Digital Transformation

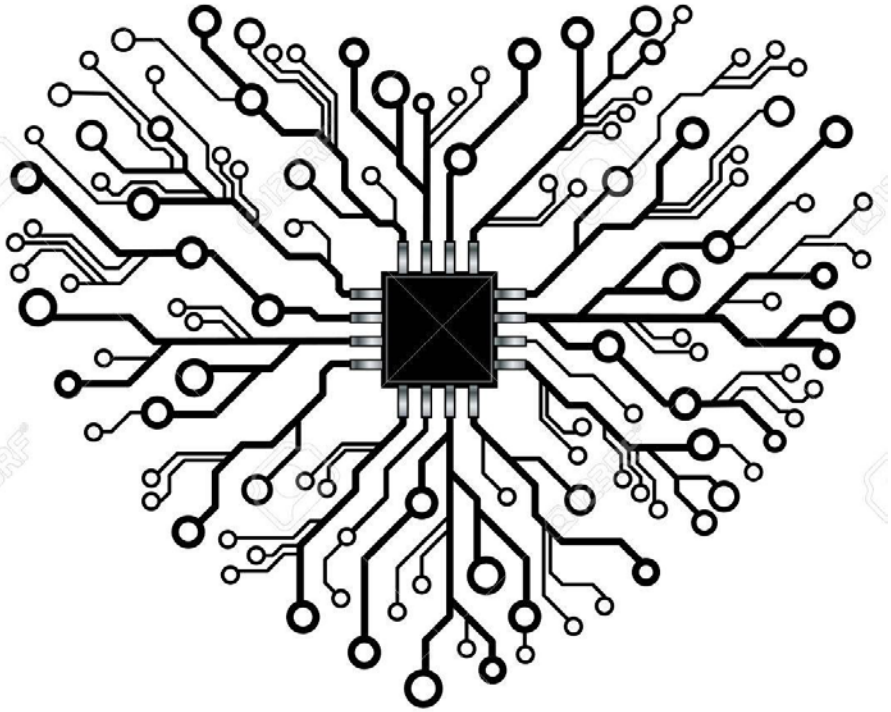
Presentation by: Martin Kimani

Friday,20 September 2019

Uphold public interest

Disruptive Technologies

Disruptive Technologies



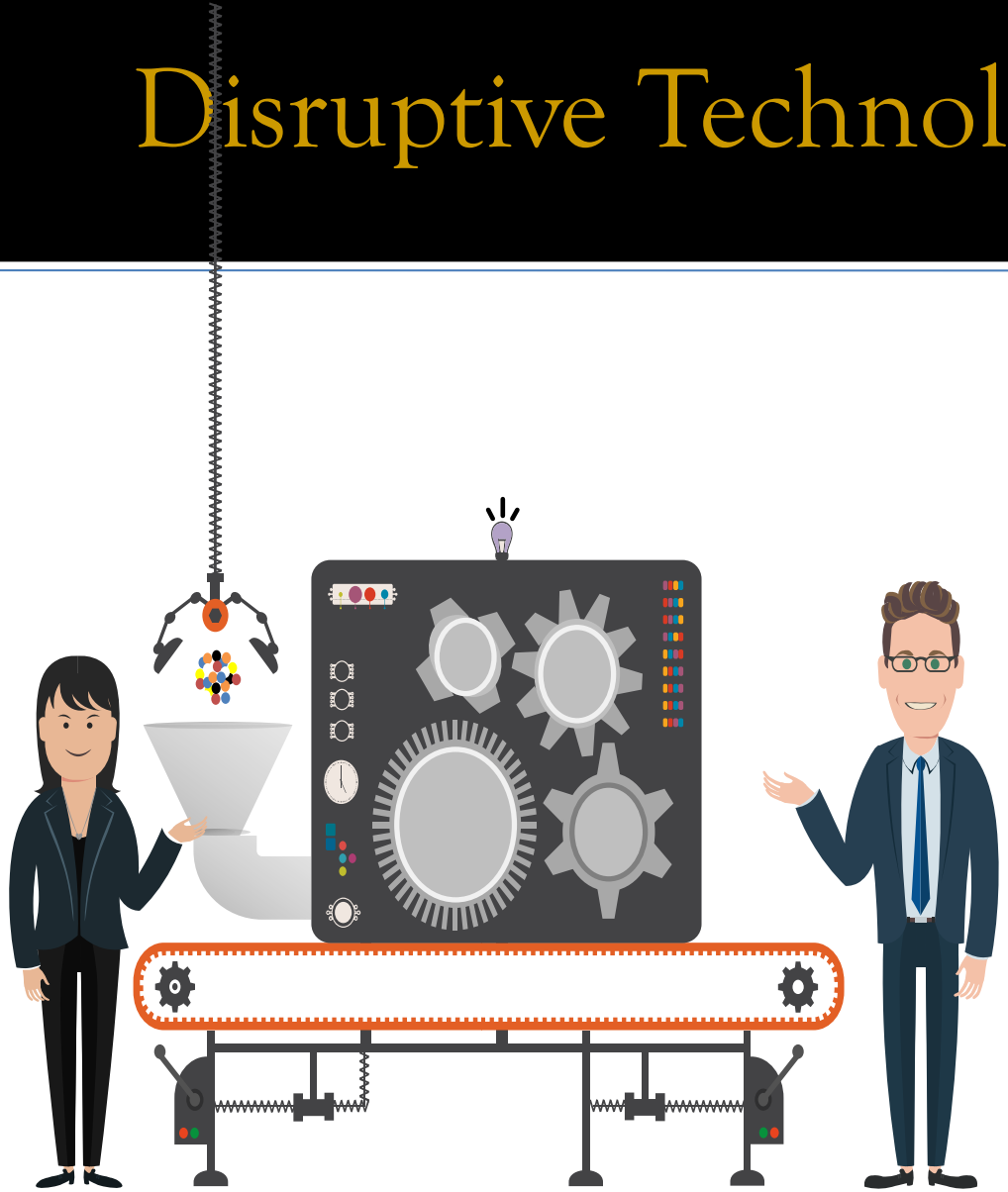
Where would you say is the 'heart' of technology in your organization?

