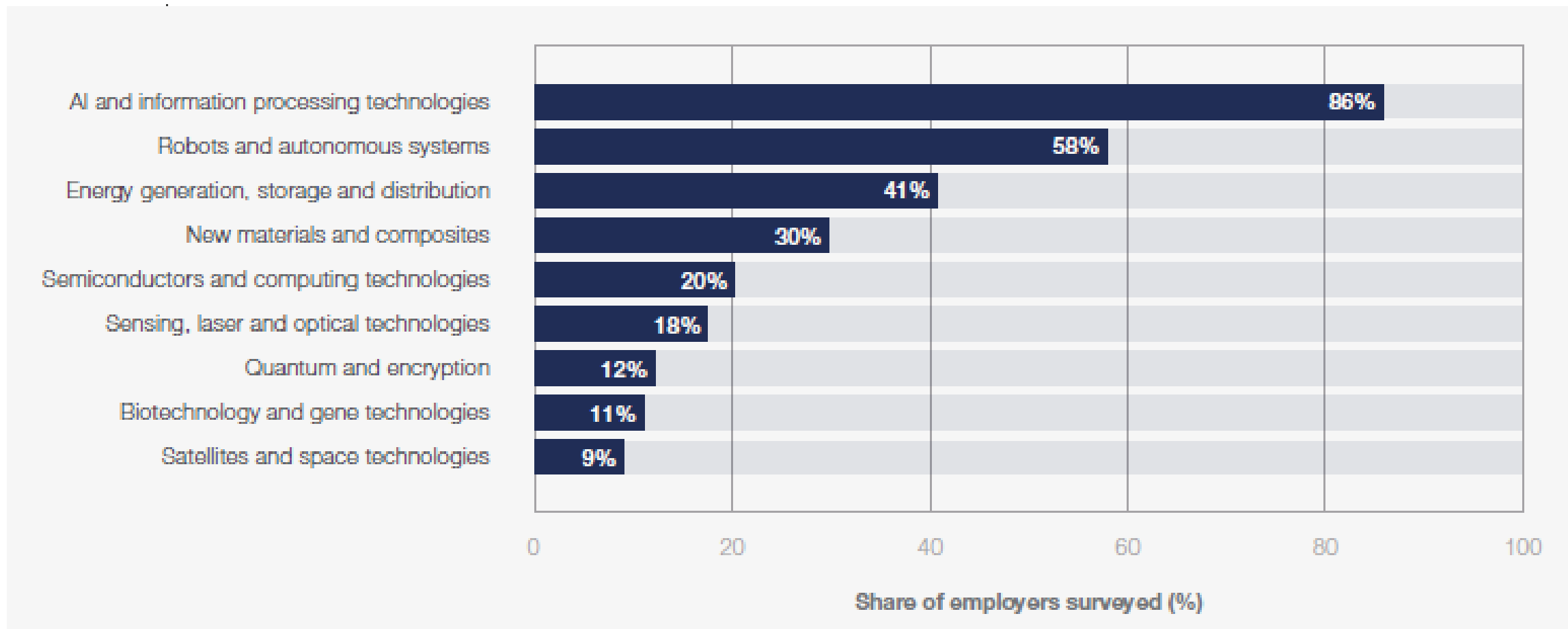
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Artificial intelligence

AI is likely the largest technology trend driving business transformation

Technology trends driving business transformation, 2025-2030

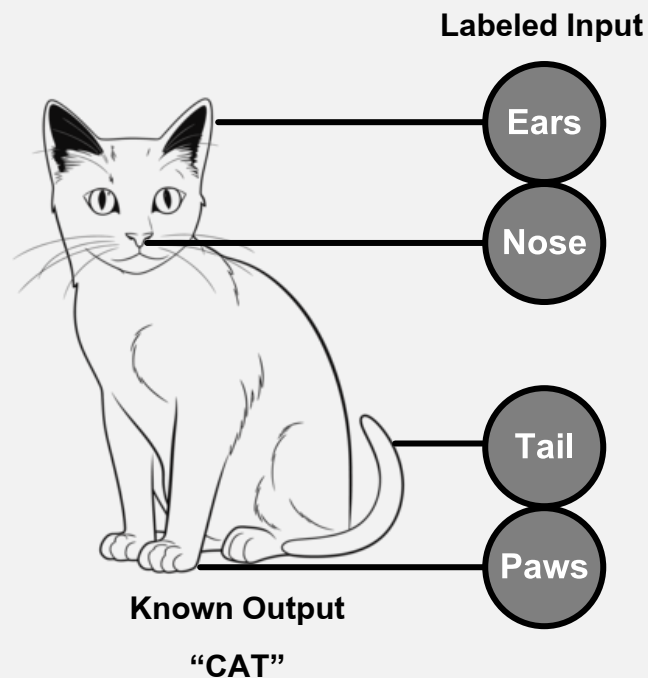
Share of employers surveyed that identify the stated technology trend as likely to drive business transformation



3 turning points in AI technology

1 MACHINE LEARNING

Using labelled data to train machines to learn the relationships between given inputs and output.



2 DEEP LEARNING

Using neural networks to learn and understand complex patterns in data, enabling machines to perform tasks like image detection and decision-making, allowing AI to autonomously classify images of cats without the need for additional labelled data.

