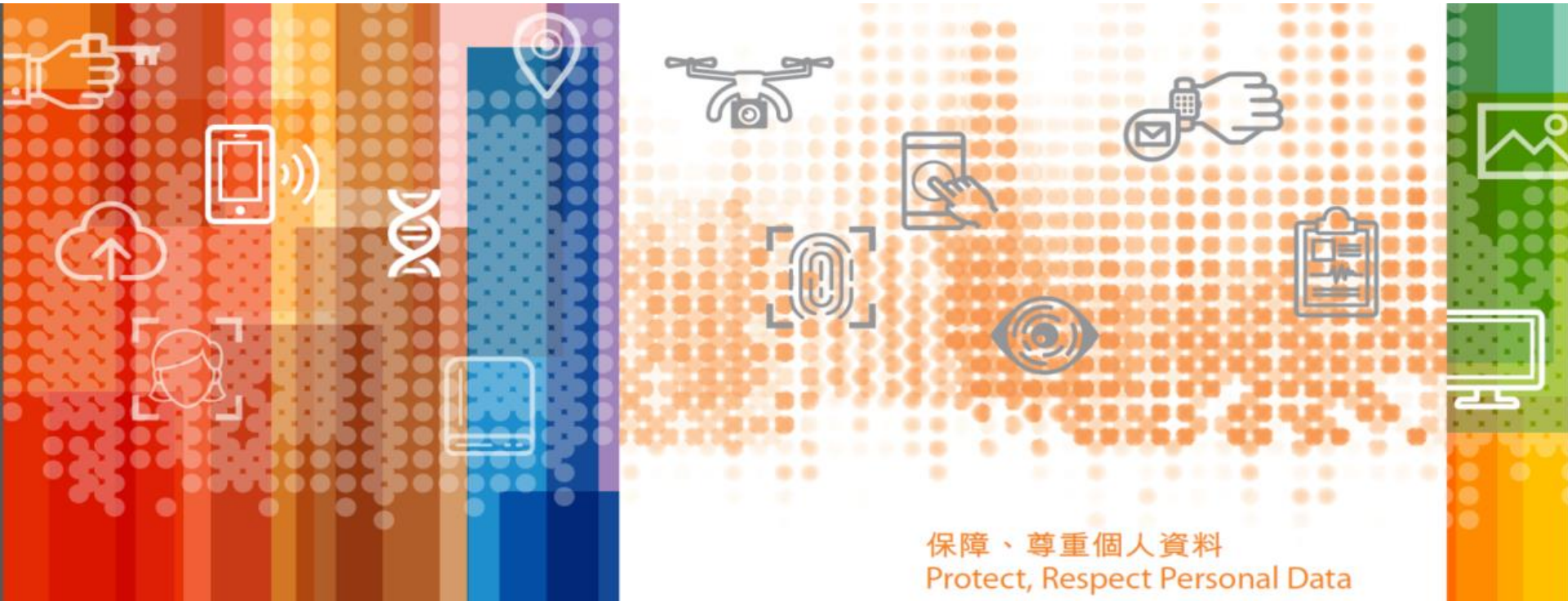


Big Data, Artificial Intelligence and Privacy



保障、尊重個人資料
Protect, Respect Personal Data

Stephen Kai-yi Wong, Barrister
Privacy Commissioner for Personal Data,
Hong Kong

Big Data and AI

Banking



Education



Retail



Transportation



Government Operations



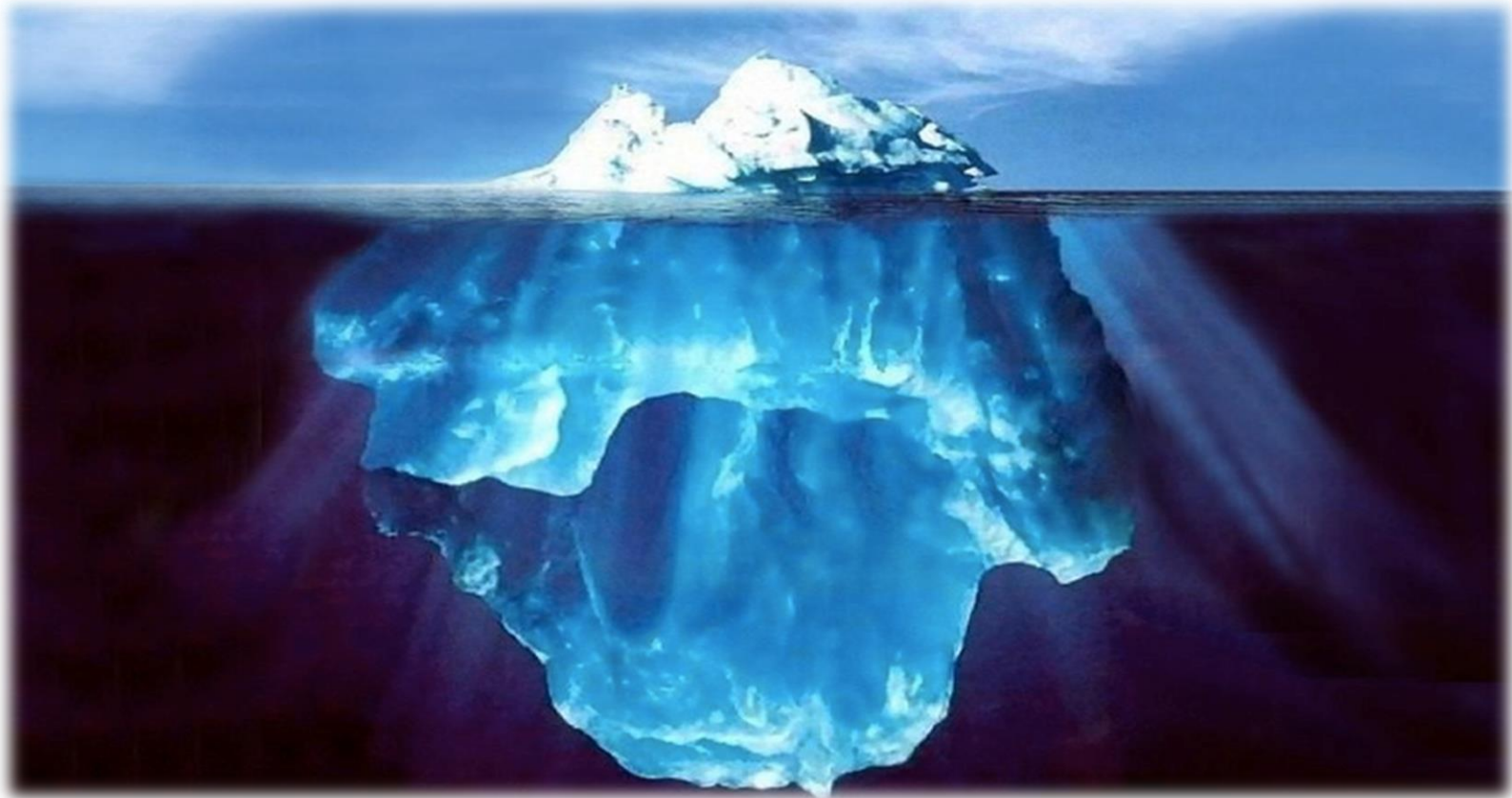
Big Data and AI

- driving forces of “Smart City”



Big Data and AI

- what are the **privacy implications?**



Big Data and AI



Big Data and AI

- **our digital footprints** (social media data, instant messages, email...) **create rich sources of Big Data to fuel AI algorithms**



Big Data & AI

- AI algorithms find correlations between data to make predictions and generate new knowledge