Disruptive Technologies

Disruptive Technologies

In the early 20th century, technology was the fuel for innovation...

Disruptive Technologies



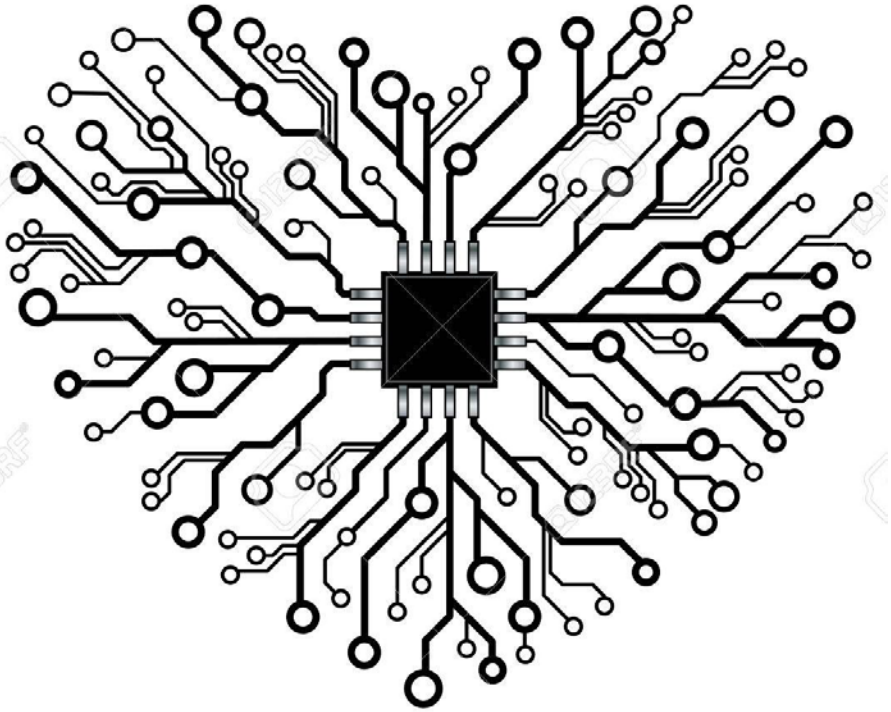
But in the 21st century, disruptive technology is the fuel for innovation.

Digital Business Models assume Leadership

Quoted values are in Billions of USD

Source: Leading Through Digital – Business Models that exploit the Digital Opportunity, Bloomberg, accessed 12:00 noon, Friday 28th September, 2018

Disruptive Technologies



Where would you say is the 'heart' of technology in your organization?

