



Carole Piovesan
cpiovesan@inqdatalaw.com
@cjpiovesan

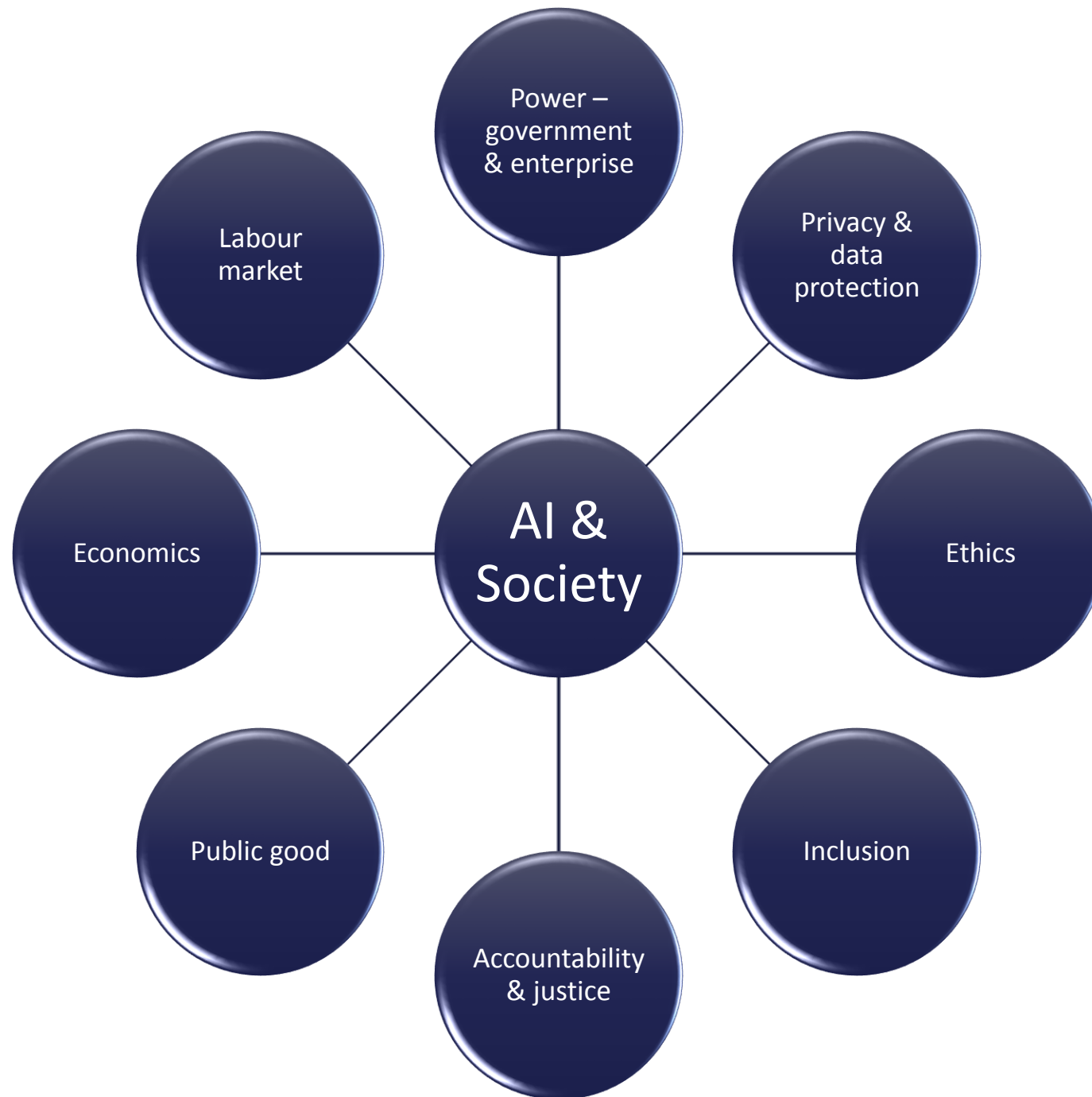
ARTIFICIAL INTELLIGENCE AND THE LAW

Law Commission of Ontario

May 15, 2019

AI is going to shape all of what we do

Satya Nadella, CEO, Microsoft



Here's the Deal ...

