COMP4431 Artificial Intelligence

AI and Society

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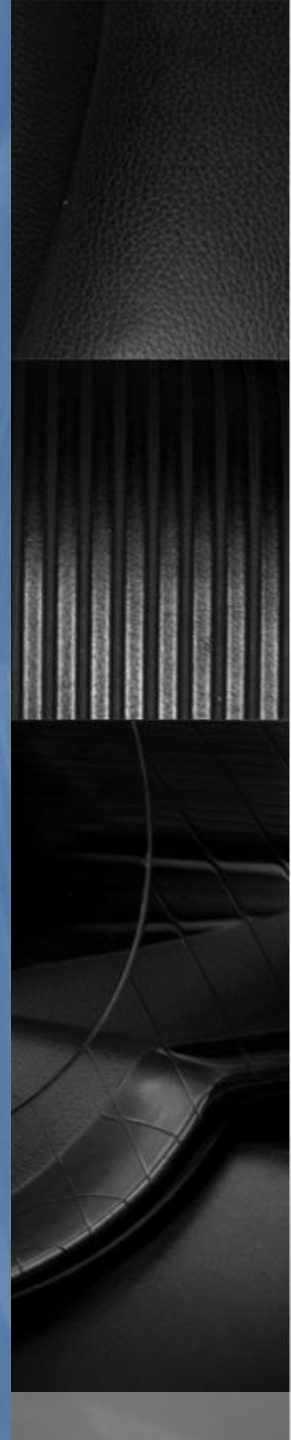
Based on The ethics of artificial intelligence: Issues and initiatives

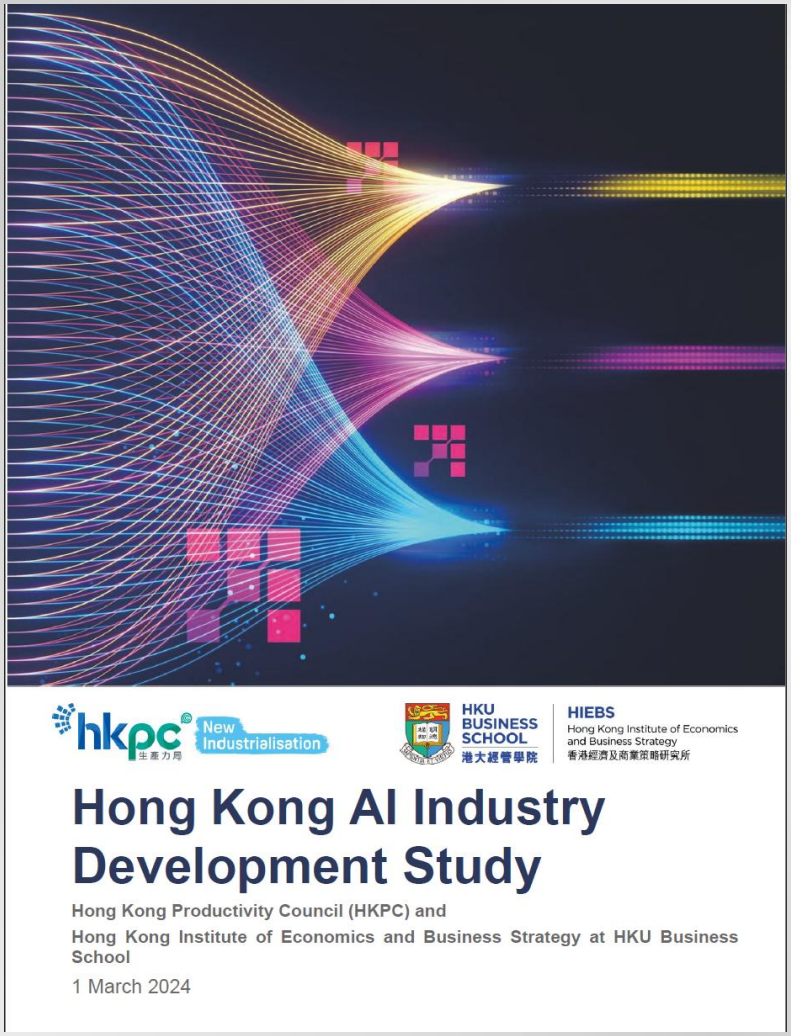


Overview

- AI Trends and Society
- AI and Cars - a Historical Analogy
- AI : A Game Changer for Business
- AI Policy and Situations over the World
- Ethical Issues of AI

AI and Our Society

- How AI had been evolved in recent years
- How Hong Kong and other major cities around the world react to this AI wave!
- Hong Kong AI Industry Development Study
  - Hong Kong Productivity Council (HKPC) and
  - Hong Kong Institute of Economics and Business Strategy at HKU Business School
  - Published 1 March 2024

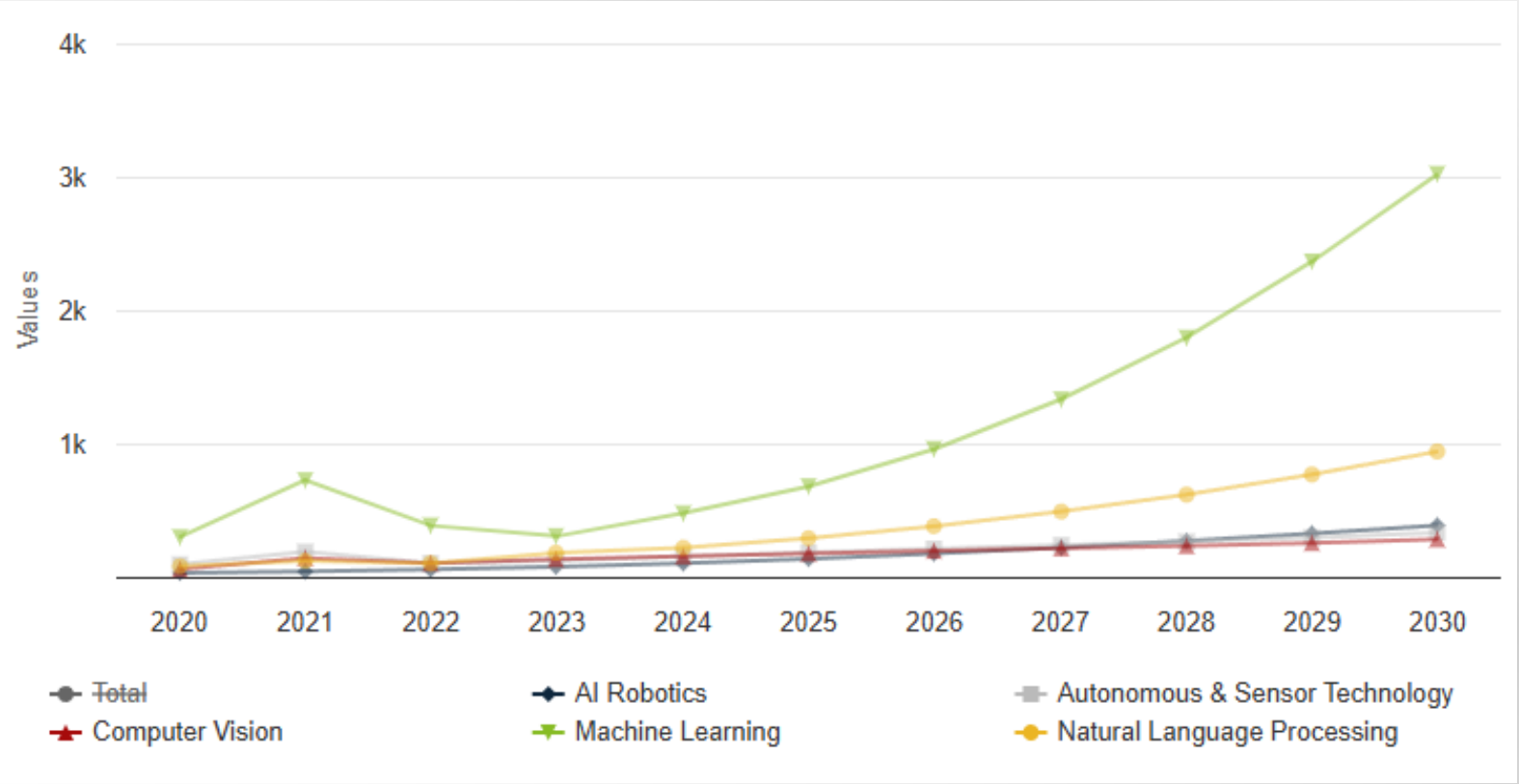


AI Trends in the World

- The AI industry has grown rapidly over the past decade, with global corporate AI investments totaling USD 189.6 billion in 2022, a **13-fold** increase from USD 14.57 billion in 2023 (Stanford University Institute for Human-Centered AI, 2023).
- A survey by McKinsey (2022) found that the number of surveyed organisations adopting AI **more than doubled** from 20% in 2017 to 50% in 2022. Since the launch of ChatGPT at the end of 2022, generative AI has entered a phase of rapid development.