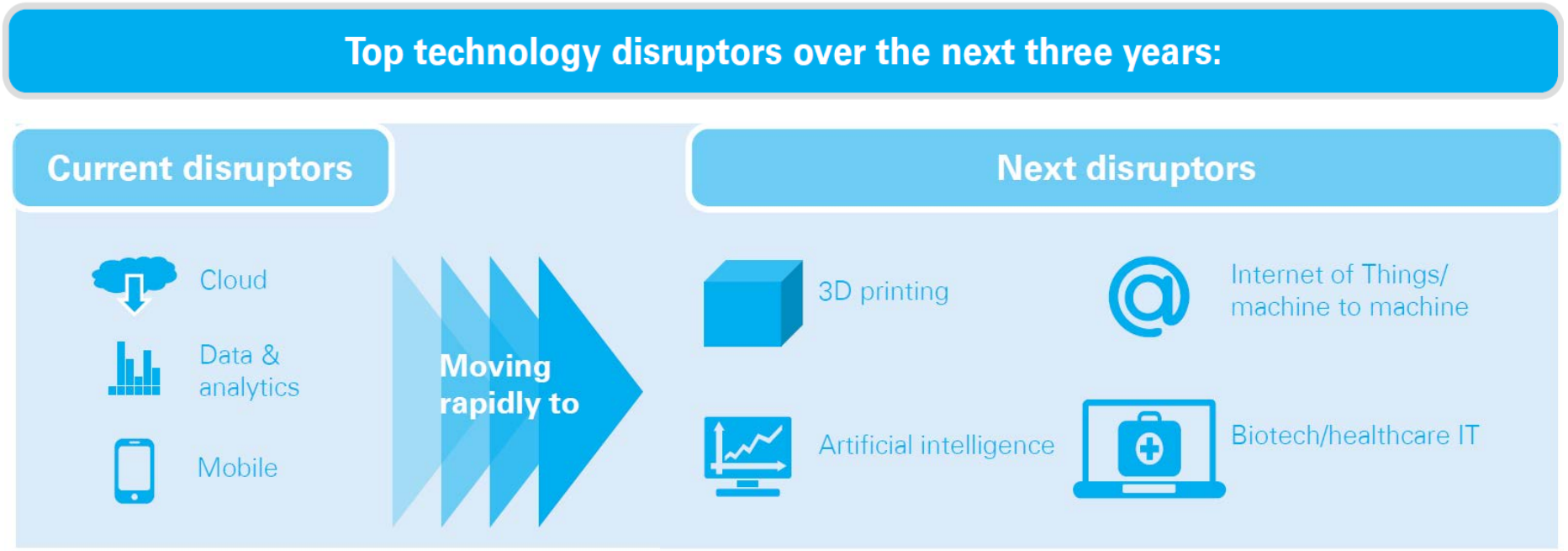
Disruptive Technologies

Disruptive Technologies

What is disruptive technology?

Disruptive technologies are those that significantly alter the way businesses or entire industries operate.

Often times, these technologies force companies to alter the way they approach their business, or risk losing market share or becoming irrelevant. Recent examples of disruptive technologies include smartphones and e-commerce.



Artificial Intelligence and Robotics

The use of a computer to model and/or replicate intelligent behavior.

APPLICATION IN BUSINESS

Banking: Improving customer service, automation of critical tasks such as mortgage approval, processing credit card orders, cleansing accounts and cost accounting. Automated compliance review like KYC and Bank Secrecy Act (BSA)/AML regulations.

Other:

Self-driving cars, facial recognition technology, fraud detection, customer service (bots), predictive purchasing (Amazon), smart recommendations (Netflix, Spotify), virtual assistants (Siri, Google Now), cybersecurity, predictive maintenance

Internet of Things

A giant network of connected things and people – all of which collect and share data about the way they are used and about the environment around them.

APPLICATION IN BUSINESS

Banks: Product Planning & Management, **Tailored** Marketing, Improved security, mobile applications, product performance, wearables (smart watches and bands)

Other: Smart homes, connected cars, smart cities, smart farming, healthcare, smart grids

Cloud computing

Cloud computing is the delivery of computing services—servers, storage, databases, networking, software, analytics, intelligence and more—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.

APPLICATION IN BUSINESS

Banks: infrastructure as a service (IaaS); platform as a service (PaaS); software as a service (SaaS); hardware as a service (HaaS), data as a service (DaaS) and application as a service (AaaS).

Blockchain

is a growing list of records, called blocks, that are linked using cryptography.

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Blockchain

Blockchain

a.k.a.