- AI is a general use technology that will affect every sector and every vertical.
- AI as a technology is, but cannot remain, unaccountable under the law.
- There will be a new generation of law because of AI.
- We still need to decide the principles on which the law should be based.

Why AI Today?

- 2.5 quintillion bytes of data each day & the compound data advantage
- Faster and cheaper computer processing power
- Cheaper storage
- Better algorithms & more talent
- Proven and practical use cases
- Increased investments in AI R&D and commercialization

Case Study: Bank of NY Mellon Corp.

- May 2017, the bank announced that over the past 15 months the company has rolled out more than 220 bots developed by Blue Prism for handling tasks that are often repetitive in nature and normally handled by staff.
- Example: “data requests from external auditors” and “funds transfer bots” which help “correct formatting and data mistakes in requests for dollar funds transfers”.

Bank of NY Mellon Corp. cont'd

- BNY Results:
 - 100 percent accuracy in account-closure validations across five systems
 - 88 percent improvement in processing time
 - 66 percent improvement in trade entry turnaround time
 - ¼-second robotic reconciliation of a failed trade vs. 5-10 minutes by a human

(Source: Emerj, AI in Banking - An Analysis of America's 7 Top Banks)

Financial Service Use Cases

Credit Decision Quickly assesses credit worthiness of clients. Has been found to cut losses by 23% annually.	Risk Management Analyze the history of risk cases and identify early signs of potential future issues.	Fraud Prevention Credit card fraud and AML to analyze clients' behavior, location to flag inconsistencies.
Trading Predicting stock performance and identifying patterns in price movements for high-accuracy market predictions. Trillion dollar industry.	Personalized Banking Improving the client experience through chatbots and virtual assistants. Streamlining information sharing and transaction processes.	Robotic Process Automation Automating mundane, time-consuming tasks. AI generates reports according to parameters, reviews documents, and extracts information from forms. E&Y finds 50%-70% cost reduction for tasks.

Financial Services Spend on Tech

- JPMorgan Chase: \$9.5 billion in technology in 2016
- WellsFargo invested in a global Innovation Lab
- Bank of America reported \$3 billion innovation budget “to explore potential partnerships, discuss trends and solve some of today’s challenges”
- CitiBank has six Citi Global Innovation Labs and is making strategic investments (e.g. Feedzai and Clarity Money are two examples)
- Bank Corp has created a new managerial position in connection with U.S. Bank’s Innovation Group: Artificial Intelligence Innovation Leader
- PNC to \$1.2.billion over 5 years to modernize core infrastructure and key technological operations

Roadmap

I - Legal Change on the Horizon

II - Bias in AI Systems

III - Making AI Explainable and Accountable

I - Legal Change on the Horizon

- 1) Immediate: Regulating data access, ownership, use; government and multilateral policies on AI.
- 2) Medium-term: Regulating applications and preventing foreseeable harms.
- 3) Long-term: Re-evaluating foundational principles of law in light of autonomous agents.