AI Trends in the World

- The market size in the Artificial Intelligence market is projected to reach US$243.72bn in 2025, US$826.73bn by 2030



https://www.statista.com/outlook/tmo/artificial-intelligence/worldwide

AI : An Emerging Industry

- AI research was once equally divided between academia and industry, **but today, industry is taking control of the AI field**.
  - Ahmed & Thompson & Wahed (2023)
- OpenAI is one of the most well-funded startups in history, securing over $12 billion in investments as of 2023 (Statista, 2023)

AI : An Emerging Industry

- 57,933 AI companies currently operate around the world.
- AI Startup Statistics 2025

	Number of Startups	Investment	Biggest Investors
United States	4643	**$249 billion**	Google, Facebook, and Microsoft
China	1337	**$95 billion**	Alibaba, Baidu, and Tencent
United Kingdom	341	**$21 billion**	Google, AWS, HPE, and Beyond Limits
Canada	630	**$8.64 billion**	The Canadian Institutes of Health Research
Israel	402	**$11 billion**	Intel, Nvidia, Microsoft, Google, GM, IBM

https://springsapps.com/knowledge/how-many-ai-companies-will-there-be-in-2024-latest-ai-statistics

AI : An Emerging Industry

- Giants, like Meta and nVidia, move their focus from other areas to AI these recent years
- Meta plans to invest between $60 billion and $65 billion in 2025 to enhance its artificial intelligence (AI) and other infrastructure.
  - "This will be a defining year for AI. In 2025, I expect Meta AI will be the leading assistant serving more than 1 billion people, Llama 4 will become the leading state of the art model, and we'll build an AI engineer that will start contributing increasing amounts of code to our R&D efforts," Zuckerberg wrote.

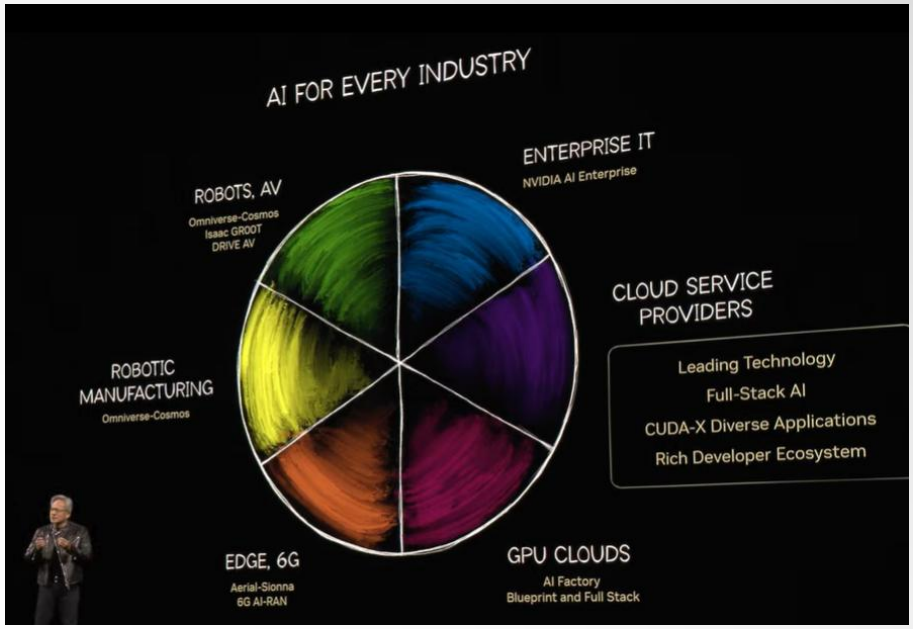
https://www.tomshardware.com/tech-industry/artificial-intelligence/meta-to-build-2gw-data-center-with-over-1-3-million-nvidia-ai-gpus-invest-usd65b-in-ai-in-2025

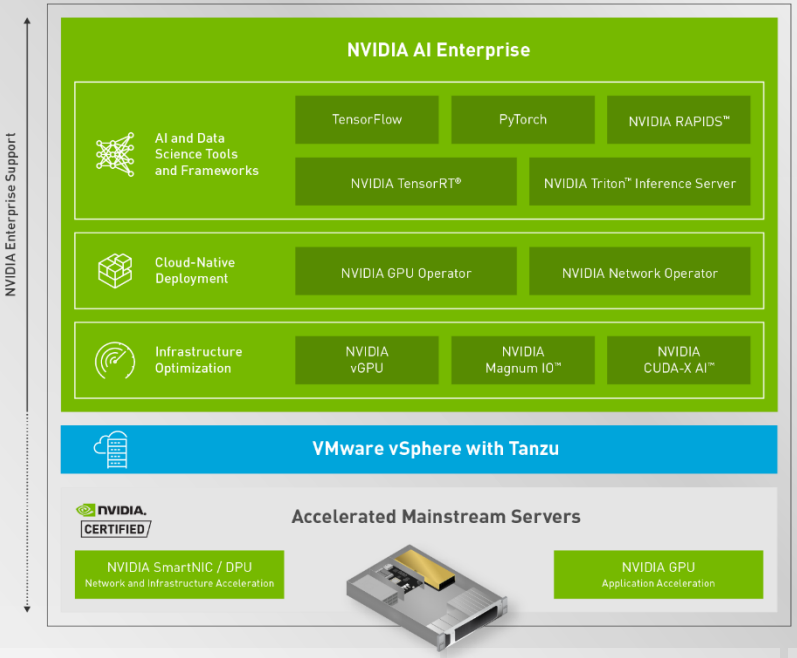
AI : An Emerging Industry

- Nvidia's GPUs initially focused on the video gaming market, but when it became clear that their ability to process multiple tasks at once could serve many other areas, growth took off.
- AI boom became a key catalyst, helping Nvidia's annual revenue climb from $26 billion in the 2022 fiscal year to $130 billion in the recently completed 2025 fiscal year.

AI : An Emerging Industry

- Nvidia hasn't stuck with only GPUs, instead building out an entire platform of AI products and services, from enterprise software to networking tools and more.