Distributed Ledger Technology (DLT)

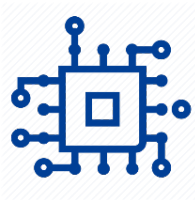
- A **potentially game changing** technology
- Early adopters are **crypto-currencies** such as **Bitcoin**
- However, it is likely that DLT will have greater adoption, acceptance and impact in other areas such as **Supply Chain, Digital Identity, Provenance** and **Asset Tracking, Voting** and **User Experience in Digital Channels**

Backdrop

Building on the age old need to lower uncertainty and establish trust in order to exchange value

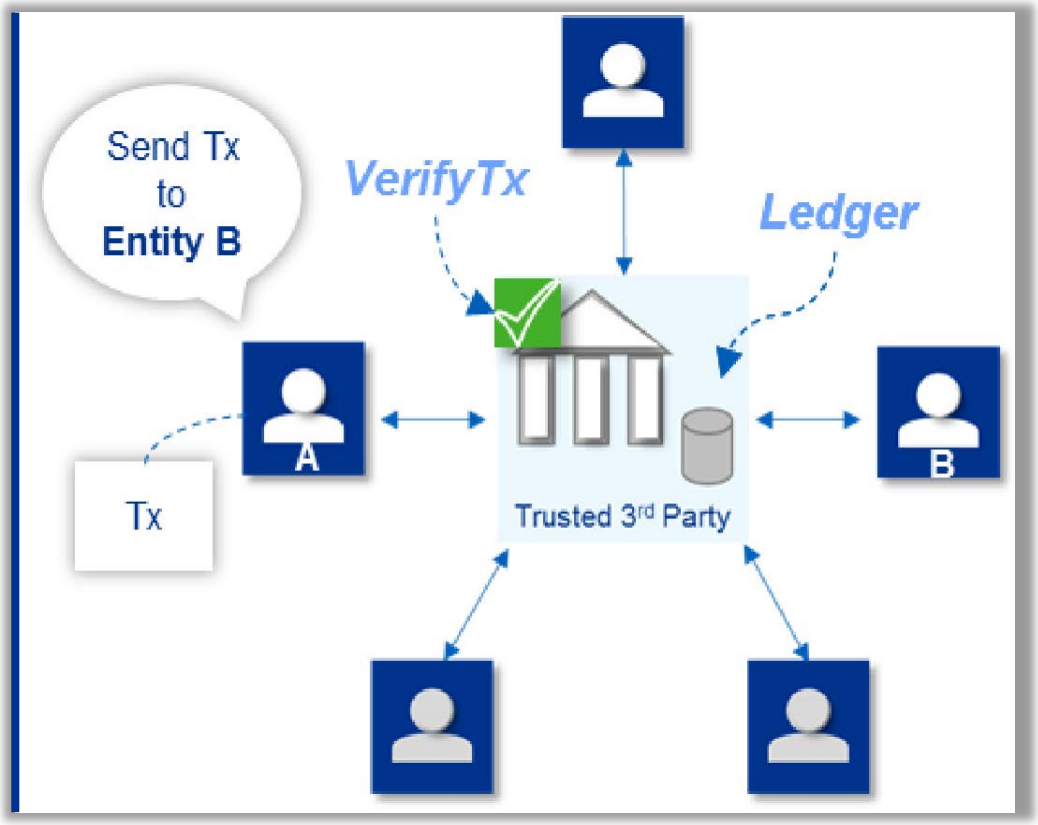
Challenging the reliance on formal political and economic institutions to help manage value exchange and trade as the pace, complexity and uncertainty of the market place grows

Fragmented record of Custodianship, Ownership, Provenance, Location and Compliance of all types of assets and processes (e.g. Titles, Deeds, Contracts, Registries, IP & Copyright, Supply Chains, Currency, Proof of Process)