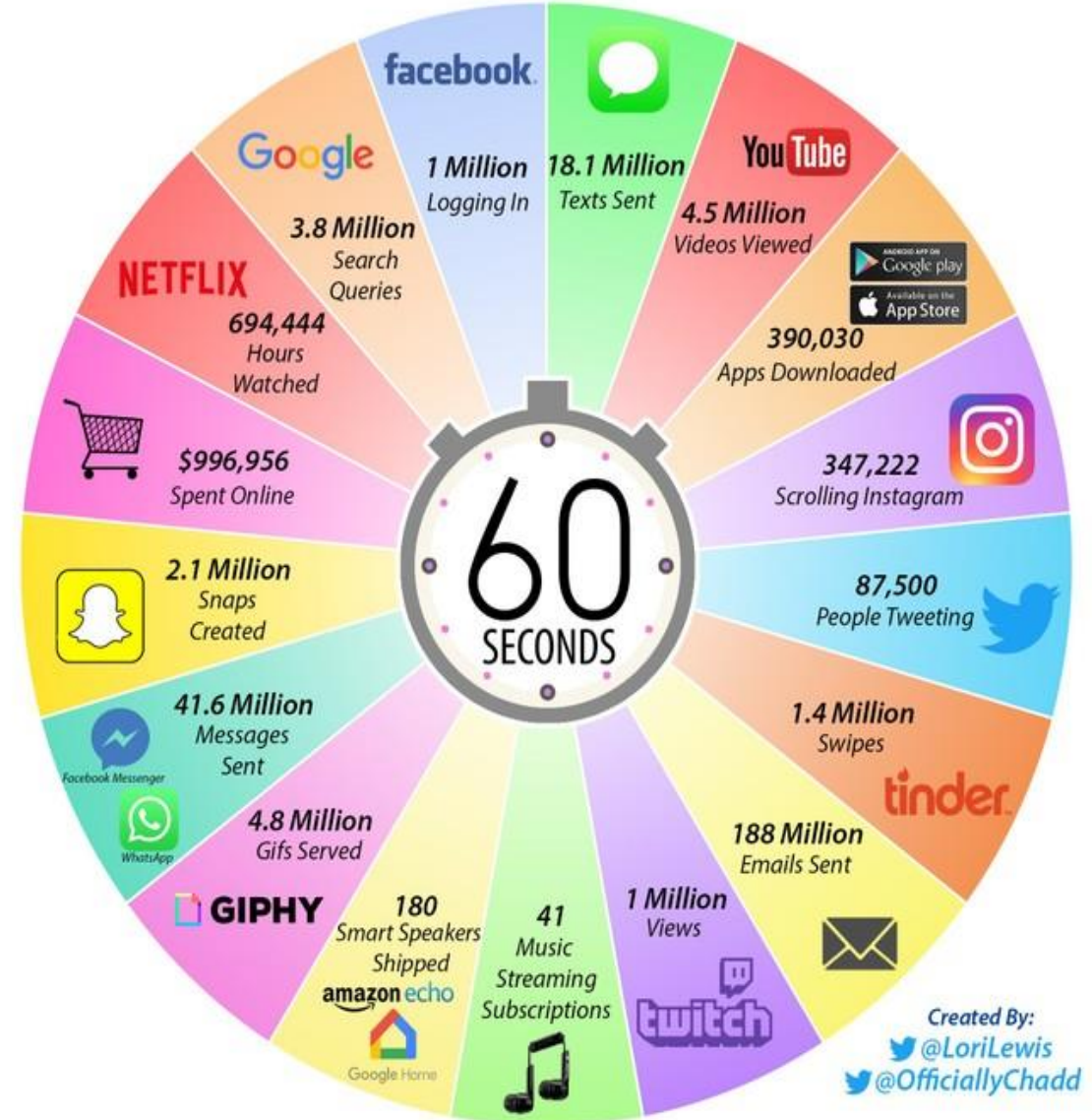
1) Regulating Data

- Pace of data accumulation is staggering:
 - 3.7 billion people on the internet now.
 - 2.5 quintillion bytes of data created each day and growing with IoT.
 - 2 billion active Facebook users.
 - Google processes over 40,000 searches every second.
 - 16 million text messages every minute.