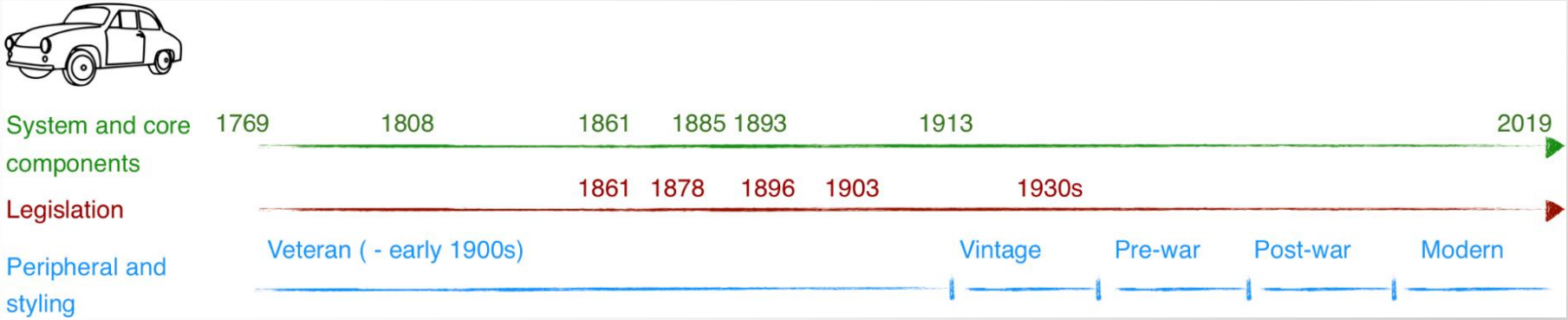


AI and Cars - a Historical Analogy

https://cmlab.dev/post/ai_cars/

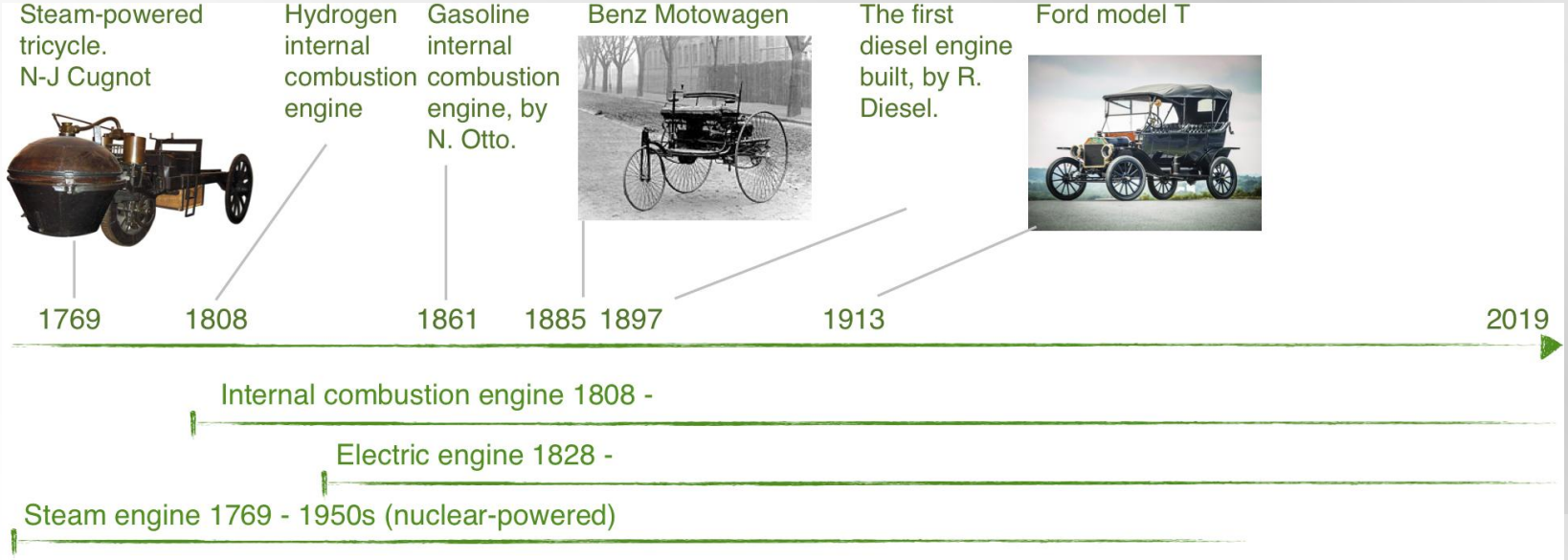
AI and Cars - a Historical Analogy

- The development of cars since the 18th century as three concurrently evolving timelines
  - the core technology,
  - the legislation (and the needs driving it), and
  - peripheral components



The History of Automobile

- An automobile is a complex driving machine with tens of thousands of moving parts.
- Start with the first steam-powered tricycle down the streets of Paris in 1769.
- First mass produced and widely adopted car model: The Ford Model T entered market in 1913.



The History of Automobile

- One notable aspect of engine development is that many different technologies co-existed and co-evolved for a long period of time.
- For example, new steam engines were designed in 1950s that are powered by small nuclear reactors.
- On the other hand, electric engines started in 1928, but it wasn’t until the 2000s that they became widely available to the average driver.

The Analogy

- Algorithms are the engines that power Machine Intelligence.
- Data are the Oil
- The different types of algorithms (such as neural networks or decisions trees) to the different technologies that power a car.
- For example, electric cars went from experimental to mass-market in the last decade, and solar car product was only recently shown to public.

The Analogy

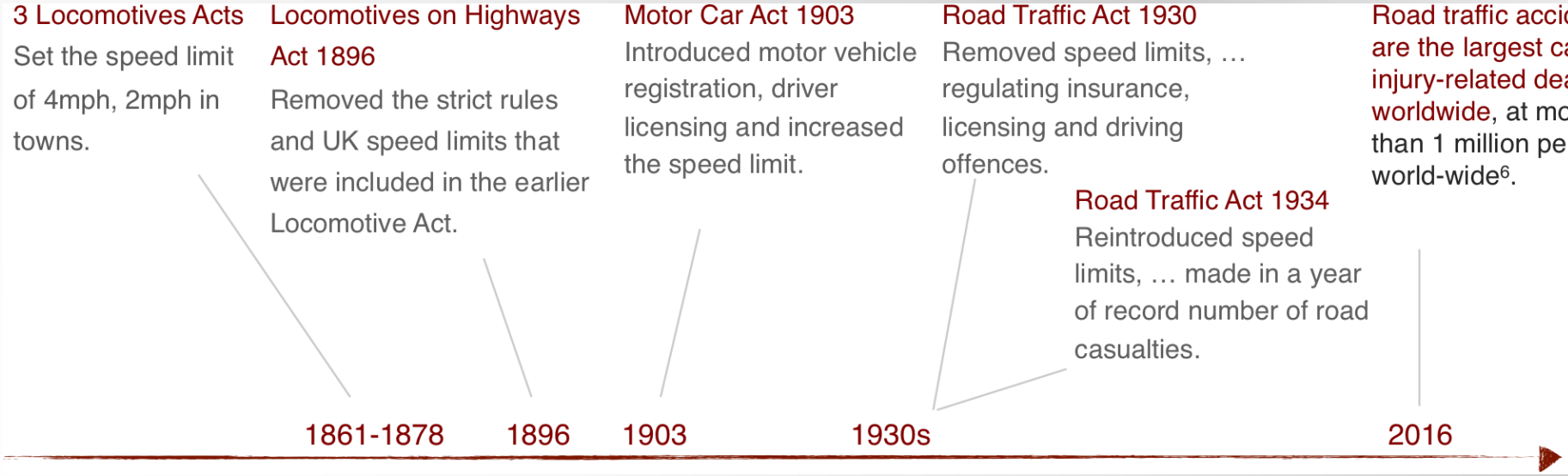
- The coexistence of multiple core technologies also holds for Machine Intelligence algorithms
- Not every machine learning problem needs a deep neural network
- generalised linear models, boosting and ensemble classifiers, kernel machines, and others will continue to play their roles in a variety of scenarios.

Legislation

- Every complex machine can fail, sometimes due to faulty parts, sometimes due to humans who are in or around the car.
- The first fatal accident happened in 1869 when a passenger was thrown out a experimental steam car.
- The year 1896 saw the first pedestrian fatality in London when the car was traveling at 4 miles per hour.

Legislation

- One notable aspect of the legislations is the speed limit.
- The Locomotives on Highways Act 1861 introduced the first speed limit of 10 mph on open roads, or 5mph in inhabited areas.



Legislation

- We saw that the automotive industry is heavily regulated.
- Regulations cover how different components are designed, what safety features are included (e.g. ISO26262) , and the overall performance of any given vehicle, such as noise and emission levels.

Legislation

- What might this mean for Machine Intelligence?
- The regulation of Machine Intelligence systems is in its very early stages.
- One main part of existing regulation is around data protection and access restrictions.
- MI companies should be transparent on what data is collected and how its used.

Legislation

- Who should be liable for mishaps resulting from the Machine Intelligence system
  - the practitioner, the company employing them, or the producer of the original algorithm?

- E.g. Autonomous Vehicles
  - Problem of liability when accident happens
  - the owner, operator, passenger, manufacturer or coder?

Peripheral components and eras of evolution

- It is estimated that over 100,000 patents created the modern automobile and motorcycle.
- a timeline of the five eras of invention, and a non-exhaustive list of common components.

Transmission	Steering wheel	Fully enclosed body	Seats, windows
Suspension	Sensors	Integrated fender	Air conditioning
Ignition system	Powertrain control	Trunk/boot	Remote control doors
Brakes	Engine control	Headlights	Audio systems
Hybrids	Speed control	Brake-light	Power sources
...	Power steering	Turn signal	Cup holders
	Battery management	…	...
	Human-machine interface		

Peripheral components and eras of evolution

- There are bunch of models, solutions to different problem in the domain of machine learning
- The use of API and a dashboard is now commonplace in deployed machine learning systems
- Small, medium and large companies all worked on AI or as AI providers, similar to different tiers in automotive supply chain