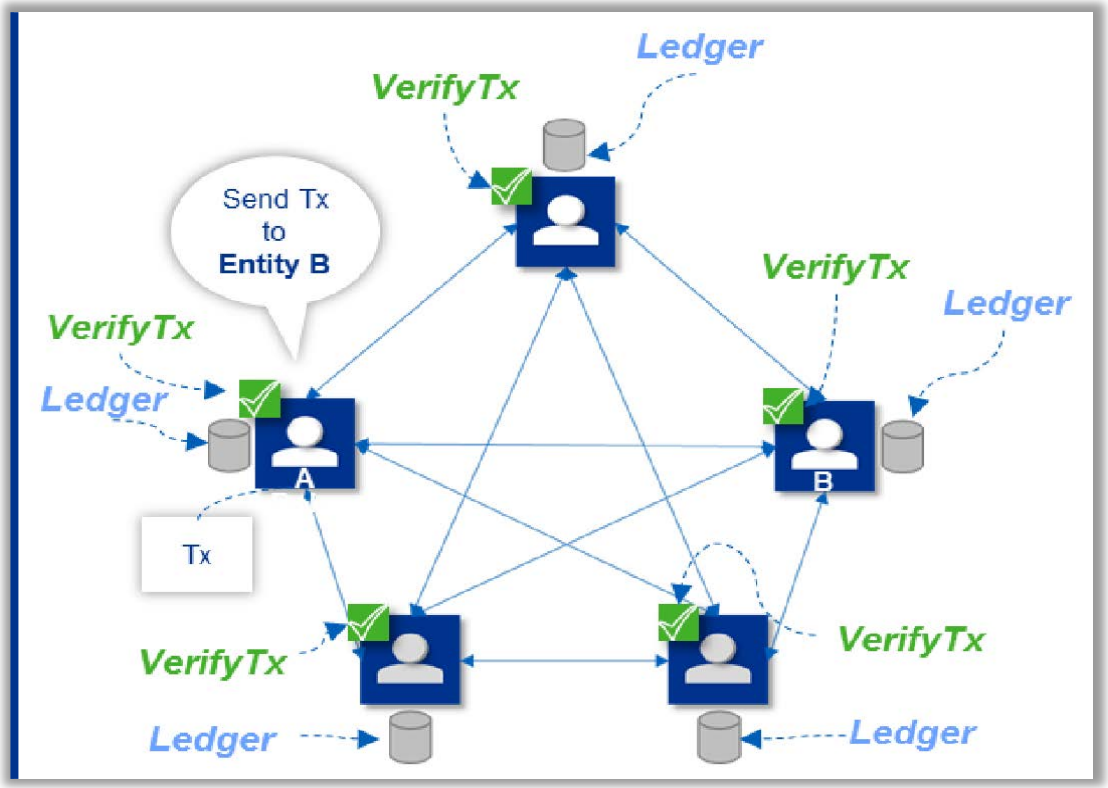
Technological advancement and in particular near ubiquitous internet access coupled with the ready availability of powerful computational capabilities

Existing model of trust – Centralized



- The exchange of digital value today relies on **trusted 3rd parties** such as Regulators, Banks and Corporations
- These 3rd Parties act as **intermediaries** to establish trust between un-trusted parties, e.g. entity A to entity B
- **Time (delay) and cost** are introduced to the transaction, i.e. processing times and transactions charges.
- They manage and protect a **central ledger** and all transaction history
- For the most part these ledgers and transaction histories are kept private

A new model of trust- Decentralized



- All users on the network are **connected to each other**, each having a full copy of the ledger
- All new **transactions are visible** on the network
- The **network verifies** all transactions (Consensus)
- Verified transactions are combined **and new blocks of data are created** for the ledger
- As new blocks are created they are simultaneously **replicated across the network**
- Transactions can support many use cases where **sharing information, exchanging value or changing asset** ownership is important. The blockchain proposition is that the transaction, for whatever reason, can be **trusted.**

A new model of trust - Decentralized

A **Blockchain** allows **untrusted parties** to reach **consensus** on a shared digital history, **without a middleman**

- **Peer to Peer**

- **Decentralised**
- **No central authority or oversight**
- **Everyone holds a copy, no SPOF**

- **Records are added, never changed**
- **Entire history contained on the chain**

- **Use of cryptography**
- **Immutable**

Blockchain transaction- How it works(Voting)

I select the candidate I wish to vote for

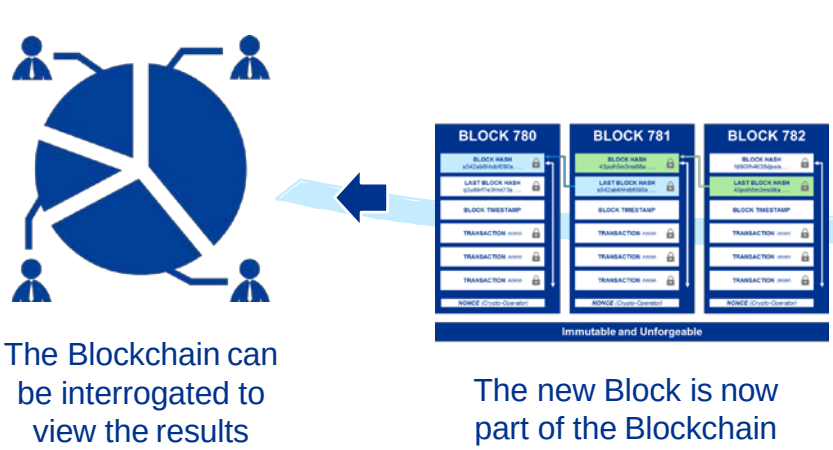
My vote is sent to all other participants