Classification + Localization



CAT

Object Detection



DOG, DOG, CAT

3 GENERATIVE AI

Creating new content like text, images or code based of provided input



STYLES

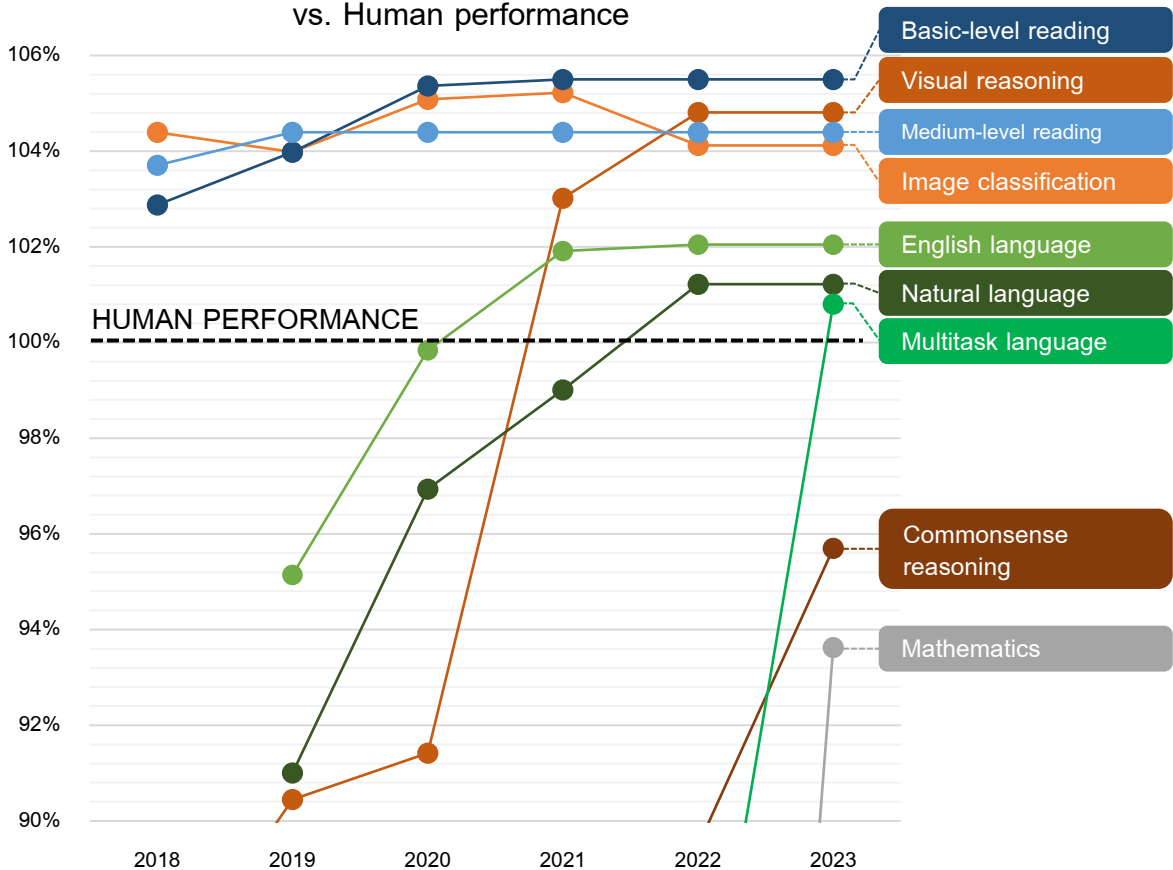


AI has now surpassed many average human abilities

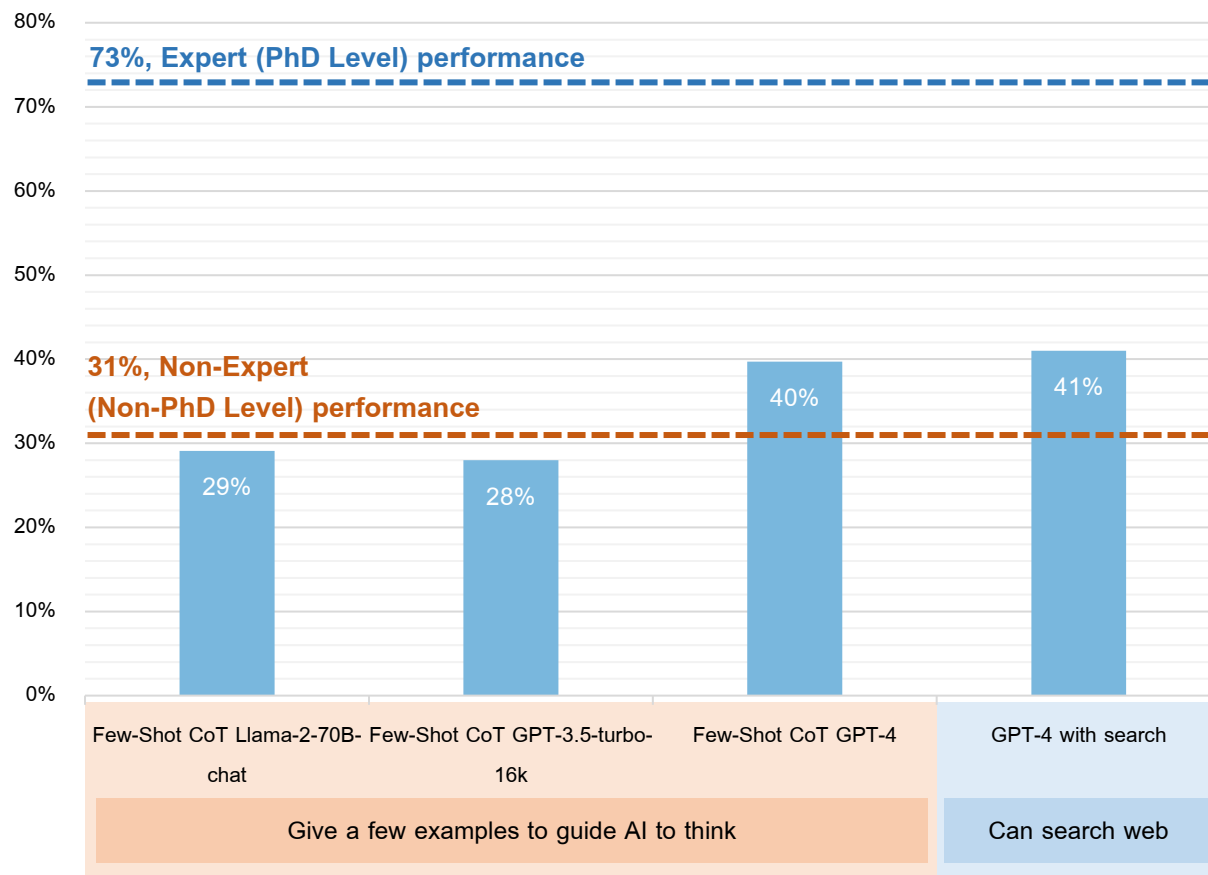
- Over just the past few years, AI has surpassed many human abilities, except in complex cognitive tasks such as common reasoning and mathematics.

- GPT-4 can answer difficult biology, physics, and chemistry questions with greater accuracy than non-Ph.D.

Selected AI Index technical performance benchmarks vs. Human performance

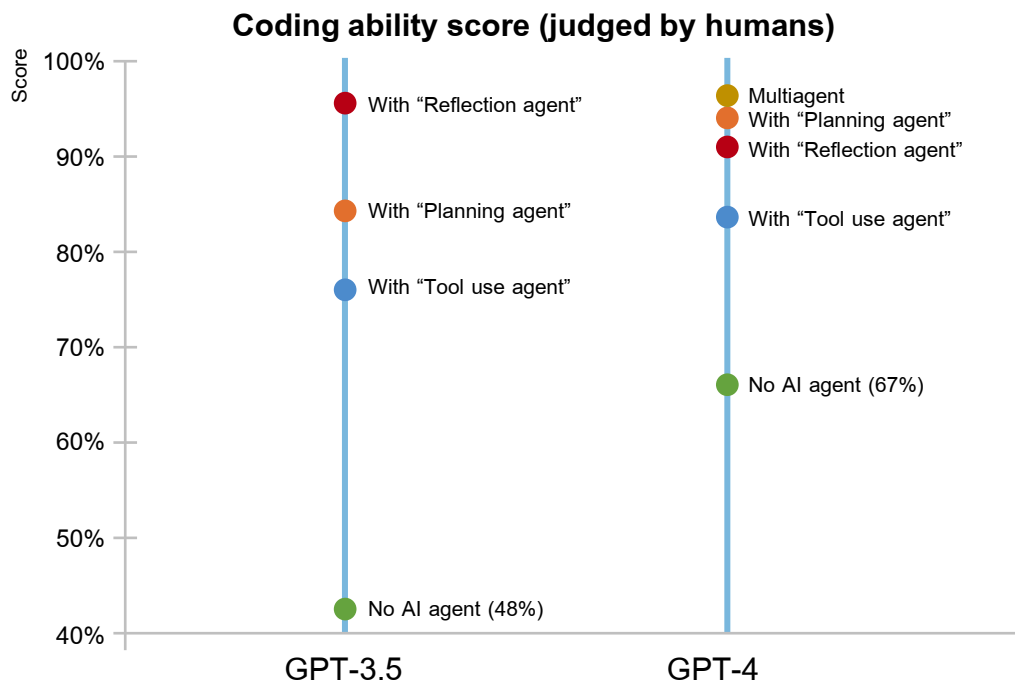


GPQA: Accuracy on the main set

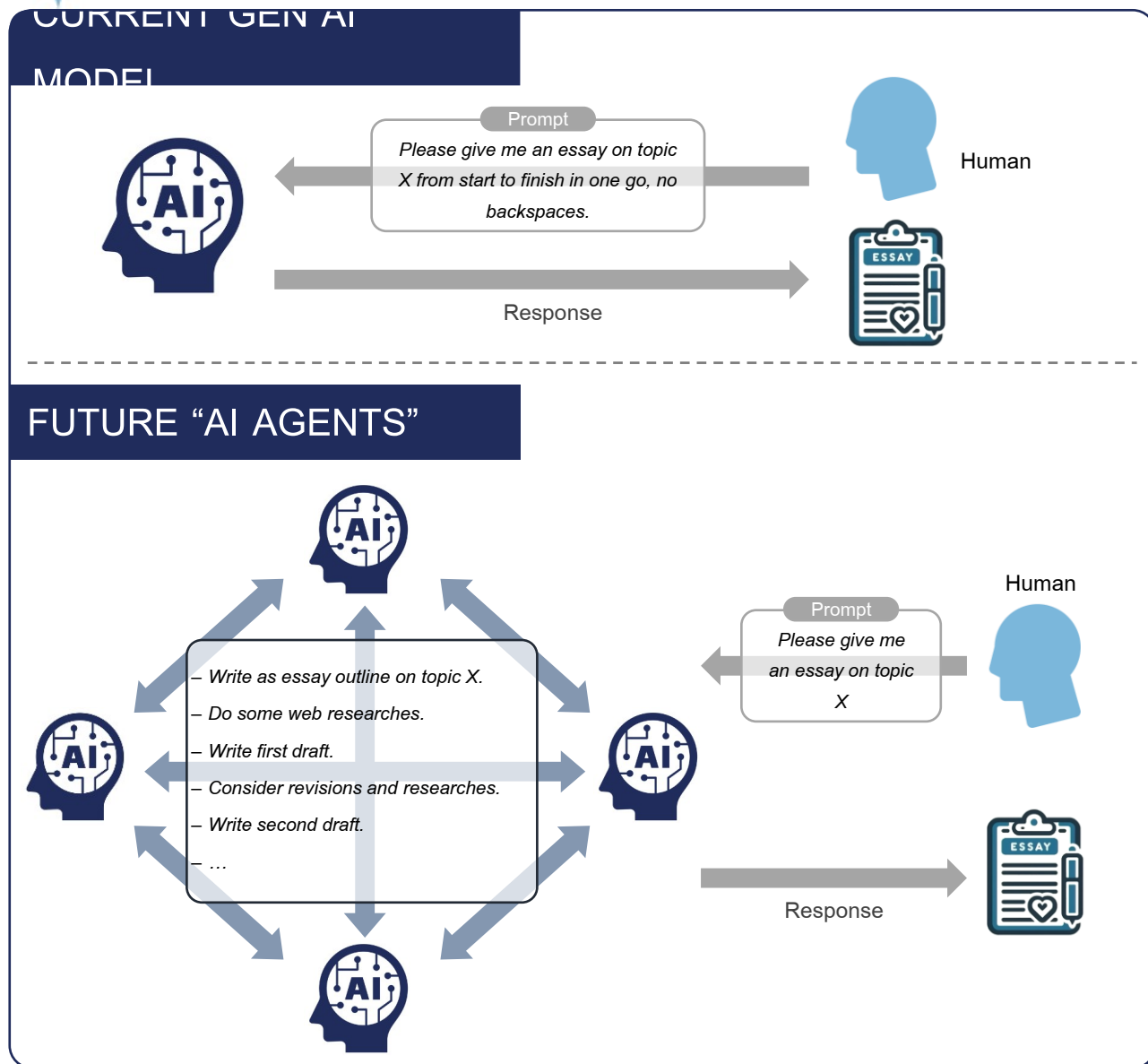


AI agents will be AI's next big thing

- LLMs suffer from “Hallucination” or producing plausible sounding but incorrect outputs.
- One way to manage the problem is to use human oversight or human in the loop; another is to use “AI in the loop” by letting “AI agents” interact with one another.
- With AI agents, coding ability of both GPT-3.5 and GPT-4 improves significantly.



Source: Andrew Ng (2024)