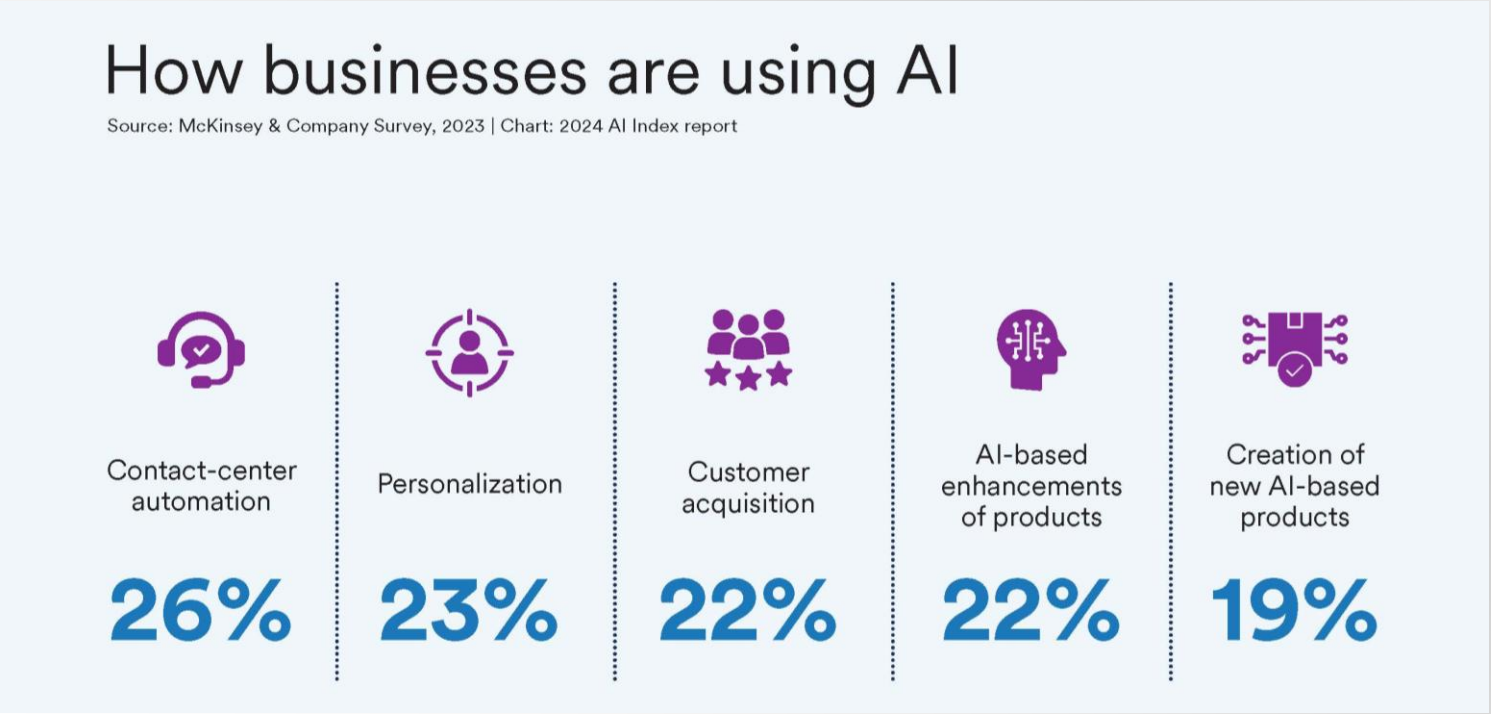
Analogy : the conclusion

- When one thinks of a car these days, the first reaction usually isn't that it is complex or dangerous.
- The recent development on AI and Machine Intelligence may seem scary because much of their effects and implications are unknown.
- But, automobiles brought dramatic changes in how we travel, how we live, how our cities and rural landscape look like in the past.
- So do AI will, in the coming decades!

AI : A Game Changer for Business

AI : A Game Changer for Business

- More companies are implementing AI in some part of their business: In surveys, 55% of organizations said they were using AI in 2023, up from 50% in 2022 and 20% in 2017. Businesses report using AI to automate contact centers, personalize content, and acquire new customers.



AI : A Game Changer for Business

- In finance, for example, JPMorgan Chase built a specialised team of more than 900 data scientists, 600 machine learning engineers, 200 top AI researchers, and about 1,000 data managers.
- The team aims to realise USD 1.5 billion in business value by the end of 2023 through 300 AI use cases in risk management, marketing, customer experience, fraud prevention, and more.

AI : A Game Changer for Business (cont')

- In healthcare, AI is revolutionizing the process of disease diagnosis, drug development, pharmaceutical manufacturing, and personalised treatment.
- For example, Novartis, an international healthcare company, has become one of the pioneers in utilizing AI to drive healthcare innovation. In the area of research, Novartis has partnered with Microsoft to develop an AI-powered diagnostic tool that helps detect leprosy early

AI : A Game Changer for Business (cont')

- AI can be used to anticipate the power demand of a building during its use and to detect malfunctioning appliances, thereby reducing unnecessary energy consumption.
- AI can also improve transportation efficiency by optimizing route planning and designing energy-efficient batteries and vehicles.

AI : A Game Changer for Business (cont')

- AI is playing an increasingly important role in the development of smart cities around the world.
- Smart devices that collect and transmit data in real-time, such as sensors and surveillance cameras, are more commonly deployed in every corner of cities than ever before.
- By leveraging machine learning, algorithms, and predictive analytics, the government can analyse large amounts of data to optimise city services and improve governance effectiveness.

A case study of AI application in manufacturing industry

- Athena 3D Manufacturing is an additive manufacturing service provider founded in 2019.
- Prior to the successful automation of the factory using AI, Athena's printers were always idle after completing work at night until the operator replaced the print bed the next morning before it could resume operation.

A case study of AI application in manufacturing industry

- Today, Athena uses a one-stop system featuring the FANUC CRX-10iA cobot to enable the printers to operate according to programming specifications.
- When the printer job is complete (usually at 3 a.m.), the cobot automatically removes the print bed, places it on a shelf, and puts the clean print bed on the printer.
- The printer then starts the next job through the application programming interface.
- This automation allows Athena’s employees to leave the factory at 5 p.m. while keeping the factory in production 24/7.22

AI Policy and Challenges over the World

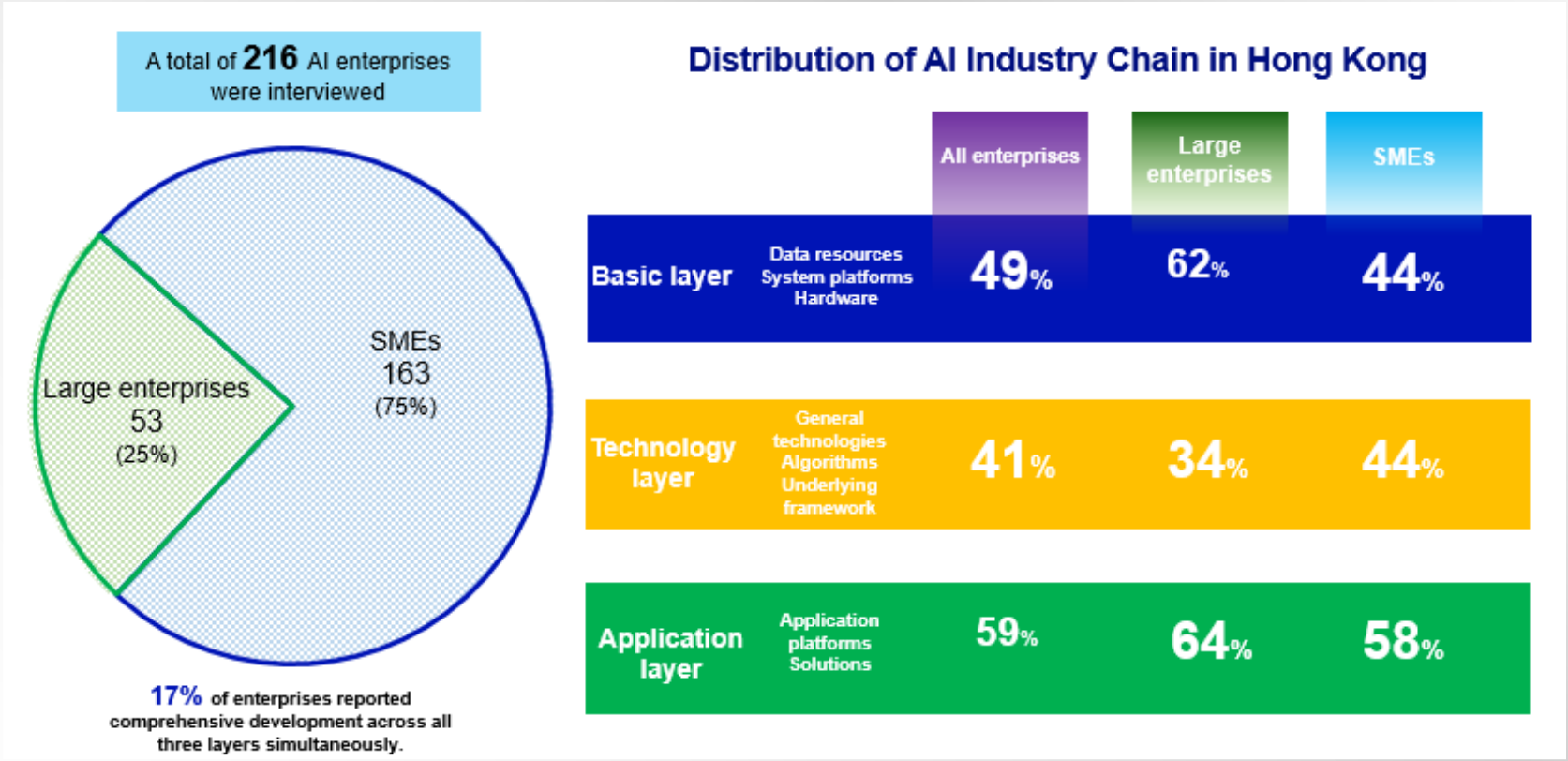
Challenges to Hong Kong

- In the Global AI Index prepared by Tortoise in 2023, Hong Kong merely ranked **32nd out of 62** countries or regions.
- In terms of the best locations for AI offices, Hong Kong's competitiveness scored 52.14/100, lagging behind Shanghai, Tokyo, Singapore, and other Asian cities (fDi Intelligence,2022a).
- In higher education, The Chinese University of Hong Kong, City University of Hong Kong, and Hong Kong Polytechnic University were among the top 30 Best Global Universities for Artificial Intelligence (U.S. News, 2023)28, ranking 3rd, 25th and 28th, respectively