My vote is authenticated / validated by all nodes on the network

All other votes are collected for adding to a block

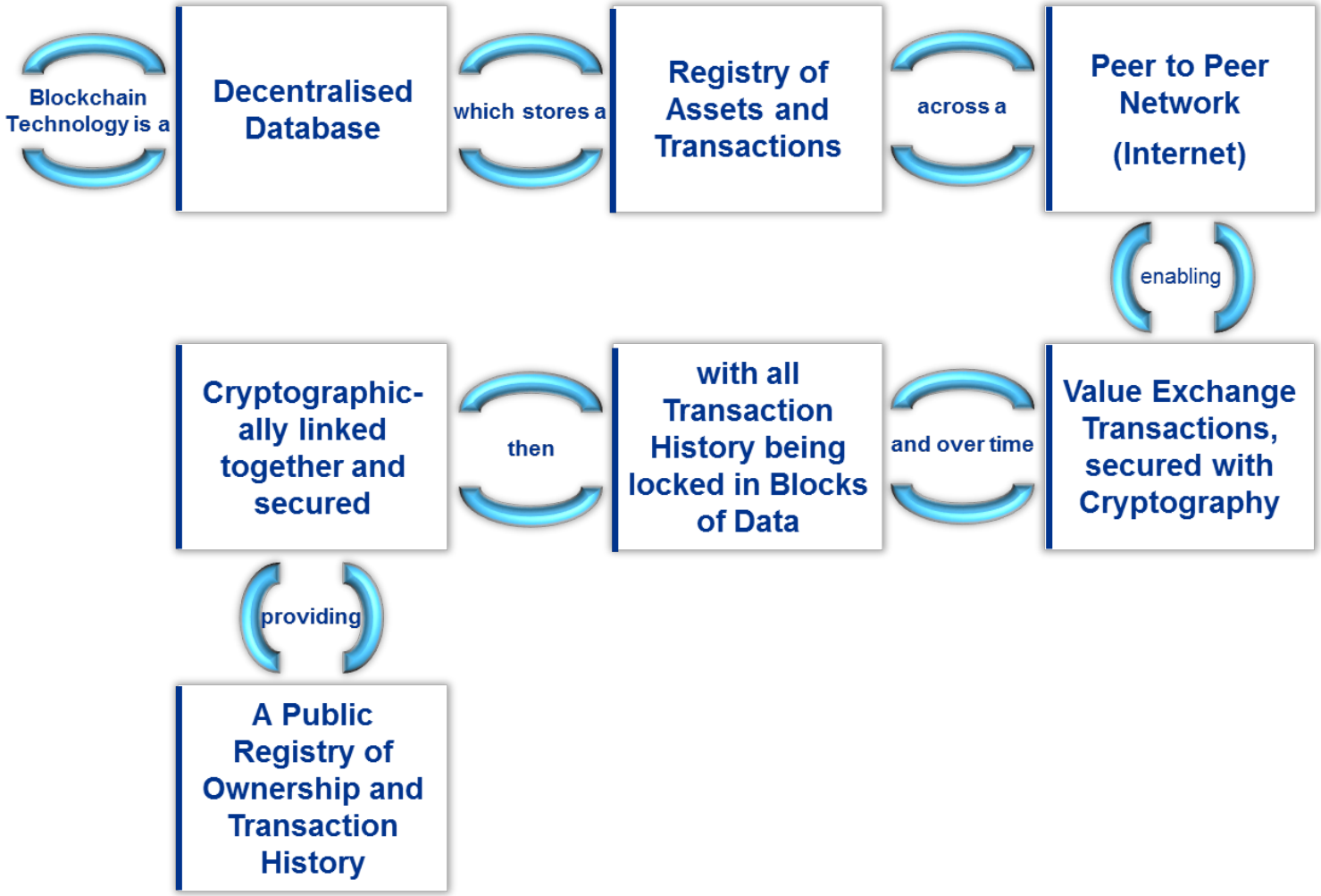
Miner

Block Creator



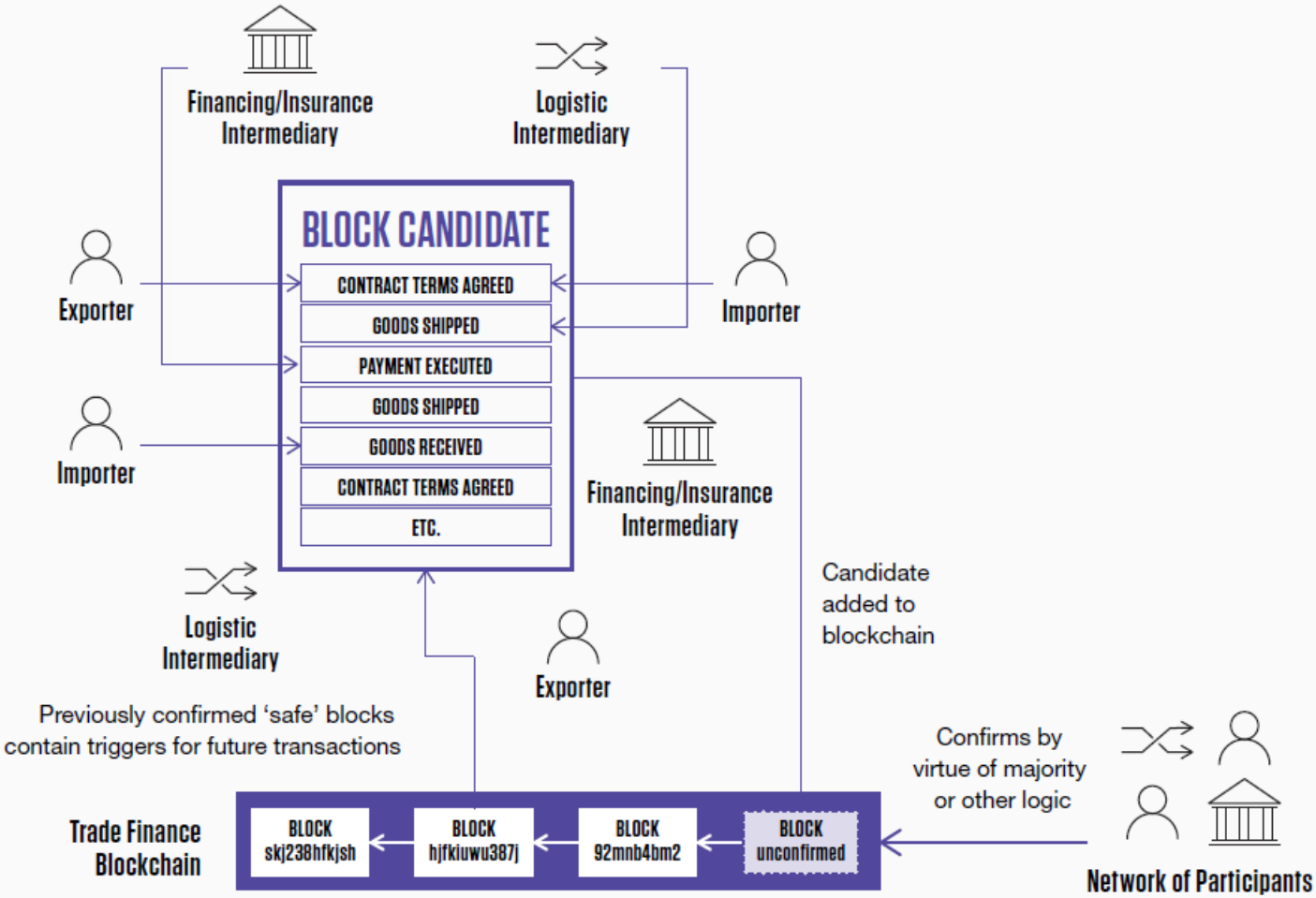
The new Block is now part of the Blockchain

The Blockchain can be interrogated to view the results


Blockchain Technology is a
Decentralised Database
which stores a
Registry of Assets and Transactions
across a
Peer to Peer Network
(Internet)
enabling
Value Exchange Transactions, secured with Cryptography
and over time
with all Transaction History being locked in Blocks of Data
then
Cryptographic-ally linked together and secured
providing
A Public Registry of Ownership and Transaction History

Blockchain Trade Finance

Blockchain Trade Finance



Big Data

Big Data

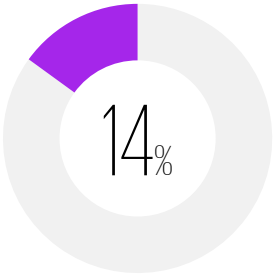
Extremely large data sets (structured and unstructured) that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions.