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Data Risks and Challenges



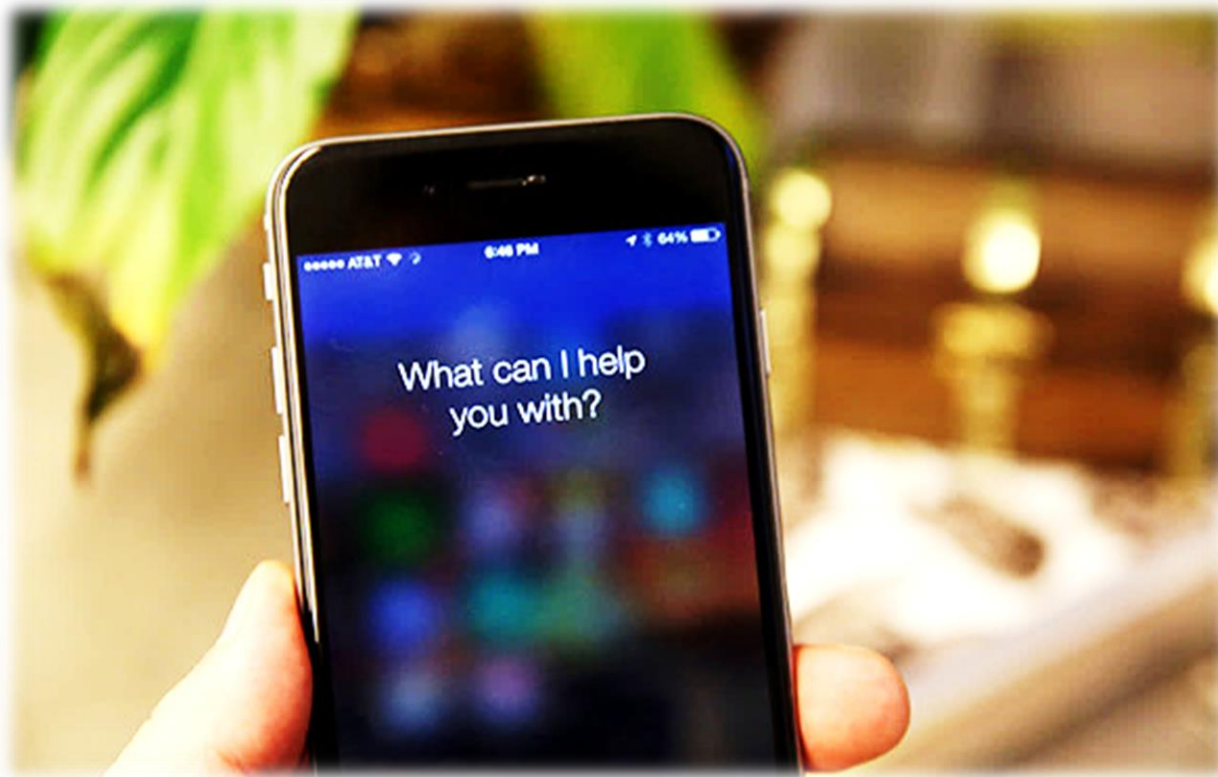
(1) Covert Data Collection



- massive and ubiquitous data collection from multiple sources
- tracking online and offline
- data subject may be unaware of data collection and use
- Meaningful notice & consent?

(1) Covert Data Collection

- your **digital virtual assistants** may be **eavesdropping....**



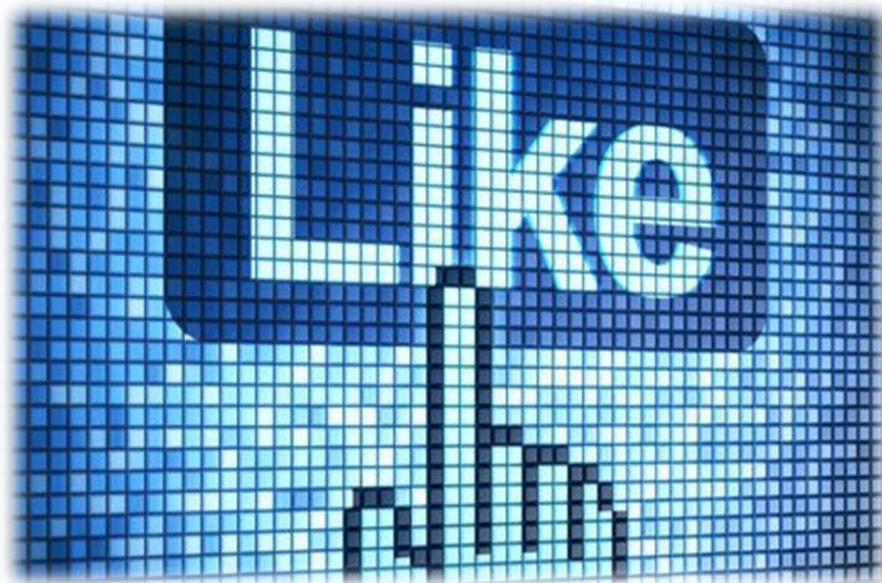
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(2) Unexpected Data Use