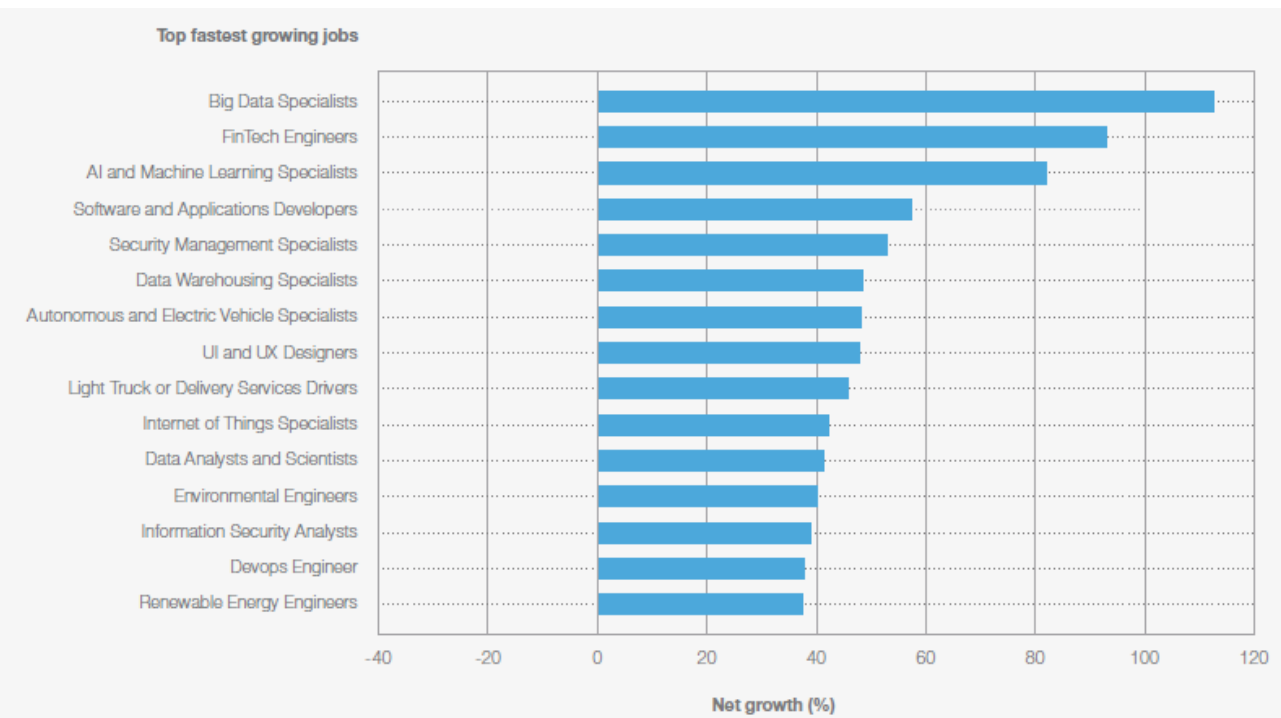


Digital and AI related jobs are in high demand

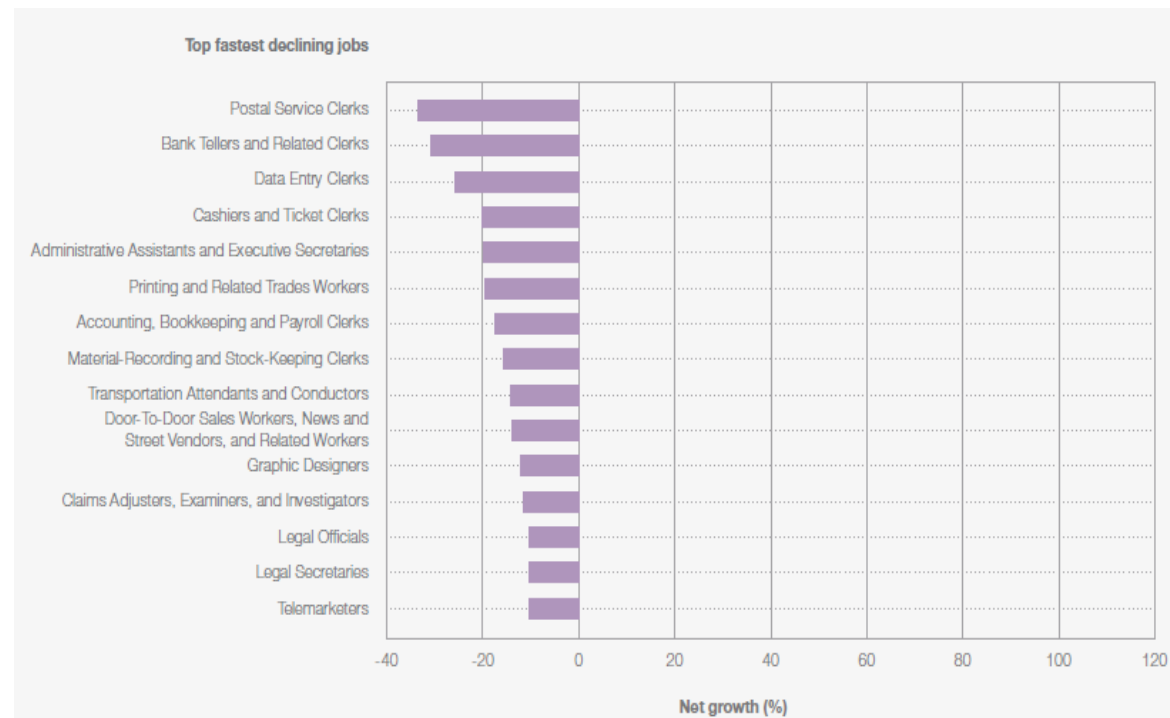
Fastest-growing and fastest-declining jobs, 2025-2030

Top jobs by fastest net growth and net decline, projected by surveyed employers

Fastest-growing



Fastest-declining



US-China tech war will speed up ai and digital tech developments

5G SYSTEM AND 6G STANDARD

Adoption of western equipment and standards by developed countries



China will push its telecommunication standards in China and developing countries. But it would be difficult since it cannot procure necessary hardware.

DIGITAL PLATFORM

Diverse tech companies with semi-monopoly power in their own niches serving international markets.



Giant platforms primarily focuses on serving mobile-first customers in China and SE Asia. Other apps, such as virtual meeting system, are also affected. But its operations will be more limited due to U.S. sanctions.



European-led regulations which focus on consumer protection and anti-trust e.g. GDPR

REGULATION



Laws and regulations with heavy emphasis on political control.



SEMICONDUCTOR AND COMPUTING HARDWARE

Highly specialized supply-chain network spanning the western world.



Integrated supply chain centered in China, trying to catch up with the West.

INTERNET

Largely unregulated and free World Wide Web based on TCP/IP protocol.



National internet based on Huawei's "New IP", which enables government control.

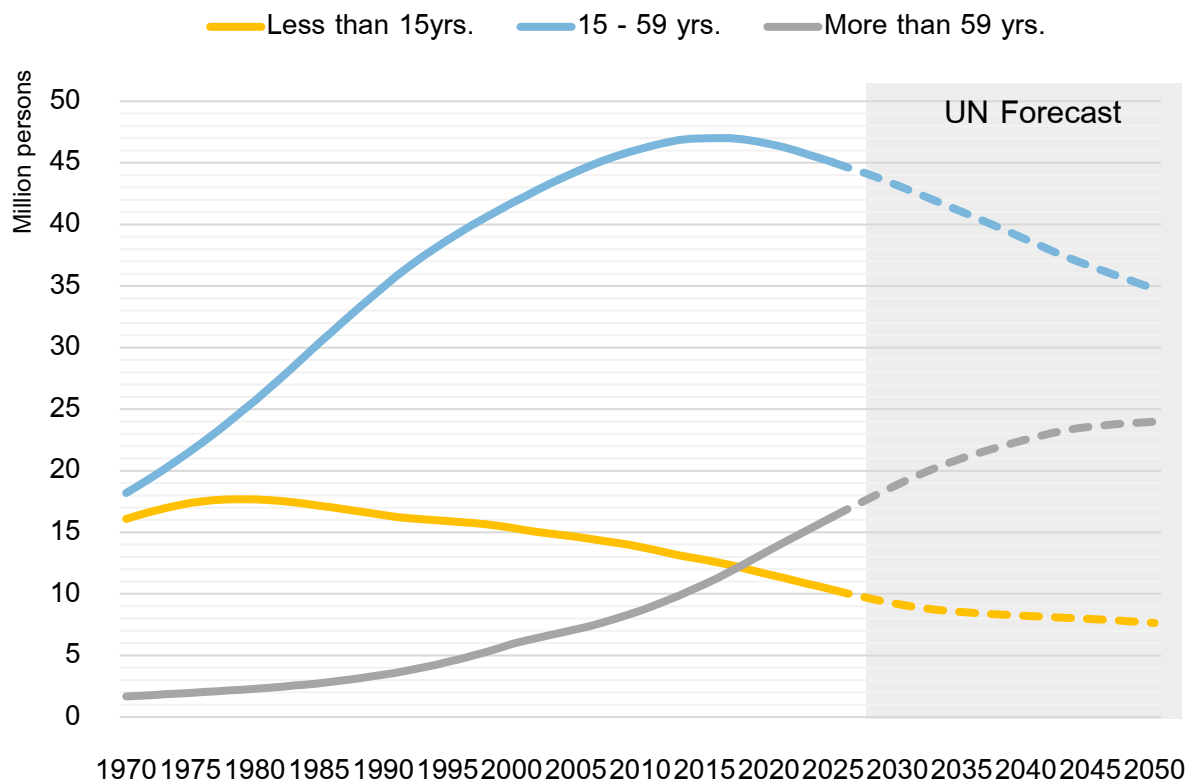
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Aged society

Thailand is an aged society

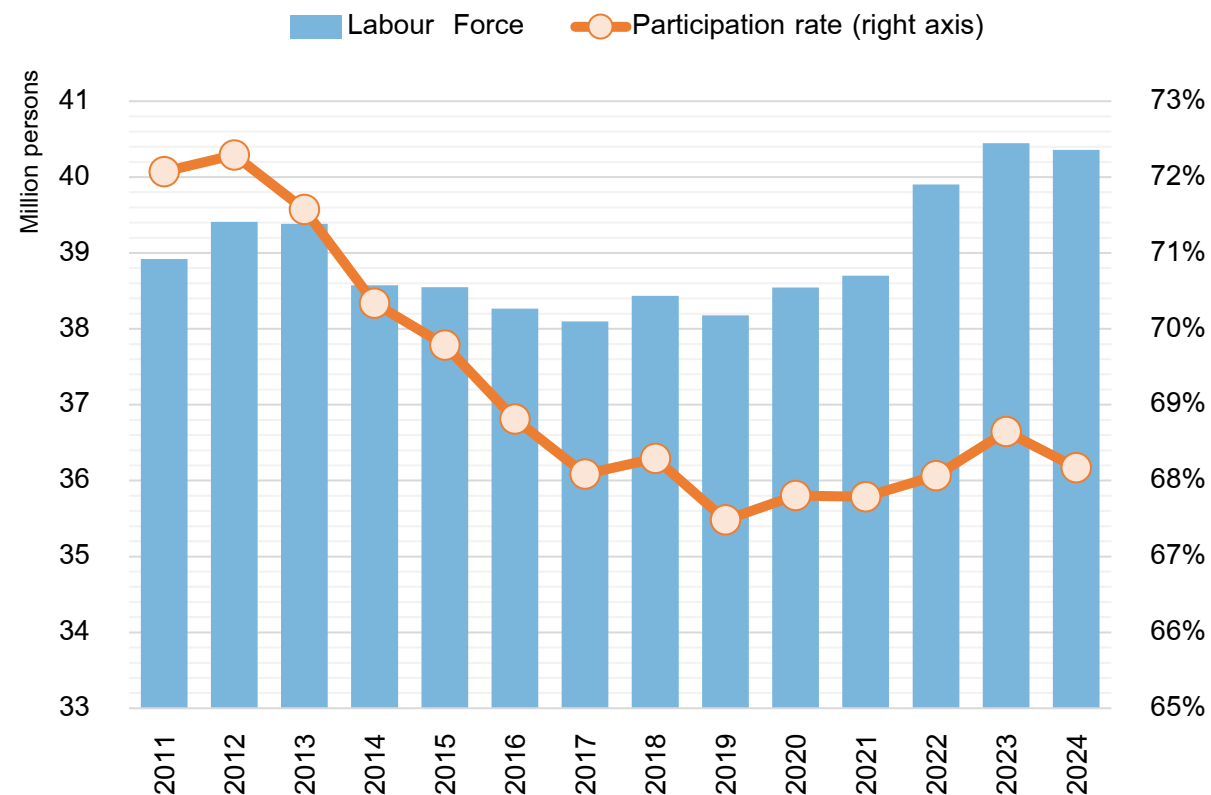
- Thailand already has more people over 60 years old than those below 15 years old in 2019.
- Thailand became an “Aged Society” in 2021 when the ratio of those over 60 years old reach 20%
- It will become a “Super Aged Society” in 2031 when the ratio of those over 65 years old reach 20%, while the share of 15-59 years olds continues to fall.