2018 *This Is What Happens In An Internet Minute*



2019 *This Is What Happens In An Internet Minute*



Regulating Data cont'd

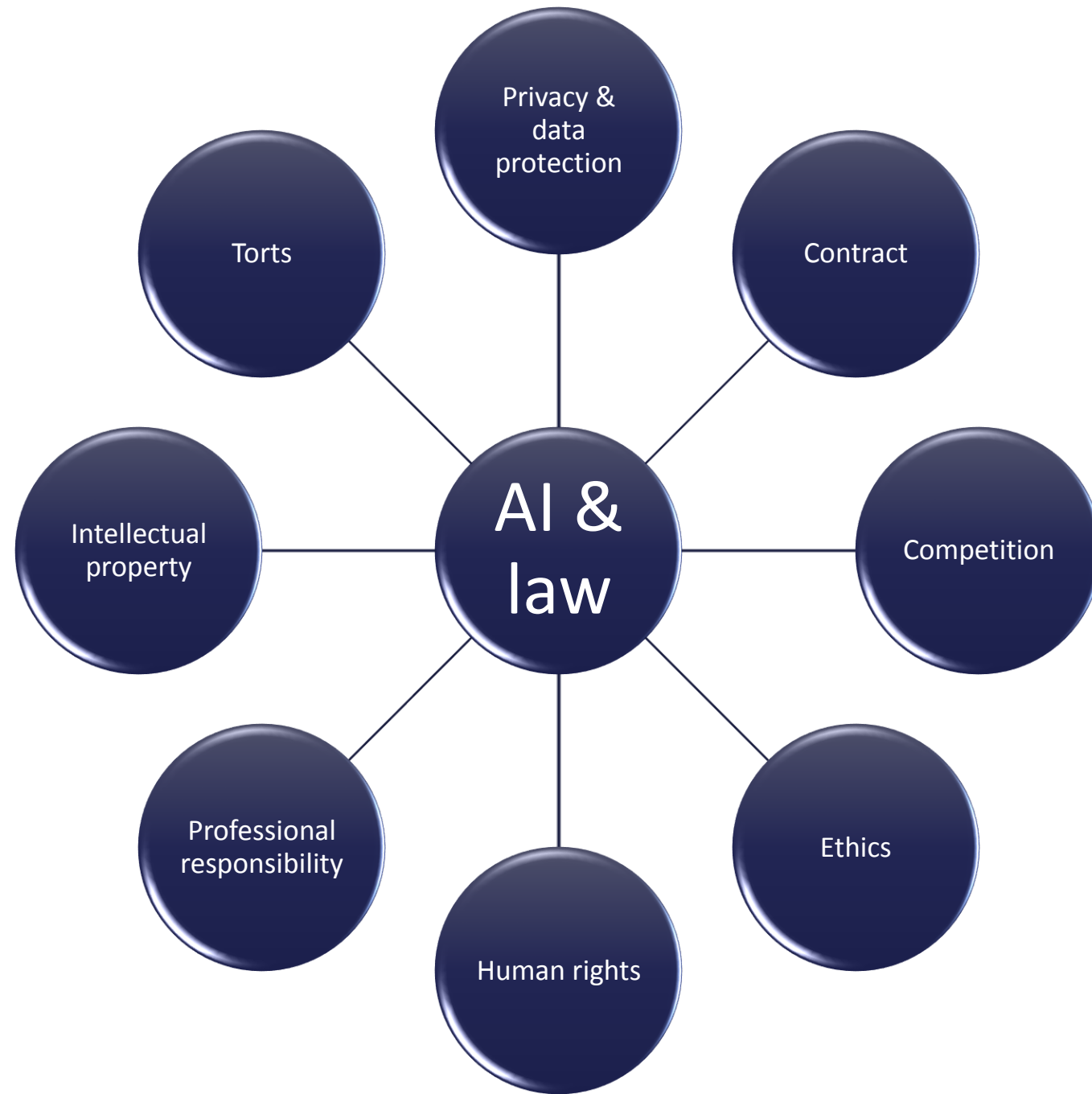
- **Data is power.** The geopolitics of data and digital innovation.
- According to a recent article in The Economist, the US is home to 15 of the world's valuable tech firms. Europe is home to one.
- Europe has enacted the world's most significant legislative reform in data protection - the *General Data Protection Regulation* (GDPR).
- GDPR is about data protection and increasing competition.

2) Regulating Foreseeable Harm

- City of San Francisco has banned use of facial recognition technology by local agencies including law enforcement.
- Government of Canada has issued a Directive on Automated Decision Making and an Algorithmic Impact Assessment. Similar in Europe.
- FTC has floated the possibility of company executives facing individual fines for privacy non-compliance.
- All major tech companies are calling for more oversight on how personal data is used.
- Dr. Geoff Hinton has called for a Geneva-like Convention on use of AI in warfare.