Aspects of Challenges

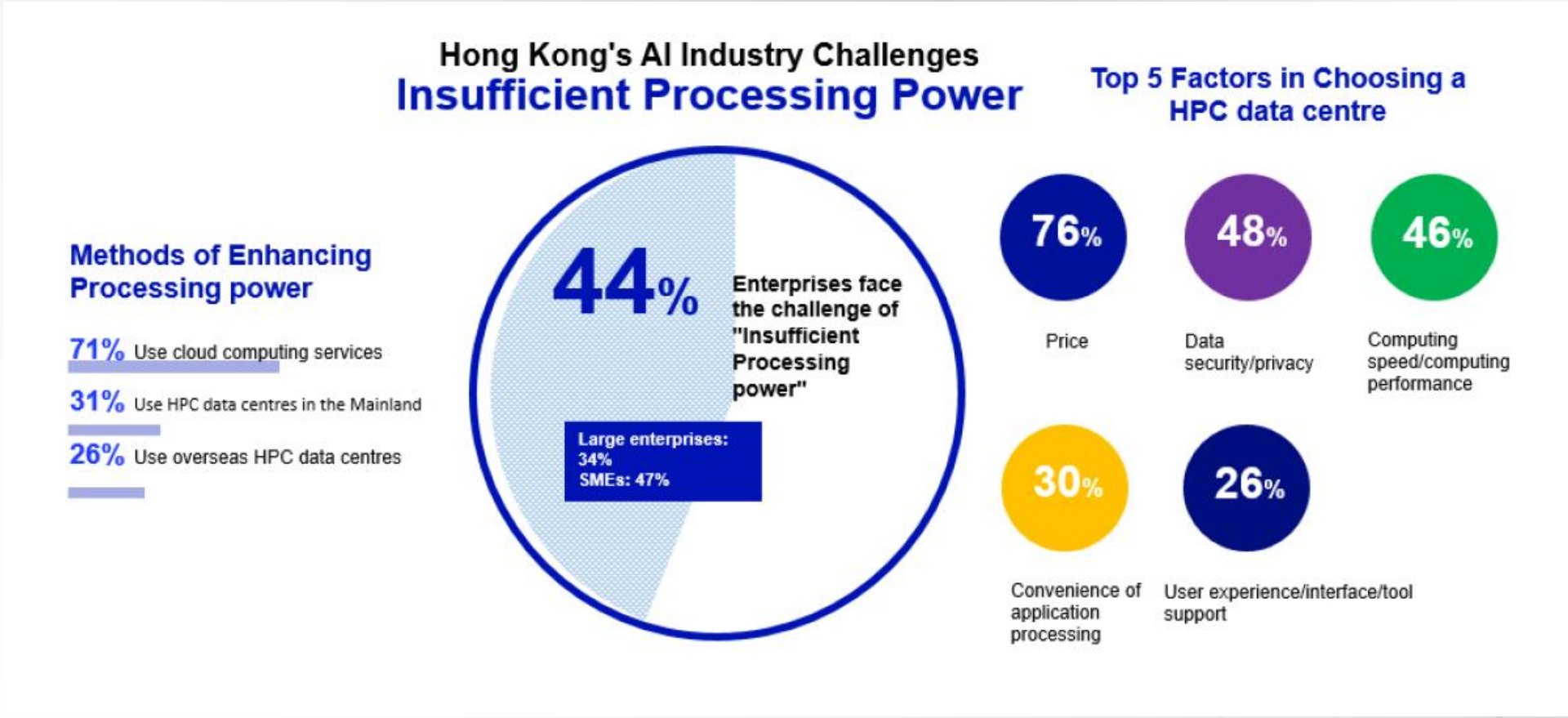
- Infrastructure
  - Computing power
  - Data
- Enterprise / Companies
- Talents
- Policy and Legislation