Population structure of Thailand by Age group



Source: United Nations Department of Economic and Social Affairs

Thai labor force

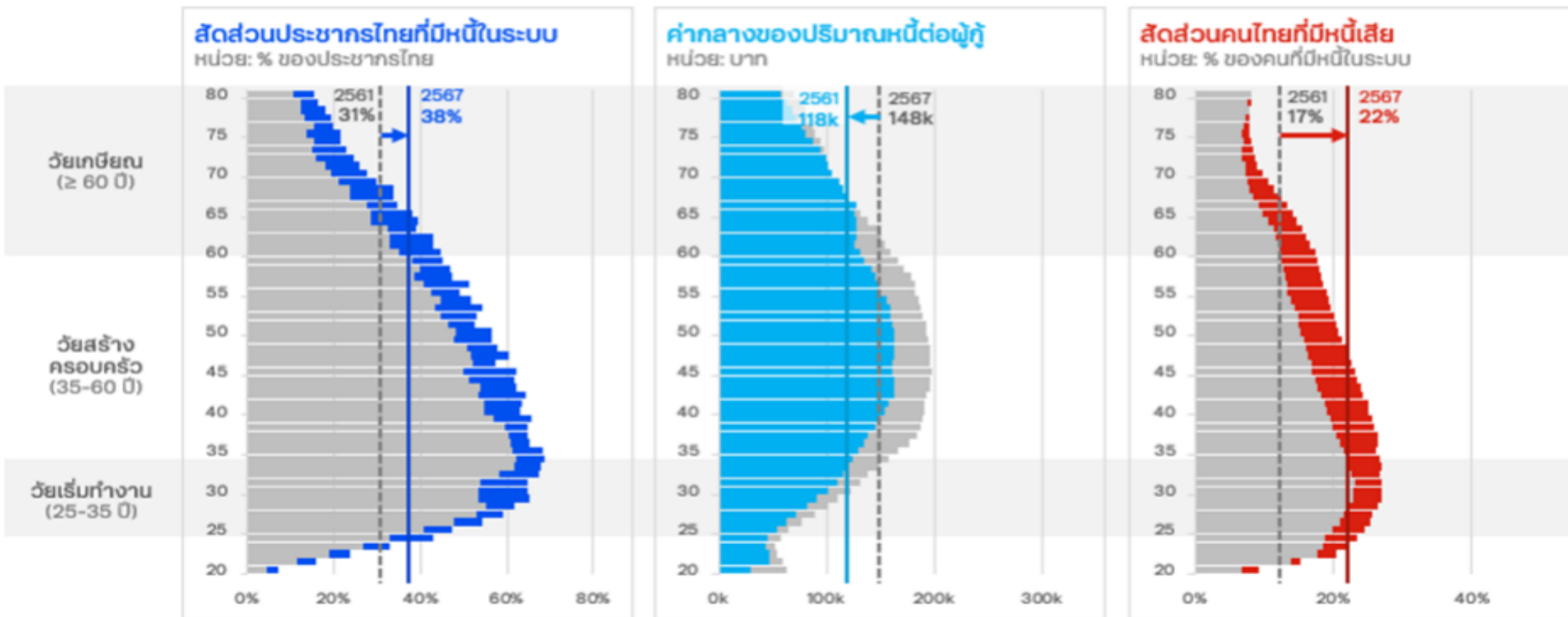


Source: National Statistical Office

1 in 3 retirees remains in debt, with more than 10% classified as NPL

- ในปี 2567 กว่า 29% ของประชากรที่มีอายุระหว่าง 60-80 ปียังคงมีหนี้ในระบบ ซึ่งเพิ่มขึ้นจากปี 2561 ที่อยู่ที่ 20% ของประชากรในช่วงอายุดังกล่าว ยิ่งกว่านั้นสัดส่วนหนี้เสียที่เกิดขึ้นจากบัญชีลูกหนี้ในช่วงอายุ 60-70 ปี ยังคงค่อนข้างสูงถึง 14% ของบัญชีหนี้ในระบบ ซึ่งกลุ่มนี้กำลังกลายเป็นปัญหาเรื้อรังจากความสามารถในการหารายได้ในช่วงบั้นปลายชีวิตค่อนข้างต่ำ สวนทางกับค่าใช้จ่ายด้านสุขภาพที่เพิ่มขึ้น

เปรียบเทียบตัวชี้วัดระหว่างปี 2561 กับ 2567 ในแต่ละช่วงอายุ

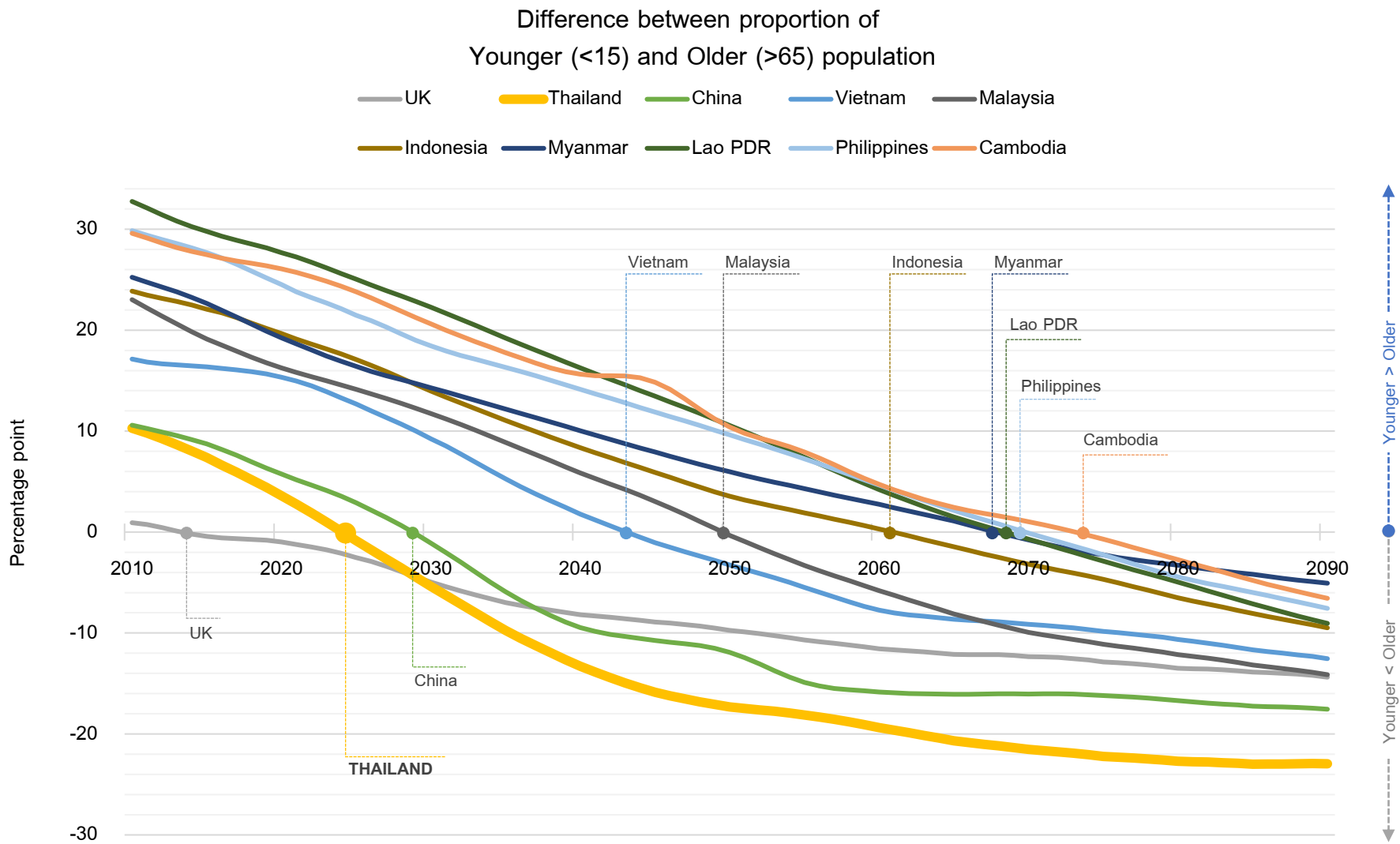


- 1. Less labor force → less incomes, less consumption, less taxes collected**
- 2. Explosion of health care costs and social welfare costs for seniors**
- 3. Generational differences/conflicts**

Labor Policies

- 1. Raising retirement age & incentives for hiring elderly**
- 2. Increasing female labor force participation**
- 3. Improve labor productivity through life-long learning & economic restructuring**
- 4. Encouraging inward migration**
- 5. Promote automation and AI adoption**
- 6. Promoting preventive healthcare & Aging in place**
- 7. Promoting financial literacy & new financial products**
- 8. Strengthening the pension systems**
- 9. Encouraging more child births**