3) Re-evaluating Principles of Law

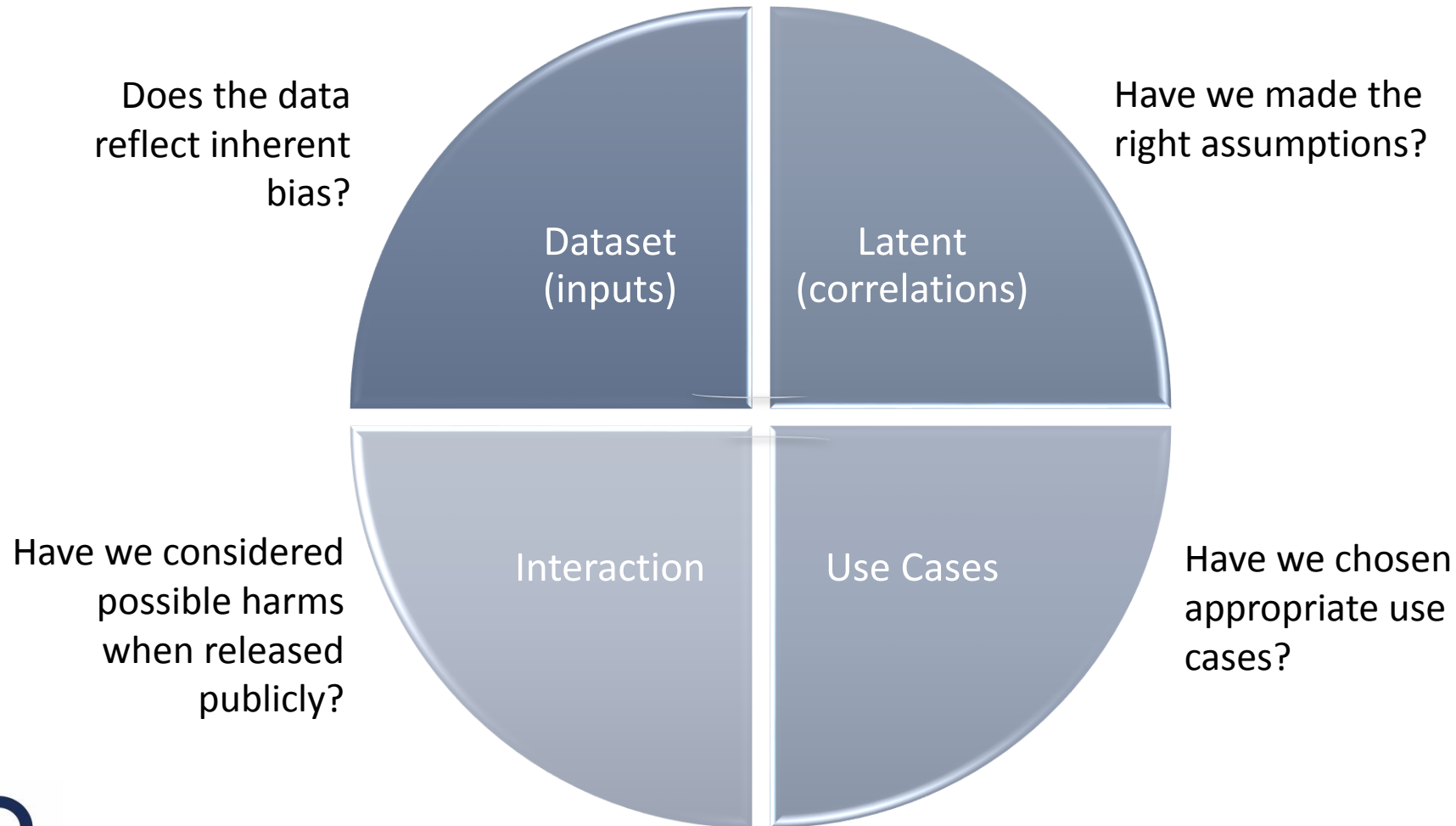
- A computer system that analyzes massive amounts of data, learns from the analysis and takes action in unconventional ways with remote human involvement.
- Key legal features:
 - Inorganic system;
 - Evolutionary;
 - Action-oriented;
 - Unconventional;
 - Remote human involvement.



II - Bias in AI

<p>Selection bias: Over-representation of certain data points that skew output. E.g. Amazon's recruitment AI that favoured male candidates</p>	<p>Interaction bias: Why dear Tay went astray. The way human behaviour shapes AI behaviour. E.g. Chatbots</p>
<p>Latent bias: Improper correlation of features with labels. E.g. Correlating the label of "doctor" with white males</p>	<p>Emergent bias: AI trained on individual preferences to create a "bias bubble" in user content. E.g. Newsfeeds</p>

Opportunities for Bias



III – Making AI Explainable and Accountable

- “Black boxed” systems and is explainability desirable? Achievable?
- Accountability implies:
 - an obligation to report and justify algorithmic decision-making;
 - a framework to reduce harm and maintain responsibility for outputs; and,
 - a framework to ensure accuracy and reliability of outputs.
- Different mechanisms are being discussed including a social impact assessment, an algorithmic impact assessment, among others.

Advice for an AI-first World

Be informed

Get involved

Have no fear