Challenges to Hong Kong

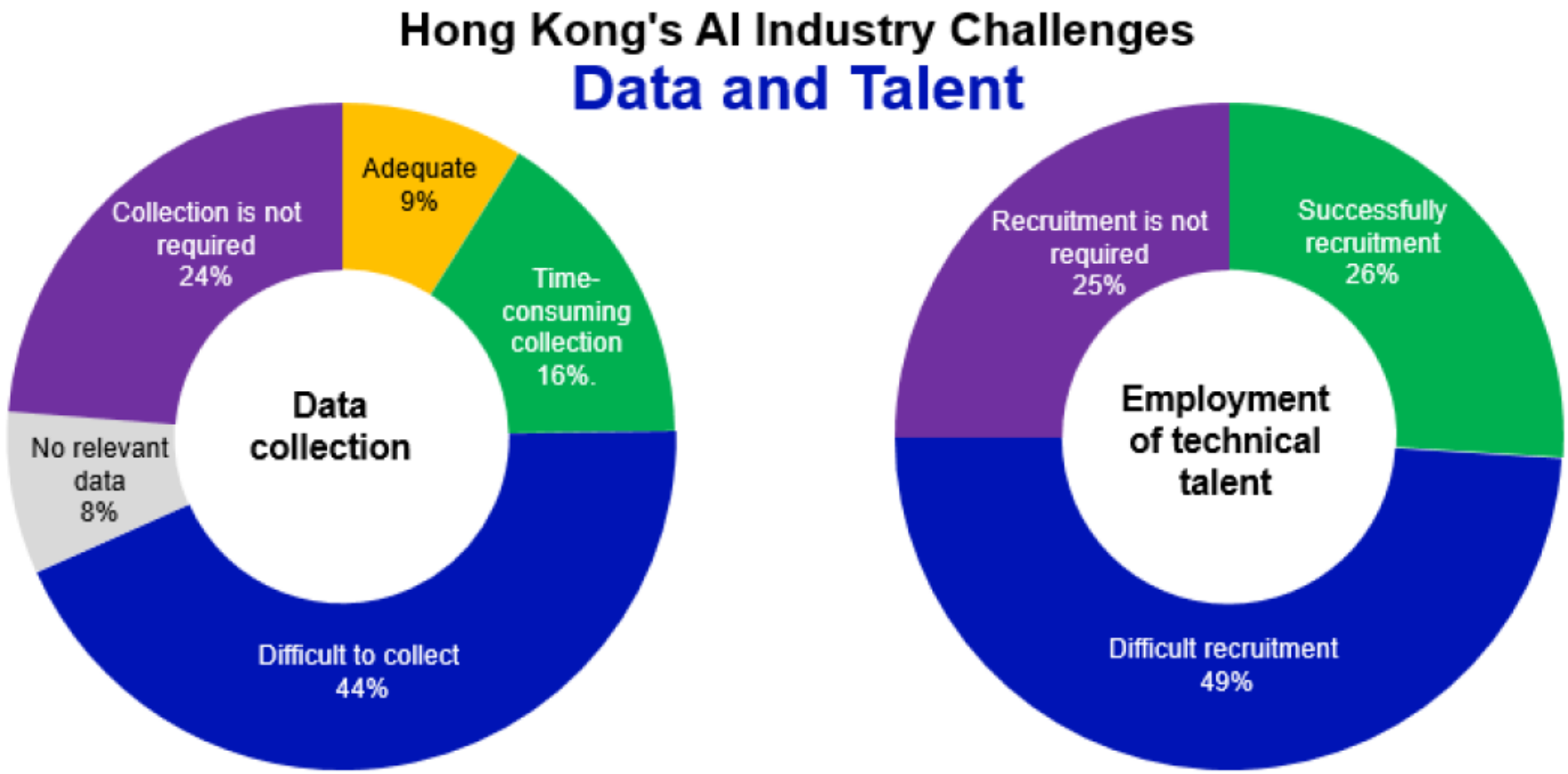


Challenges to Hong Kong

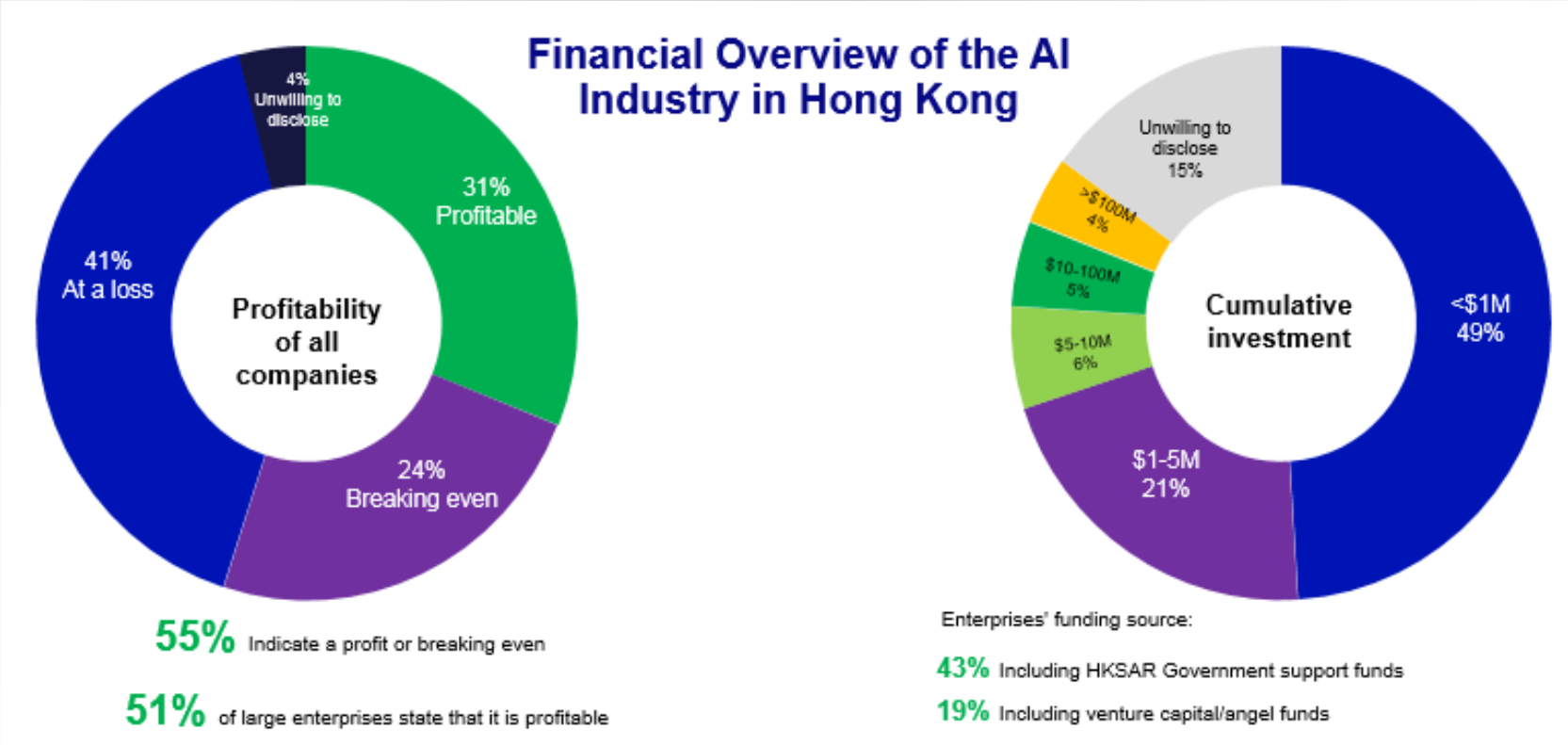
- The lack of computing power for AI may be the biggest challenge facing Hong Kong



Challenges to Hong Kong



Challenges to Hong Kong



Challenges to Hong Kong

Demand for Technical Talent in the AI Industry in Hong Kong

Reasons for increase

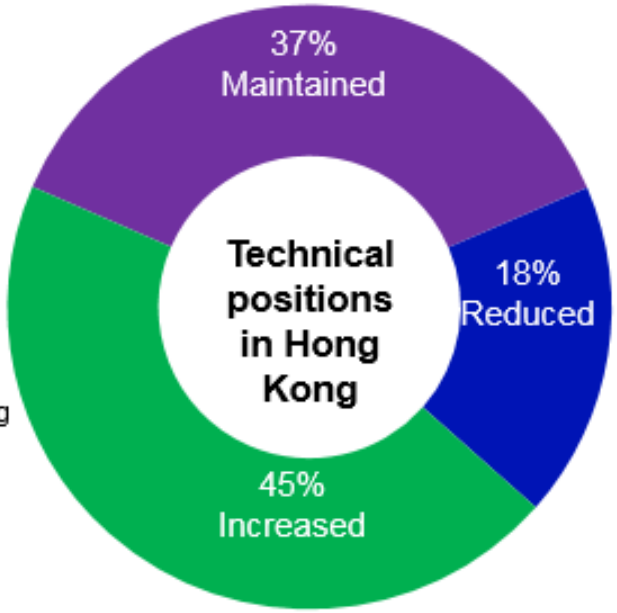
45% Support from the HKSAR Government's industry policies, including relevant funding initiatives

39% Business growth in Hong Kong

34% Hong Kong's reputation for top-tier universities and leading-edge basic research and development

23% Favourable tax environment in Hong Kong

22% Easy to attract mainland/overseas talent to Hong Kong



Reasons for reduction

77% High operating cost in Hong Kong

41% Hong Kong lacks relevant technical talent

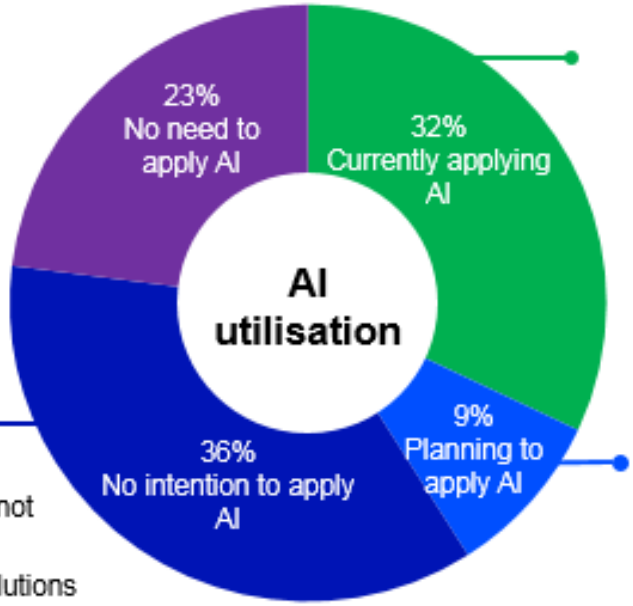
36% The smaller size of the local market, lacking in AI application scenarios

18% A scarcity of data resources in Hong Kong

13% The absence of essential infrastructure for the AI industry, such as HPC data centres

Challenges to Hong Kong

Application of AI by enterprises in Hong Kong



60% High costs

39% Expected benefits not worth the investment

32% Lack of suitable solutions

19% Failure to keep up with technologies

Scope of use

58% Marketing

44% Operations

34% Internal management

16% Research and development

Cumulative investment

46% Less than HK$100,000

19% HK$100,000-300,000

13% HK$300,000-1 million

12% HK$1 million or more

11% Unwilling to disclose

HK$830,000 Average cumulative investment

Estimated scope of use

56% aMrketing

44% Internal management

28% Operations

16% Research and development

Estimated investment

48% Less than HK$100,000

20% HK$100,000-300,000

8% HK$300,000-1 million

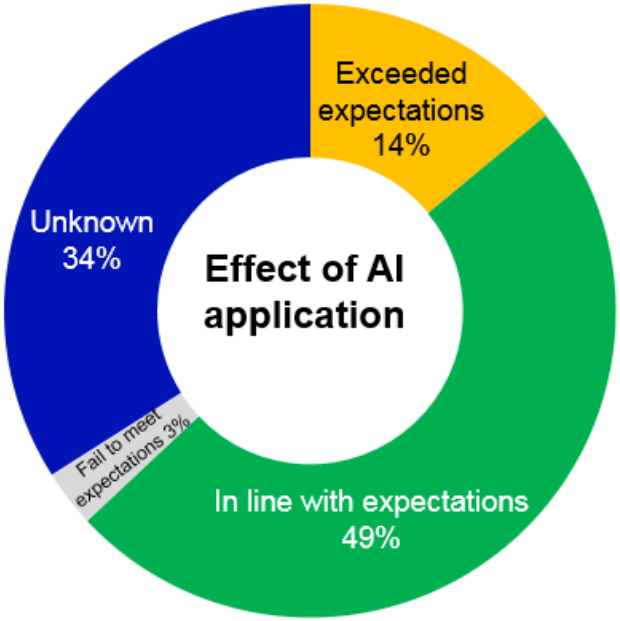
0% HK$1 million or more

24% Unknown/unwilling to disclose

HK$140,000 Average estimated investment

Challenges to Hong Kong

Effectiveness of Hong Kong enterprises' use of AI



Enterprises that have applied AI

Benefits of applying AI

- **60%** Reduce human errors
- **56%** Help to optimise decision-making
- **51%** Improve productivity