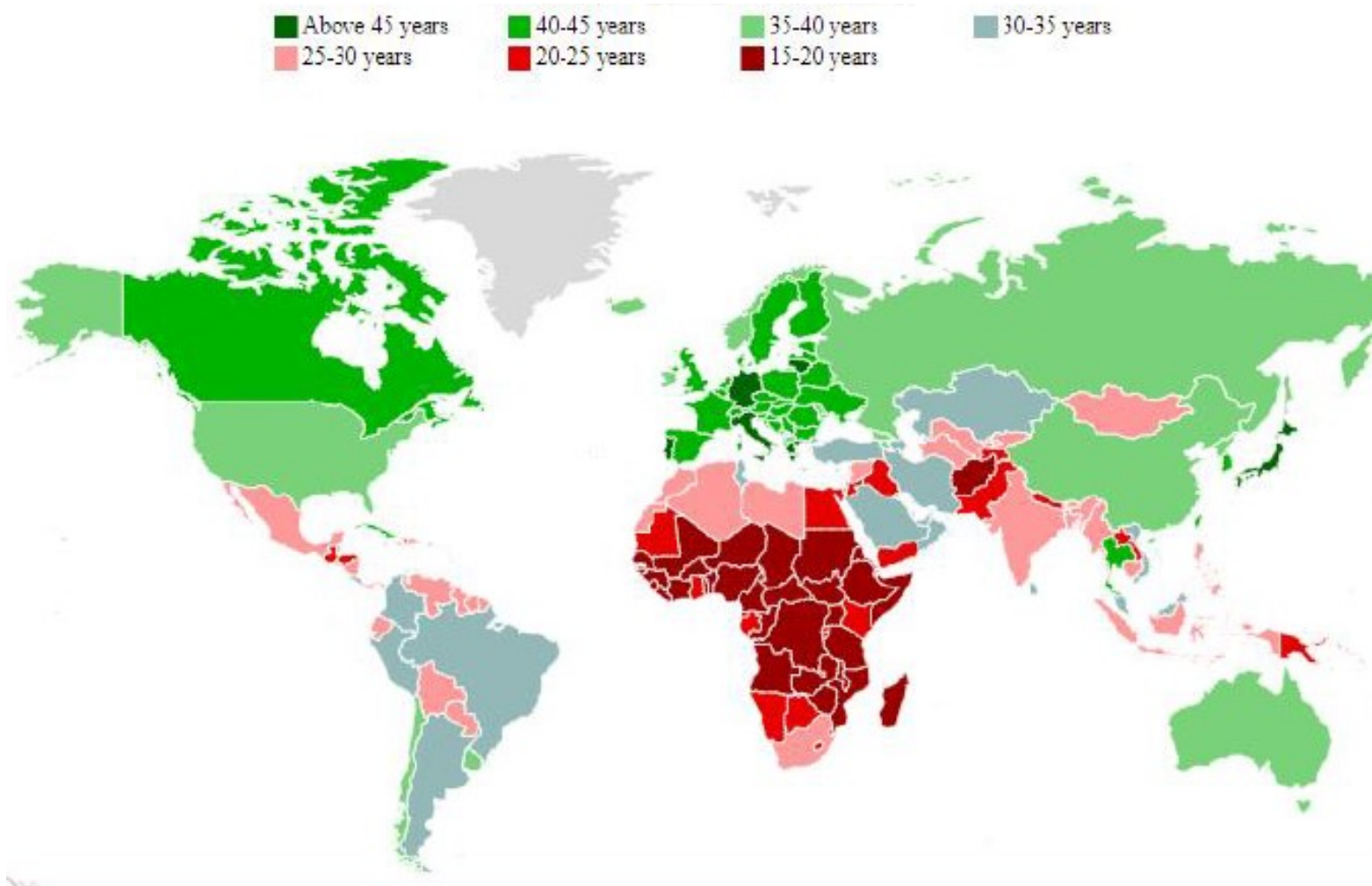
Most ASEAN nations will remain young for future decades



Source: World Population Prospects 2019 Revision, United Nation with TDRI Calculation

most aging economies are high income

Median Age by Country (2020)



Source: UN, World Population Prospects (2019) and The World Factbook (2020)

key Business opportunities



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Trump uncertainty

Trump wants to “Make America great again”



Maintain 21% corporate tax rate which is set to expire by Dec 2025 and reduce to 15% or less for domestic production for targeted products



Levy import tariffs on US trading partners

- Blanket tariff on countries
- Global product-specific tariffs e.g. iron & steel and aluminium products
- Reciprocal tariffs on specific products



Immigration overhaul with mass deportations of up to 8 million illegal workers



Withdrawal from Paris Agreement, expand fossil fuel production, and curtail implementation of Inflation Reduction Act (IRA)



Less US aid including to Ukraine & Taiwan and through USAID including Taiwan, strong support for Israel

POTENTIAL IMPACTS

- Purchasing power of companies in US retained
- Rise in investment in some industries in US e.g. semiconductor & steel
- Increased US budget deficit and long-term bond yields

- Lower global trade value growth amid global trade war
- Lower global economic growth, including China's
- Impact on Thai exports depending on US tariffs relative to those levied on other countries
- Greater investment relocation and exports to non-US markets.
- Potential recession in US, reduction in FED rate, weaker USD

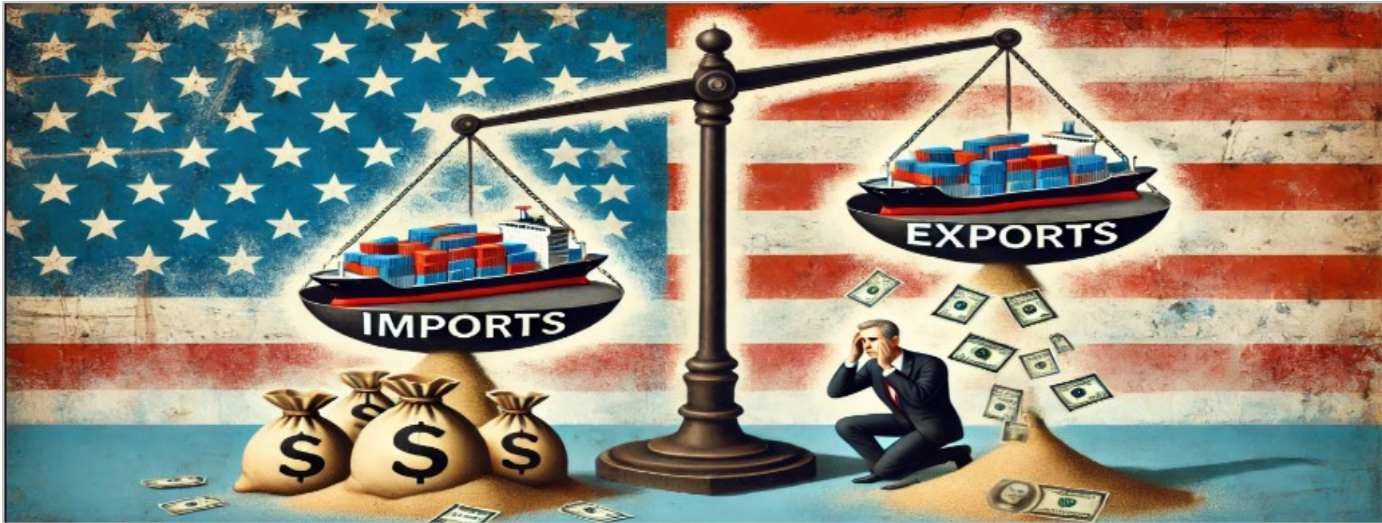
- Labor shortages in US and reduced production, especially in agriculture sector, higher wages and inflation
- Fewer number of foreign students and greater scrutiny on work permits.

- Higher investment in fossil-based energy production in US
- Downward pressure on global oil & gas prices
- Growth of ICE automobile production in US
- Less support for green transition & technologies, including Evs in US

- Ending of Ukraine-Russia war faster than earlier expected, greater relocations of Taiwanese companies, continued tensions in the Middle East, and greater China's influence in ASEAN

Thailand’s high trade surplus WITH us Will lead to higher US import tariffs and imports

- Trump’s administration seeks to reduce US trade deficits and will be scrutinizing countries with which have trade surplus with the US.
- In 2024, Thailand ranks 11th as a country with the largest trade surplus with the US at US\$45.6 billion (more than double that in 2018 when the US-China trade war began).
- US will impose measures to reduce Thai exports to the US by raising tariffs on certain Thai exports or negotiate for Thailand to import more from the US by either reducing tariffs on or quota and standards for US products.



US Trade deficit in 2024 (Billion USD)

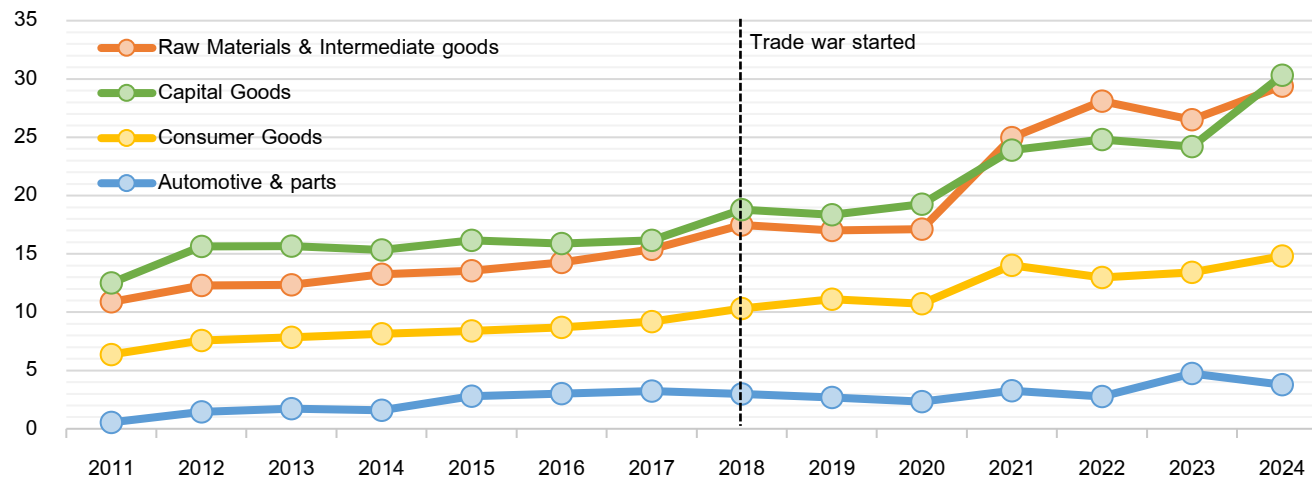
Rank	Exporter	Trade deficit
1	China	295,402
2	Mexico	171,809
3	Vietnam	123,463
4	Ireland	86,748
5	Germany	84,824
6	Taiwan	73,927
7	Japan	68,468
8	South Korea	66,007
9	Canada	64,193
10	India	45,664
11	Thailand	45,609
12	Italy	43,964
13	Switzerland	38,463
14	Malaysia	24,830
15	Indonesia	17,883

Source: U.S. Census Bureau

Thailand will Face greater influx of Chinese Imports

- Chinese products are flooding non-US markets due to China's economic slowdown and trade war, creating excess capacity in Chinese industries.
- Chinese imports to Thailand that have increased sharply since 2021 are mostly raw material & parts and capital goods. The influx of cheaper Chinese imports will increase due to
 - Chinese and Thai factories importing Chinese intermediate goods, raw materials, and capital goods
 - imports of consumer goods through e-commerce platforms
 - imports of Chinese goods for re-export to the US
- A wide range of existing industries in Thailand are likely to be affected, including iron & steel, automotive & parts, household appliances, plastic products, petrochemicals, garments and ceramic industries, and textile.

