

A woman's face is shown in profile, looking upwards. The image is heavily stylized with a digital circuit overlay. The background is a complex pattern of yellow and orange circuit traces on a dark background. The woman's face is semi-transparent, allowing the circuit patterns to be seen through it. The text is overlaid on the center of the image.

# Technology Trends

## ISSUES FACING RISK AND COMPLIANCE

DAVID CHILDERS

**ECI** ethics &  
compliance  
initiative™



# ARTIFICIAL INTELLIGENCE (AI) GLOSSARY

## **ANI – Artificial Narrow Intelligence**

- ANI creates a “decision support system” based on pre-set parameters with the majority of decisions remaining in human hands.

## **AGI – Artificial General Intelligence**

- AGI achieves complex goals in difficult environments with limited computational resources, has the ability to transfer learning and make independent decisions.

## **Machine Learning**

- Machine Learning algorithms look for patterns in data and make or suggest better decisions for the future based on human provided examples and guidelines.

## **Deep Learning**

- Deep Learning uses unsupervised algorithms that learn from their own analysis and without human pre-set parameters.



## TECHNOLOGY RISKS:

- ✓ Rapid adoption of Machine Learning and Business AI as part of workplace automation;
- ✓ The loss of operational transparency with the expansive use of Narrow Artificial Intelligence to perform operational review functions;
- ✓ Movement to unsupervised Deep Learning and autonomous determinations in transactional models and activities; and,
- ✓ Movement to Perception AI in some HR and other “intake and evaluation” functions.

# BUSINESS AI

AI is altering decision making within organizations and improving efficiency.

These developments raise important policy, regulatory, audit and ethical issues:

- Unintentional programming or “learned” biases based on evolving logic;
- Fairness;
- Safety;
- Transparency;
- Accountability; and,
- Intentional programming.

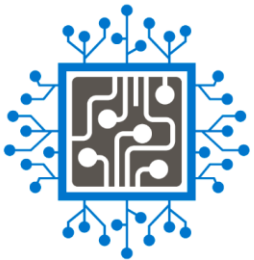


# MACHINE LEARNING & AUTONOMOUS AI

“HACKS” IN  
AUTONOMOUS  
CONTROL  
ENCOURAGE  
AGI

Advanced programming, telemetry sensors and rapid data comprehension create unsupervised and obscure interactions and results.

- Consider: space vehicles, assembly lines, smart buildings, energy grids, financial transactions, or self-driving vehicles.
- One self-driving car produces 4,000GB of data per day. Autonomous AI analyzes the data automatically, in real time to gain a full comprehension of the patterns, changes, concepts and contexts that are necessary for safe vehicle operation.
- Security cameras around the world capture 30 billion images a second.



# ANNONOMOUS HACK EXAMPLES

## MARINE TRANSPORT AND PORT OPERATIONS

Fluent door-to-door supply chain enabled by autonomous operation and digitalization



## UNMANNED AIR, WATER, LAND AND SPACE SYSTEMS

Novel solutions for asset monitoring, logistics and safety & security



## URBAN TRANSPORT

Quick and easy-to-use door-to-door mobility enabled by automated chain of different means of transportation



## INTER-URBAN TRANSPORT

Safe and fluent traffic with automated driving of commercial vehicles on highways



## MOBILE MACHINERY

Sustainable productivity for harvesting of natural resources through remote controlled and autonomous systems



## RURAL TRANSPORT

Automated and combined people and goods transport solutions





# PERCEPTION AI

Perception AI is able to interpret, reason, consider and transform sensory data.

- Online activities, personal preferences (habits), and IoT integration support Perception AI.
  - More like this, Restaurants Tips, Netflix for YOU,
- Smart home “conveniences” and targeted advertising enhance the acceptance of Perception AI.
  - Automated shopping lists for food based on usage, season, existing inventory, preferences and price.