Challenges in AI application

- **47%** Lack of talent
- **34%** Lack of funds
- **31%** Fail to explain AI decision-making

Enterprises that will apply AI

Anticipated benefits of applying AI

- **68%** Reduce human errors
- **64%** Discover more customer sources
- **60%** Cost savings

Anticipated challenges of applying AI

- **52%** Lack of talent
- **52%** Lack of funds
- **32%** Choose suitable programs

A case study

- Application of AI can optimize work processes and enhance occupational safety. Let's take the construction industry as an example.
- 23 out of 25 (over 90%) fatal industrial accidents in 2021 were related to construction, and many of them involved outdoor and aerial work.
- In the construction industry, leveraging innovative technology can improve work environments and ensure worker safety.
- For instance, recognising that workers lack sufficient safety guidance and training, making it easy to overlook the importance of safety equipment, the HKPC and the construction industry have jointly developed a real-time safety monitoring system equipped with the deep network algorithms and IP cameras.

A case study

- When a construction worker mistakenly enters a dangerous area or fails to put on reflective clothing or safety helmet, the system will instantly record and issue a warning to enhance the alertness of the worker, which facilitates the management to take the relevant follow-up measures or actions, thereby enhancing management efficiency.

A comparison with some other cities

- The study also compare Hong Kong with other cities/countries in the world:
  - Singapore
  - Shenzhen and Shanghai
  - New York
  - Switzerland

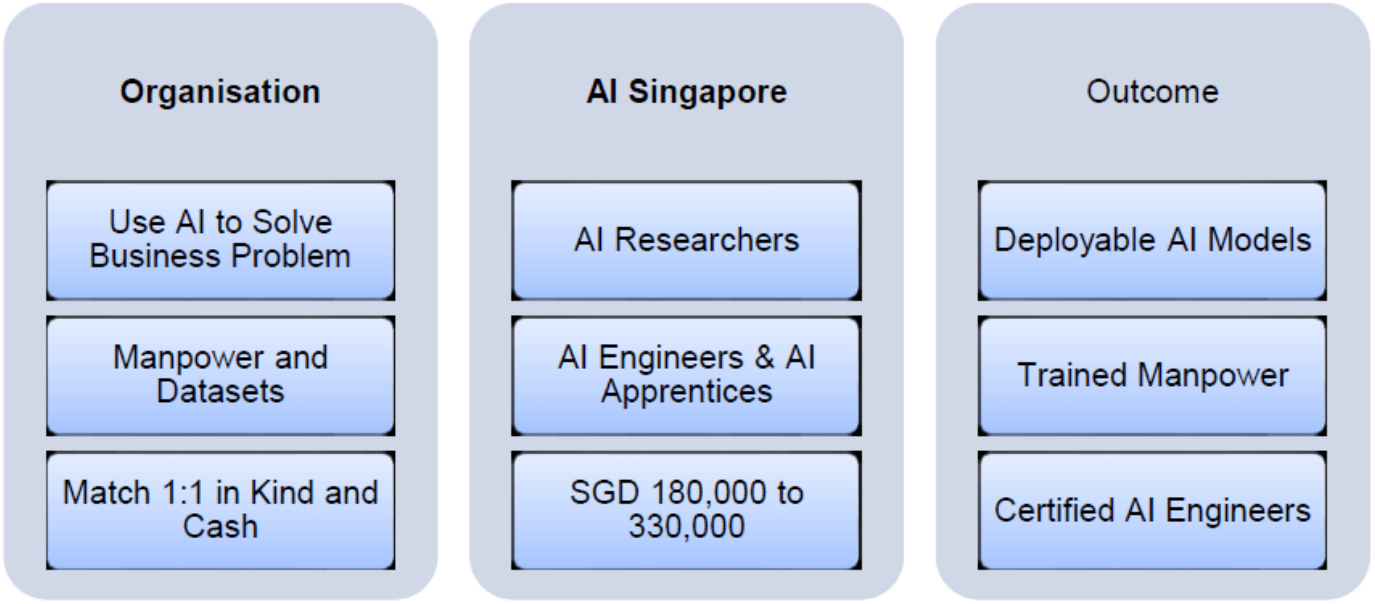
Situations in Singapore

- Global AI Index prepared by Tortoise in 2023, Singapore ranked in the **top three** out of 62 regions, following the United States and China.
- The industry in Singapore is proactive in applying AI, as well. According to the Global AI Adoption Index 2022 released by IBM, 39% of companies in Singapore have deployed AI and 46% are exploring AI, higher than the global average of 34% and 42%, respectively

AI Singapore

- 100 Experiments is AI Singapore's flagship programme dedicated to helping the industry solve business problems without an off-the-shelf AI solution.
- AI Singapore provides support for each approved project, including assigning engineers and AI apprentices to work

Figure 3-3 100 Experiments Programme Structure



Chartered AI Engineer and AI Platforms

- AI Singapore pioneered the AI Certified Engineer programme in 2019.
- The programme was subsequently taken over by the newly formed AI Professionals Association in 2020 and renamed the Chartered AI Engineer (CAIE) programme
- AI Singapore is equipped with a cloud cluster with a high-performance workload and a well-developed support team
  - The cloud cluster, powered by Google Cloud Platform and Microsoft Azure, has over 7,000 x86 CPUs, 32 NVIDIA V100 GPUs, 0.5 PB of storage, and 100 G of Infiniband networks. Four support teams, including InfraOps, DataOps, MLOps, and SecureAI, build, operate, and optimise the internal software platforms to enable users to create AI solutions.

Situations in Shenzhen

- According to a study by the Shenzhen Artificial Intelligence Industry Association, the scale of the AI industry in Shenzhen reached RMB248.8 billion in 2022 and there are 1,920 AI enterprises in Shenzhen.
- The Central Government has approved the establishment of the Peng Cheng Laboratory in Shenzhen

  - AI computing power platform “Pengcheng Cloud Brain II”, which can provide no less than 1,000 Pops of AI computing power and 64PB of high-speed parallel extensible storage

Situations in Shenzhen

- Shenzhen released the first batch of “City + AI” application scenario lists.
- It proposed to form an AI fund cluster with a scale of RMB100 billion, thus constructing an AI policy system of “one regulation, one programme, one list, and one fund cluster”.
- The Action Plan focuses on six areas, namely, intelligent computing power, key core technology and product innovation, industry clustering, scenario application, data and talent elements, and safeguard measures, and proposes 18 initiatives to be implemented by all relevant authorities within the government to promote the development of the AI industry.

Situations in New York

- In terms of the AI industry, New York's development is largely driven by the private market, and the city government is primarily engaged in boosting the AI industry in a healthy direction.
- Google, Microsoft, IBM and other tech giants have all set up AI R&D centres in New York.
- AI Startup like Runway, utilises software developed by general AI technologies to generate short videos from everything from text to images

Situations in New York

- the role of the government of New York City is more about driving the AI industry in a healthy direction consistent with society's well-being.
- In October 2021, the New York City Artificial Intelligence Strategy was officially released, which suggests that New York City should focus on five areas, including
  - data infrastructure,
  - applications within the city,
  - city governance,
  - partnerships, and
  - business, education, and the workforce

Situations in Switzerland

- Switzerland spends over 3% of its GDP on R&D, with higher education institutions accounting for 28% and the private sector for 68%.
- The Swiss Federal Council made AI a vital theme of the Digital Switzerland Strategy in 2018 and set up an interdepartmental working group to focus on AI-related matters.
- They have invested heavily in AI, excelling in basic research and nurturing many start-ups and top talent, creating favourable conditions for the local development of the AI industry.