Thailand's imports from China (Billion USD)



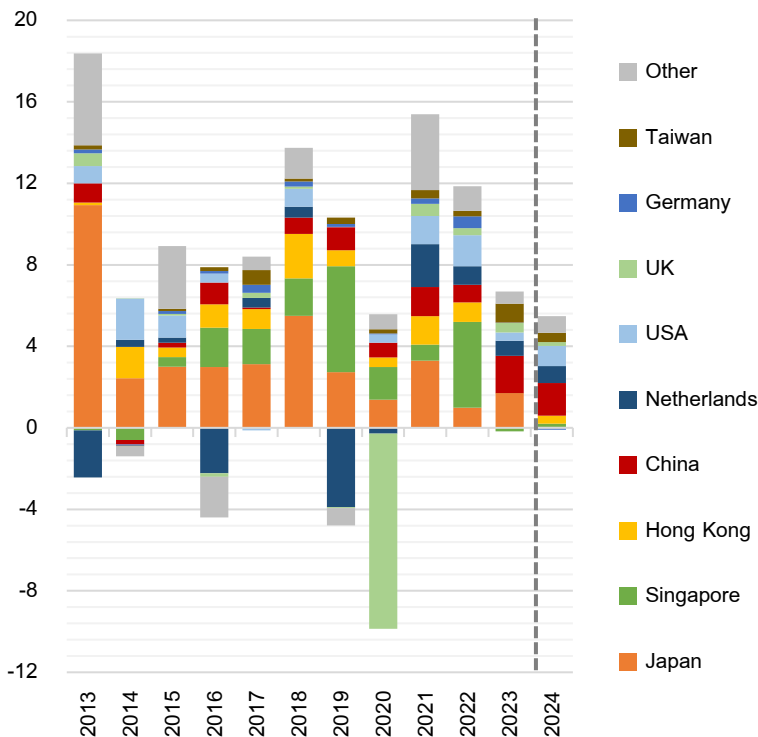
Top Imports from China in 2024	Value (Million USD)	Growth rate	Share
Electrical machinery and parts	11,116.7	26.9%	13.8%
Machinery and parts	8,160.3	24.2%	10.1%
Electrical household appliances	6,199.7	6.7%	7.7%
Chemicals	5,965.1	-1.1%	7.4%
Computers, parts and accessories	4,755.7	23.7%	5.9%
Iron, steel and products	4,003.1	5.3%	5.0%
Other metal ores, metal waste scrap, and products	3,396.9	14.2%	4.2%
Metal manufactures	2,756.5	16.5%	3.4%
Electronic integrated circuits	2,538.3	28.0%	3.2%
Plastic products	2,523.8	12.9%	3.1%
Sum 10 item	51,416.1	15.9%	63.8%
Other	29,191.9	10.4%	36.2%
Total imports from China	80,608.0	13.8%	100.0%

Source: Ministry of Commerce

Diversification of investments have resulted in relocations to Thailand in “new industries”

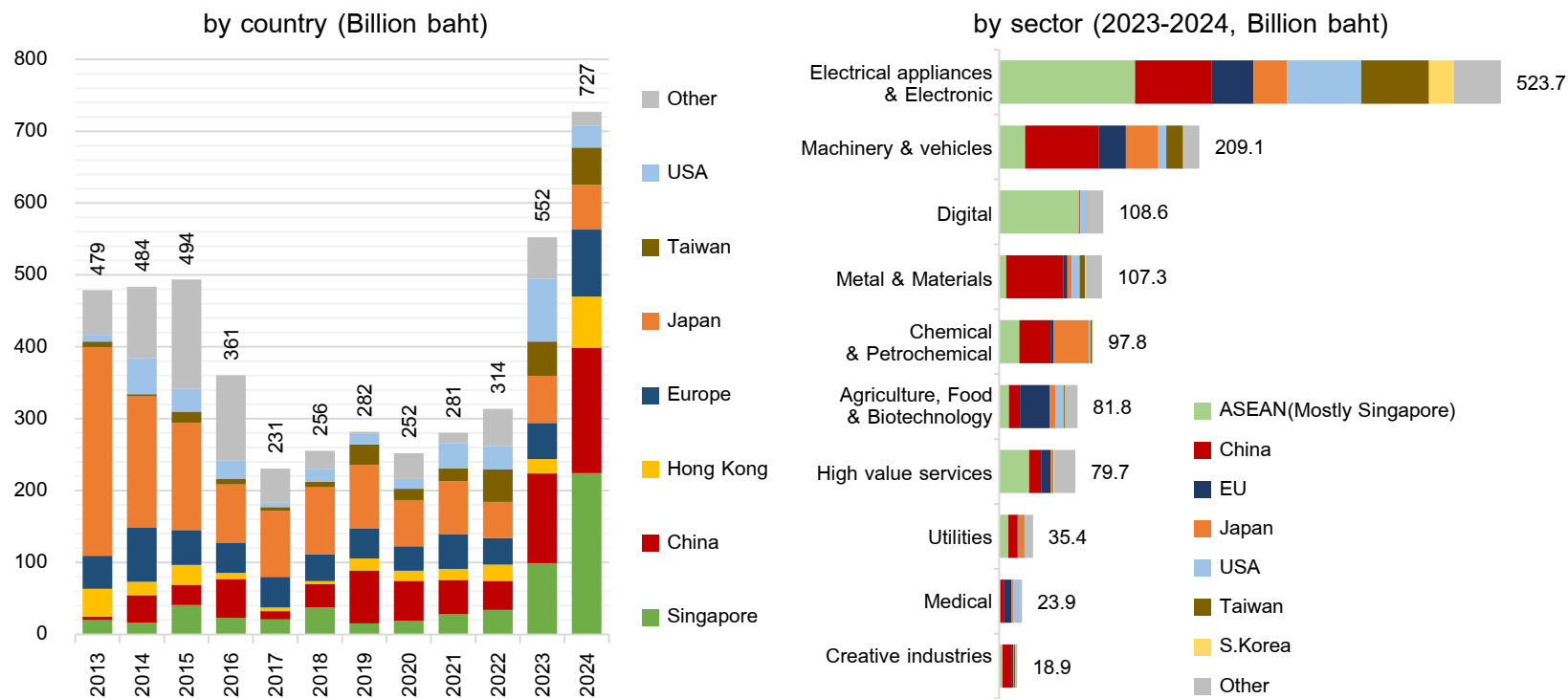
- Since 2021, net foreign direct investments in Thailand has risen mostly from Japan, China & Hong Kong, and Singapore.
- BOI application approvals of foreign investments, which usually take on average 1-1.5 years before investment begins and 2-3 years before production begins, have totalled to over Bt1.2 trillion from 2023 to 2024, a record high amount in the past 10 years. China received the most approvals in the electrical appliances & electronic, machinery & vehicles sector, followed by ASEAN, especially Singapore, of which half are Chinese companies, that have invested in electrical appliances & electronic, and data centers, all of which are new industries in Thailand.

Net FDI by country (Billion USD)



Source: Bank of Thailand

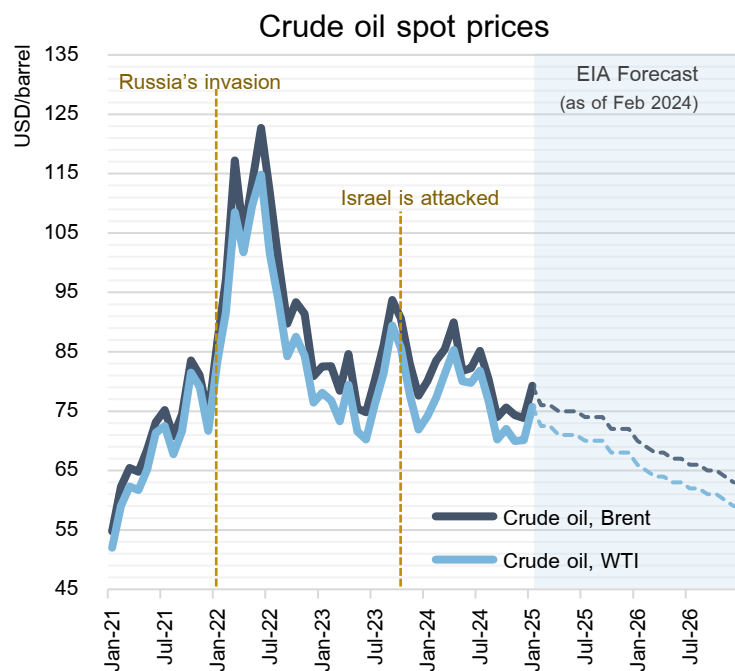
BOI Application Approved: Foreign investment