- companies **analyse innocuous data to predict intimate and sensitive data**
- **correlations (not causality)**
- users may be **surprised** by predictions

(2) Unexpected Data Use



- researchers use algorithms to **analyse “likes”** to **infer sensitive personal particulars** including religious and political beliefs, race and sexual orientation

(3) Re-identification



- **linkage** of datasets **destroys anonymity**
- US researchers successfully **combined anonymised** movie ratings dataset with public movie ratings dataset and **re-identified** movie subscribers, unveiled personal preference, political affiliation and sexual orientation

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(4) Profiling, Unfairness and Discrimination



- **profiling to infer or predict** individuals' preferences, health, work performance, credit worthiness, propensity to crime...

(4) Profiling, Unfairness and Discrimination



- loan institutions lowered people's **credit limits** based on poor repayment histories of other people shopping at same stores
- **fairness?**

(4) Profiling, Unfairness and Discrimination



- search engine generates more advertisements associated with arrest records when users input “black-sounding” names than “white-sounding” names
- **internalise societal biases**

(4) Profiling, Unfairness and Discrimination



- transport app **profiles** its customers and **denies** them of services if they appear to be law enforcement agents

(5) Unpredictability



- self-evolving logic
- not following logic of engineers
- DeepMind's AI agent learns to play 49 classic video games with minimal human input

(6) Transparency



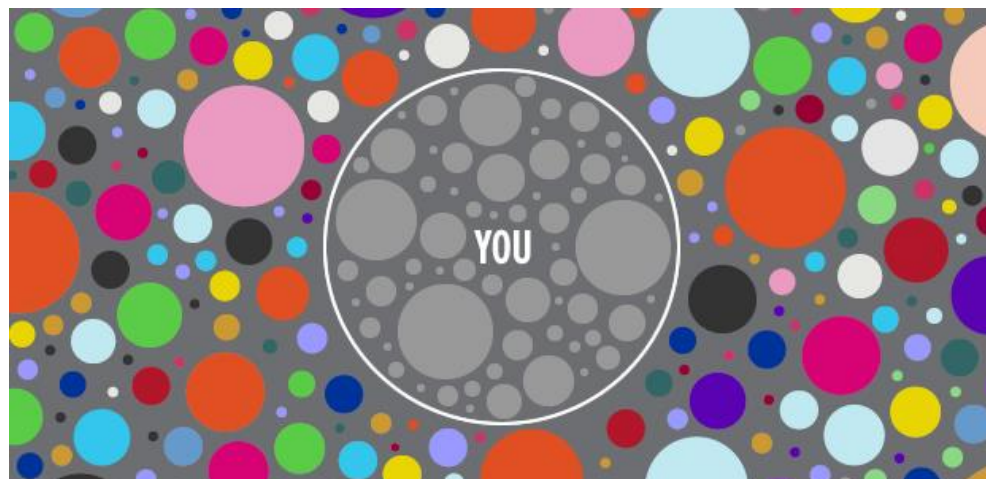
- may not be able to specify data collection purposes for Big Data
- low transparency
- “black box” algorithms, opaque and complicated

(6) Transparency



- what if **AI Judge** gives you unfavorable ruling without reasons?
- what if you are **denied bank account opening** by anti-money laundering assessment programme without reasons?
- **civil rights and freedom**

(7) Filter Bubble



- news feeds and video recommendations may be **extremely customised**
- “filter bubble” or “echo chamber effect”

(8) Control by Big Data and AI



- people **controlled** by Big Data and AI
- **“Big Nudging”**: Big Data and Nudging
- no democratic process
- top-down controlled, totalitarian society

Privacy-based Solutions



Accountability



- **“Protect, Respect Personal Data”**
- top management cultivates respect for privacy within organisations
- adopt measures to protect data
- **Privacy Management Programme**
- **“Privacy by Design” & “Privacy by Default”**