Situations in Switzerland

- It not only has a considerable number of local giants and AI start-ups but also has attracted numerous technology giants abroad to develop AI businesses in Switzerland.
- These enterprises have brought huge private R&D expenditures to Switzerland and actively participated in industry-academia-research cooperations, promoting the transformation and industrialisation of AI-related basic research outcomes.

	Computing Infrastructure	Data Infrastructure	AI Talent	AI Enterprise	Policy Planning	Industrial Application	Industry-academia Collaboration	Unique Advantages
Hong Kong	✓	✓ ✓	✓ ✓	✓ ✓	✓	✓	✓ ✓	Potential to pool data from the East and the West; broad prospects for regional cooperation
Singapore	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	Efficient utilisation of limited resources and high industry intensity
New York	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓	✓ ✓ ✓	✓ ✓ ✓	World financial and R&D centres
Switzerland	✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓	✓ ✓	✓ ✓ ✓	World-class innovation environment
Shanghai	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	Integration of the best resources in China
Shenzhen	✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	A large number of AI enterprises focusing on industrial applications; broad prospects for regional cooperation

AI AROUND THE WORLD

EUROPE

DENMARK
National Strategy for Artificial Intelligence
2019 MAR — >100 million €

Aims to set an ethical and human-centred basis for AI, strengthen research, encourage business to use AI, and use AI to improve public services. A 'responsible foundation' for AI is a priority focus area, including establishing ethical principles and a Data Ethics Council.

FINLAND
Artificial Intelligence Programme
2017 MAY — 100 million €

Aims to enhance business competitiveness, use data effectively in all sectors, build better public services, and establish new models for collaboration. The interim report '*Work in the Age of Artificial Intelligence*' offers additional recommendations related to ethics.

GERMANY
National AI strategy of the Federal Government
2018 NOV — 3 billion €

Aims to develop excellence centres for AI research, fund professorships and start-ups, start a '*Digital Work and Society Future*' fund to integrate AI in society, and establish a German AI observatory and working group of data protection authorities and business associations.

NORDIC-BALTIC REGION
Declaration on AI in the Nordic-Baltic Region
2018 MAY — Unknown €

Aims to improve opportunities for skill development, improve access to data, and develop (a) standards for infrastructure and (b) ethical, transparent guidelines and standards.

SWEDEN
National Approach for Artificial Intelligence
2018 MAY — Unknown €

Aims to achieve benefits for competitiveness and welfare, train more AI professionals, and expand research.

Includes a framework for the development of '*ethical, sustainable and safe*' AI applications.

FRANCE
AI For Humanity
2018 MAR — 1.5 billion €

Aims to support French talent, exploit massive centralised databases, and establish an ethical framework.

Makes commitments to algorithm transparency, ethics training for engineers, and an ethics committee to organise public debate.

UNITED KINGDOM
AI Sector Deal
2018 APR — billion €

Aims to position the UK as a leader in AI development by investing heavily in research, innovation and education: raise R&D investment to 2.4% of GDP, invest over £400 million in education, and create a £64 million re-training scheme. Ethics component: Centre for Data Ethics and Innovation established to advise the government on AI.

EUROPEAN UNION
Strategy on AI for Europe
2018 APR — 1.5 billion €

Aims: National strategies for all Member States by 2019, funding for start-ups and AI excellence centres, data sharing, and improved AI education.

Ethical component: *Ethics Guidelines for Trustworthy AI.*

UNITED ARAB EMIRATES
UAE Strategy for AI
2017 OCT — Unknown €

Aims to halve annual costs in government, and become 90% resistant to financial crisis and a world leader in AI investment. Includes an AI Ethics toolkit and ethics self-assessment tool launched by the Government of Dubai.

SOUTH KOREA
Artificial Intelligence Information Industry Development Strategy
2018 MAY — 1.75 billion €

Aims to be in the top four global AI leaders by 2022 by funding R&D, investing in education (including six AI graduate schools) and supporting business with an AI start-up incubator.

TAIWAN
Taiwan AI Action Plan
2018 JAN — 285 million €

Aims to train 10,000 AI professionals by 2021, invest in R&D through the 'AI Pilot Project', and promote business with an innovation hub for AI-based start-ups. No dedicated ethics framework, but the strategy includes analysis of related legal issues.

SINGAPORE
AI Singapore
2017 MAY — 100 million €

Aims to expand AI research, fund 100 experiments for AI-based solutions to industry-identified challenges, and initiate an AI apprenticeship scheme, under an Advisory Council on the Ethical Use of AI and Data.

SOUTH AMERICA

MEXICO
AI-MX 2018
2018 JUN — Unknown €

Aims to develop a governance framework for AI, create an AI subcommittee, map industry needs, and promote the international leadership of Mexico in AI.

Ethics component: Commitment to create a Mexican AI Ethics Council.

NORTH AMERICA

CANADA
Pan-Canadian Artificial Intelligence Strategy
2017 MAR — 80 million €

Aims to expand the AI workforce, establish three major centres of scientific excellence for AI, develop global thought leadership, and support the national research community. Ethics component: AI and Society programme to consider the implications of AI.

ASIA

CHINA
Next Generation Artificial Intelligence Development Plan
2017 JUL — 25 billion €

Aims to become the primary centre for AI innovation by 2030, with an AI industry worth €130 billion and related industries worth €1 trillion. Ethics component: High-level ethics committee established to assess the risks of large-scale AI applications.

INDIA
AI for All
2018 JUN — 30 billion €

Aims to achieve AI for societal benefit through Centres of Research Excellence (CORES) and International Centres of Transformational AI (ICTAIs). Ethics component: Ethics council established at each CORE, working under the '*Fairness, Accountability and Transparency*' framework.

JAPAN
Artificial Intelligence Technology Strategy
2017 MAR — Unknown €

Aims to achieve the widespread use of AI by 2030 as part of the 'Society 5.0' framework. Includes investments in research, training, public data and start-ups. Strategy explicitly considers intellectual property rights and protection of personal information.

Ethical Issues of AI

Major Concerns and Focus

- Job Displacement and Impact
- Bias and Fairness
- Accountability and Liability

Impact on the workforce

- One study asked 1,896 experts about the impact of emerging technologies;
- 48 % believed that robots and digital agents would displace significant numbers of both 'blue' and 'white' collar workers,
- many expressing concern that this would lead to vast increases in income inequality, large numbers of unemployable people, and breakdowns in the social order (Smith and Anderson, 2014).
- However, the other half of the experts who responded to this survey (52%) expected that technology would not displace more jobs than it created by 2025.
- Those experts believed that although many jobs currently performed by humans will be substantially taken over by robots or digital agents, they have faith that human ingenuity will create new jobs, industries, and ways to make a living.

Impact on the workforce

- although many jobs will be lost through technological improvements, new ones will be created.
- The job gains and losses will even out over the long run.

- telemarketers, title examiners, hand sewers, mathematical technicians, insurance underwriters, watch repairers, cargo agents, tax preparers, photographic process workers, new accounts clerks, library technicians, and data-entry specialists have a 99 percent chance of having their jobs computerised.

Bias and Fairness

- AI systems are being used to take decisions. However, there is the risk that such decisions are biased, either because of flaws in the data used to build the system or because they copy the biases of their developers.
  - Data Bias: Bias often originates from the data used to train AI models. If the training data is not representative of the broader population or contains historical biases, the AI system may learn and perpetuate these biases.
  - Algorithmic Bias: Even with unbiased data, the algorithms themselves can introduce bias through the way they process information or prioritize certain features over others.

https://post.parliament.uk/how-is-artificial-intelligence-affecting-society/

Bias and Fairness

- A study from 2019 found that a widely used healthcare system in the US wrongly prioritised White patients for treatment over Black patients. Rather than basing decisions on clinical need it had taken decisions based on previous health spending, which is systematically lower for Black people in the US.

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Accountability and Liability

- Responsibility for Actions: As AI systems become more autonomous, determining who is accountable for their actions becomes complex. This includes questions about liability in cases where AI systems cause harm or make erroneous decisions.
- Legal and Ethical Frameworks: Developing legal and ethical frameworks to address accountability in autonomous systems is essential. This includes clarifying the roles and responsibilities of developers, operators, and users.

Accountability and Liability

- AI Governance
  - refers to the frameworks, policies, and practices that guide the development, deployment, and oversight of artificial intelligence systems. It aims to ensure that AI technologies are used responsibly, ethically, and in alignment with societal values.
- In December 2023, ISO introduced the 42001 International Standard, which offers valuable guidance for organizations to develop trustworthy AI management systems

https://www.youtube.com/watch?v=VqFqWIqOB1g

Summary

- AI Trends and Society
- AI and Cars - a Historical Analogy
- AI : A Game Changer for Business
- AI Policy and Situations over the World
- Ethical Issues of AI