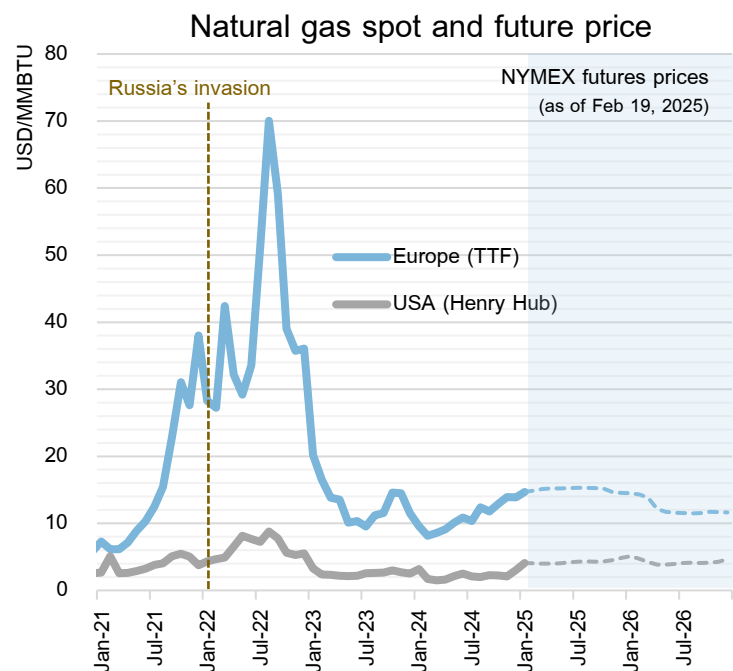
Source: Board of Investment of Thailand

Oil prices are likely to fall, but natural gas prices and freight rates may rise in 2025

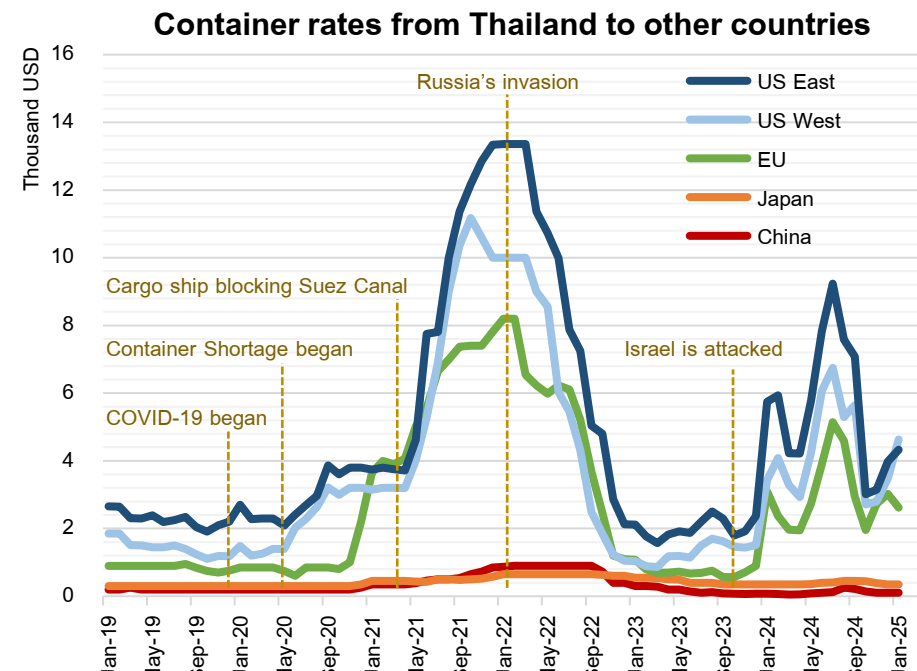
- Brent crude oil price is projected to decline to US\$72/barrel in 2025Q4, with an average price of US\$74.5/barrel in 2025 (compared to US\$80.53/barrel in 2024). EIA expects that global oil inventories will start to increase once OPEC+ begins raising production in Apr 2025, including from the US of up to 3mn barrels/day or 4% of global production, alongside expectations of relatively sluggish global oil demand growth. However, risks remain from the ongoing Middle East conflict.
- Natural gas prices have been rising since mid-December 2024, driven by cold weather conditions and Ukraine's suspension of natural gas transit from Russia to Europe. Natural gas prices are expected to continue increasing until mid-2025.
- Freight costs have increase in Jan 2025. However, blockages of the Red Sea and risks from the other possible sea routes blockages from geopolitical tensions will keep freight costs high.



Source: EIA



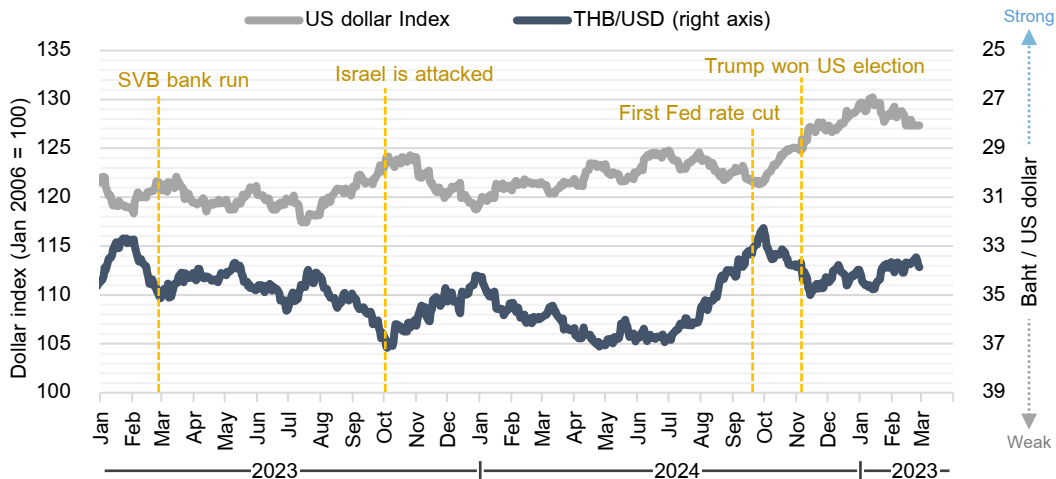
Source: World bank and CME Group



Source: Port Authority of Thailand & Thai National Shipper Council

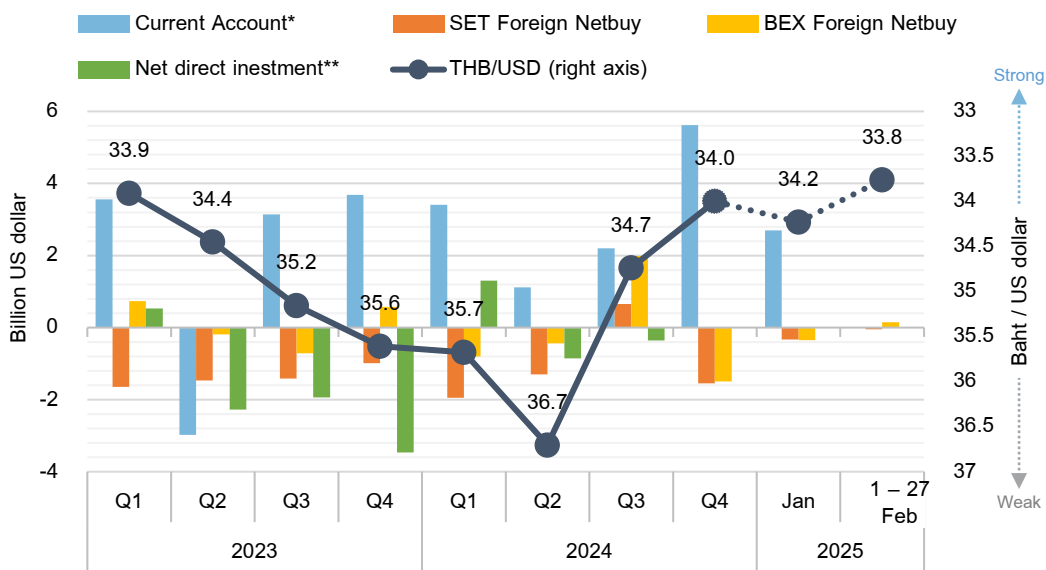
Baht is projected to be stronger than last year's

Dollar index & Thai baht



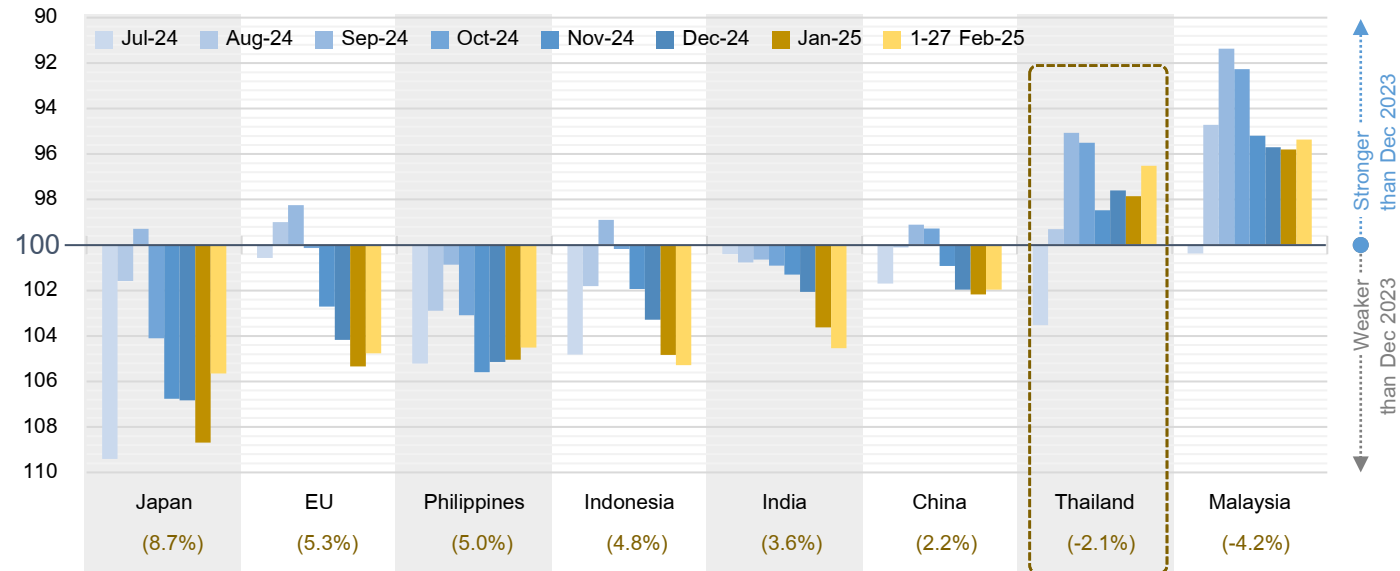
- The Baht strengthened from Bt36.7/USD in 2024Q2 to Bt34.0/USD in Q4, as current account surplus from trade balance, before weakening in Jan 2025 as net outflows from capital market, but the baht remains stronger than many regional peers.
- The Baht is projected to strengthen in 1H2025, as the US dollar weakens if the FED cuts rate by 0.25% and Thailand's current account improves.
- The Baht is projected to be 33-35/USD in 2025. However, the baht will be volatile throughout the year as the USD swings.