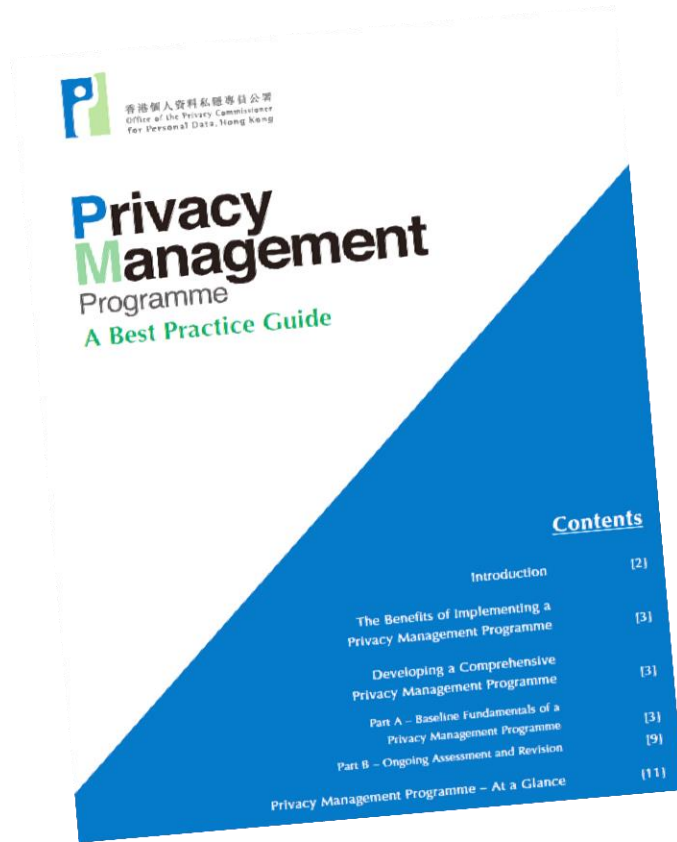
Accountability



Privacy Management Programme

- paradigm shift from **compliance to accountability**
- consider privacy at each stage of the data lifecycle

Accountability



- **Privacy Management Programme:
A Best Practice Guide**

https://www.pcpd.org.hk/pmp/files/PMP_guide_e.pdf

Accountability

“Privacy by Design” & “Privacy by Default”



- embed privacy in all business processes rather than an afterthought
- protect privacy right and maximise value of data

Accountability



EU General Data Protection Regulation 2018:

- stringent **consent** requirements
- increased **accountability** of data controllers
- reveal **logic behind** automated decisions

Transparency



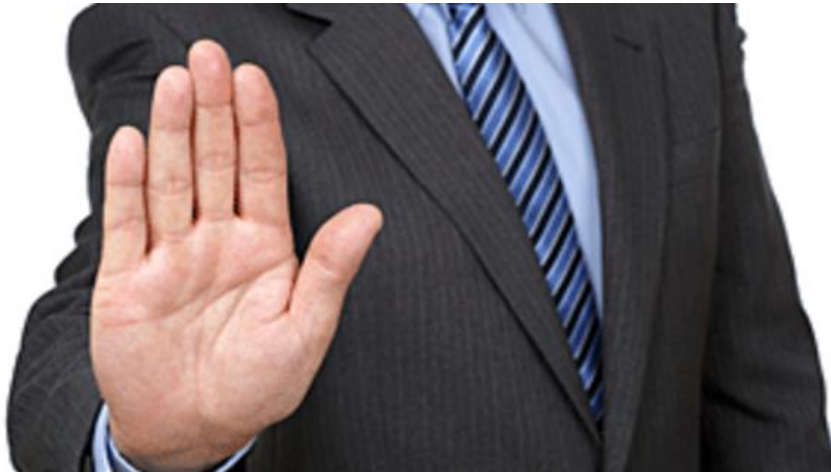
- **Two “Ts” – Transparency and Trust**
- **transparency builds up trust**

Transparency



- explain **what data** is collected and **purposes** of use
- explain **logic** and **rationale** behind decision

Meaningful Choices



Meaningful Choices and Control

- allow individuals to **object** to profiling
- allow individuals to **object** to decisions which may significantly affect them

Code of Ethics for AI



- guide the use of AI
- ensure fair and just processing
- harm to liberty and freedom should be justified

Protect, Respect Personal Data



- Personal Data (Privacy) Ordinance is **technology neutral; principle-based**
- **balance** between privacy and free flow of information
- **keep individuals informed** of collection and use of data, and obtain **meaningful express consent**

39th International Conference of Data Protection and Privacy Commissioners



Stay tuned for updates on
www.privacyconference2017.org

Thank You!