Movement Drivers of Thai baht



Note: * Data for Feb 2025 has not been released, ** Data for 2024Q4 has not been released

Index of Local Currencies to US dollar compared to Dec 2023 (=100)



Source: SET, ThaiBMA, BOT and CEIC

Note: () = %changes in Jan 25 from Dec 23; - is stronger, + is weaker than Dec 23

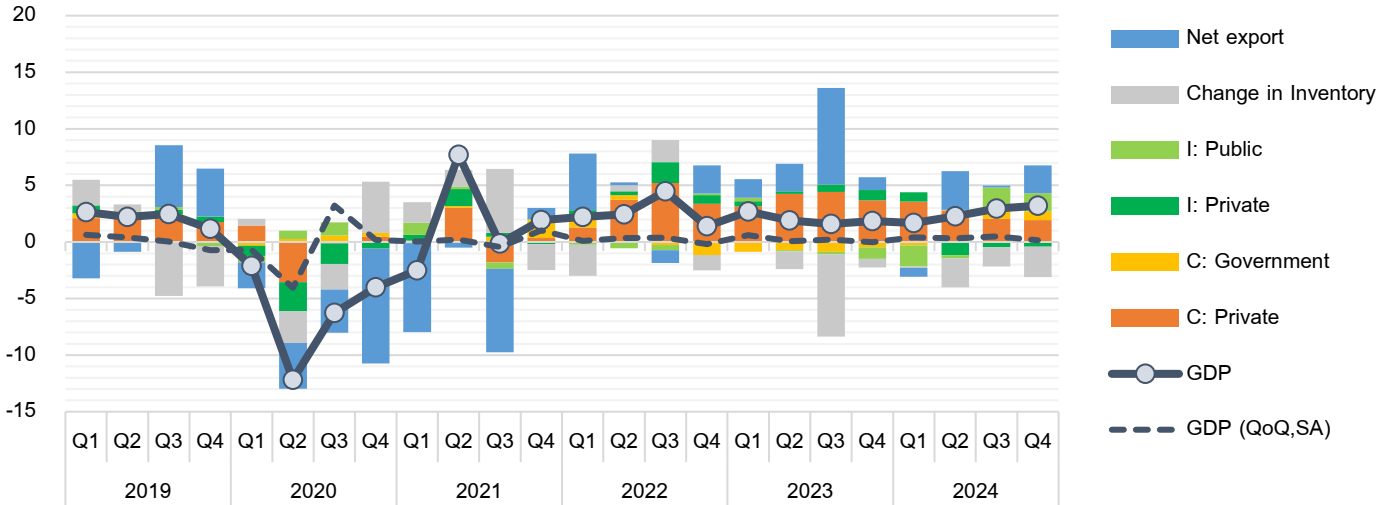
Thai economy this year will grow at 2.5-3.0% amid many risks

- In 2024, real GDP grew by 2.5% supported by household consumption, net exports and tourism, although imports sped up as well.
- **This year, growth will be in the range of 2.5-3.0% supported by exports, tourism, and household consumption that will continue to grow, albeit slower than last year's, and recovery in government spending and private investments.**
- Key risks to growth this year revolves around the trade and price impacts of the global trade war and geopolitical tensions amid the high debt levels of Thai households and SMEs.

GDP growth on Expenditure side (%YoY)

	2023					2024				
	Year	Q1	Q2	Q3	Q4	Year	Q1	Q2	Q3	Q4
Private consumption	6.9	6.0	7.3	7.4	6.7	4.4	6.6	4.5	7.4	3.4
Government consumption	-4.7	-6.0	-4.5	-5.0	-3.1	2.5	-2.3	0.4	-5.0	5.4
Investment	1.2	3.2	0.4	1.7	-0.4	0.0	-4.3	-6.1	1.7	5.1
Private investment	3.1	2.6	1.2	3.6	4.8	-1.6	4.6	-6.8	3.6	-2.1
Public investment	-4.2	4.7	-1.9	-3.0	-19.6	4.8	-28.0	-4.2	-3.0	39.4
Exports	2.4	1.9	0.1	1.5	6.1	7.8	4.1	5.9	1.5	11.5
Export of Goods	-2.6	-5.4	-5.6	-2.4	3.9	4.3	-1.5	2.4	-2.4	8.9
Export of services	38.2	66.2	47.9	29.6	19.9	25.5	32.0	24.7	29.6	22.9
Imports	-2.5	-0.5	-3.3	-9.8	4.5	6.3	5.7	1.1	-9.8	8.2
Import of Goods	-4.3	-3.8	-5.3	-11.3	4.2	5.3	3.6	-1.3	-11.3	9.4
Import of services	5.5	13.6	4.9	-3.8	7.7	10.3	13.7	11.2	-3.8	3.9
GDP	2.0	2.7	1.9	1.6	1.8	2.5	1.7	2.3	1.6	3.2
GDP (QoQ, Seasonally)		1.4	0.1	0.5	-0.02		1.0	0.8	0.5	0.4

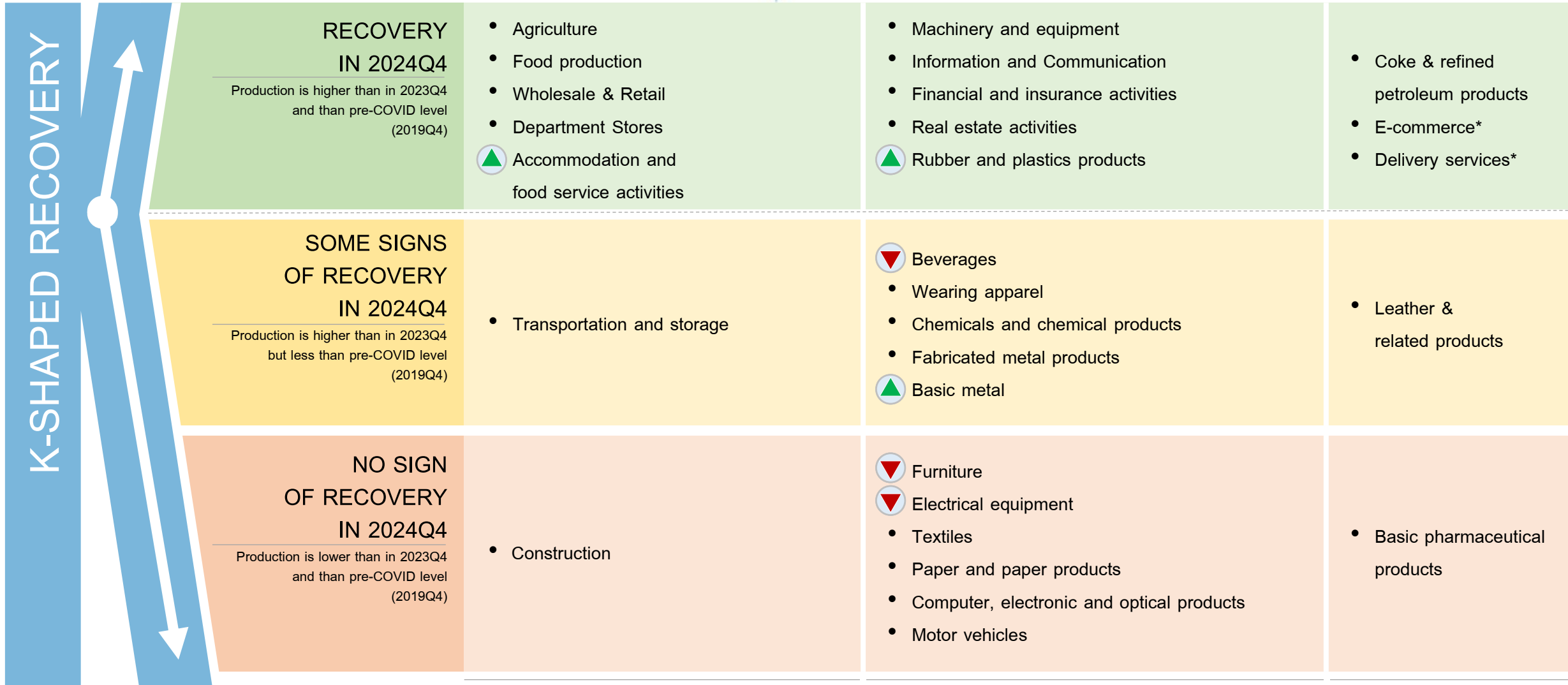
GDP growth contribution (%YoY)



GDP growth on Production side (%YoY)

	2023					2024				
	Year	Q1	Q2	Q3	Q4	Year	Q1	Q2	Q3	Q4
Agriculture	2.0	6.4	1.7	1.2	-0.7	-1.0	-2.8	-1.9	1.2	1.2
Industrial	-1.9	-2.8	-1.7	-2.1	-0.9	0.9	-0.9	2.1	-2.1	1.0
Manufacturing	-2.7	-2.7	-3.0	-3.4	-1.8	-0.5	-2.8	0.4	-3.4	0.2
Service	4.2	5.3	3.9	3.7	3.8	3.9	3.6	3.0	3.7	4.7
Construction	-0.6	3.9	0.2	0.6	-8.7	1.3	-17.6	-5.6	0.6	18.3
Wholesale & Retail trade	3.9	3.6	3.8	3.6	4.7	3.8	4.3	3.1	3.6	3.9
Transportation & storage	8.8	12.8	7.7	7.4	7.2	9.0	9.4	8.1	7.4	9.0
Accommodation & Food	19.3	36.2	16.5	16.1	11.0	9.5	11.7	7.7	16.1	10.2
Information & Communication	3.6	3.8	3.9	3.4	3.1	5.5	7.0	5.8	3.4	5.7
Financial & Insurance	1.4	0.1	0.9	1.3	3.5	2.0	2.7	1.8	1.3	1.5

Source: Office of the National Economic and Social Development Council



Source: TDRI EIS from various sources

Note: 1) Employment is as of 2019Q3; 2) * = No employment data, and 3) Considered from agricultural production index, manufacturing production index, private investment index, service production index and wholesale & retail sales index

IMPACT ON EMPLOYMENT

▲ = better than 2024Q3
▼ = worse than 2024Q3