APPLICATION IN BUSINESS

Banking: credit risk signals for corporate and SME clients, acquire client specific behavioral patterns, fraud management & prevention, Risk assessment, compliance & reporting Customer feedback analysis and application.

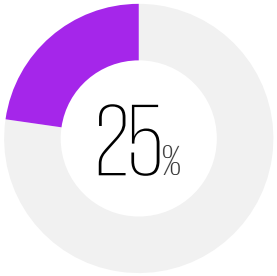
Other: Healthcare nanobots, power investigation, education (adaptive learning), personalised entertainment (Netflix), DNA sequencing, utility management, social media analysis

Data is a priority to CEO's



2015

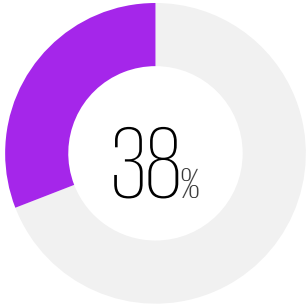
The most critical challenges CEOs expect to face over the next three years:
14% of CEOs surveyed stated becoming more data driven as a key challenge



2016

25% of CEOs said Data and analytics will be a top area of investment over the next 3 years

2018



CEOS SAY BECOMING MORE DATA DRIVEN IS A 'TOP 3' STRATEGIC PRIORITY

38% are planning to **make significant investments in D&A tools over the next 3 years.**

Source: CEOs Outlook study, KPMG International; 2015, 2016, 2018

D&A is integral in understanding your customer, your operations and controls

CUSTOMER	EXISTING OPERATIONS	RISK AND COMPLIANCE
DATA CAN HELP YOU UNDERSTAND		
• How products are used – **70%** • Existing customers – **69%** • New products and services to develop - **67%**	• Business performance – **71%** • How to drive process and cost efficiency – **68%** • How to drive strategy and change – **70%**	• Fraud – **70%** • Business risk – **67%** • Compliance with regulation – **70%**

Source: Building trust in Analytics, KPMG 2018

DATA DRIVEN ORGANIZATION| The building blocks

1 DATA

Organisations that consider data as their asset must invest in preservation of its value just as any other asset.

2 ANALYTICS

As a strategic business partner, Risk Management should be embedded in the analytics journey and not at the tail end.

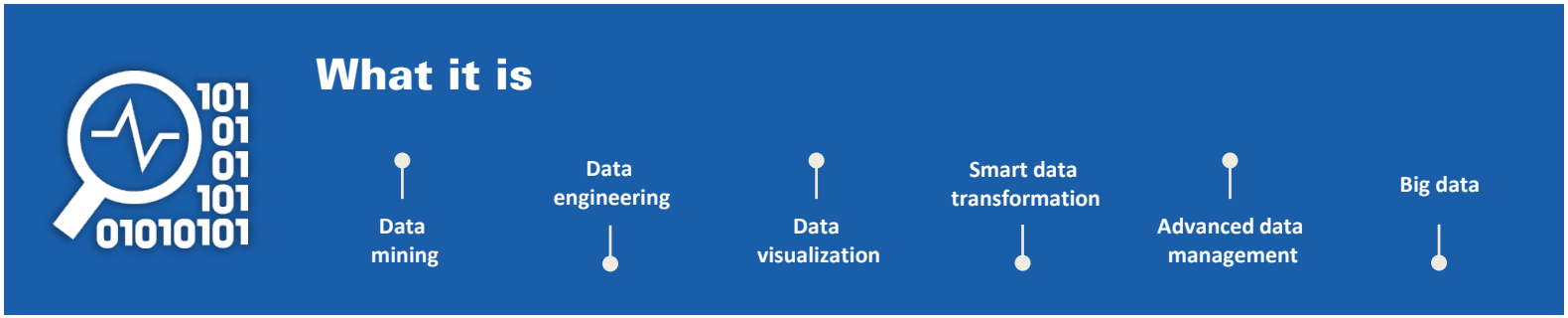
3 INTELLIGENT AUTOMATION

Underpinned by data and analytics, intelligent automation will redefine business and operating models as well as offer new ways to build competitive advantage.

4 ARTIFICIAL INTELLIGENCE

Risk Management can play an advisory role.

DATA DRIVEN ORGANIZATION- Data

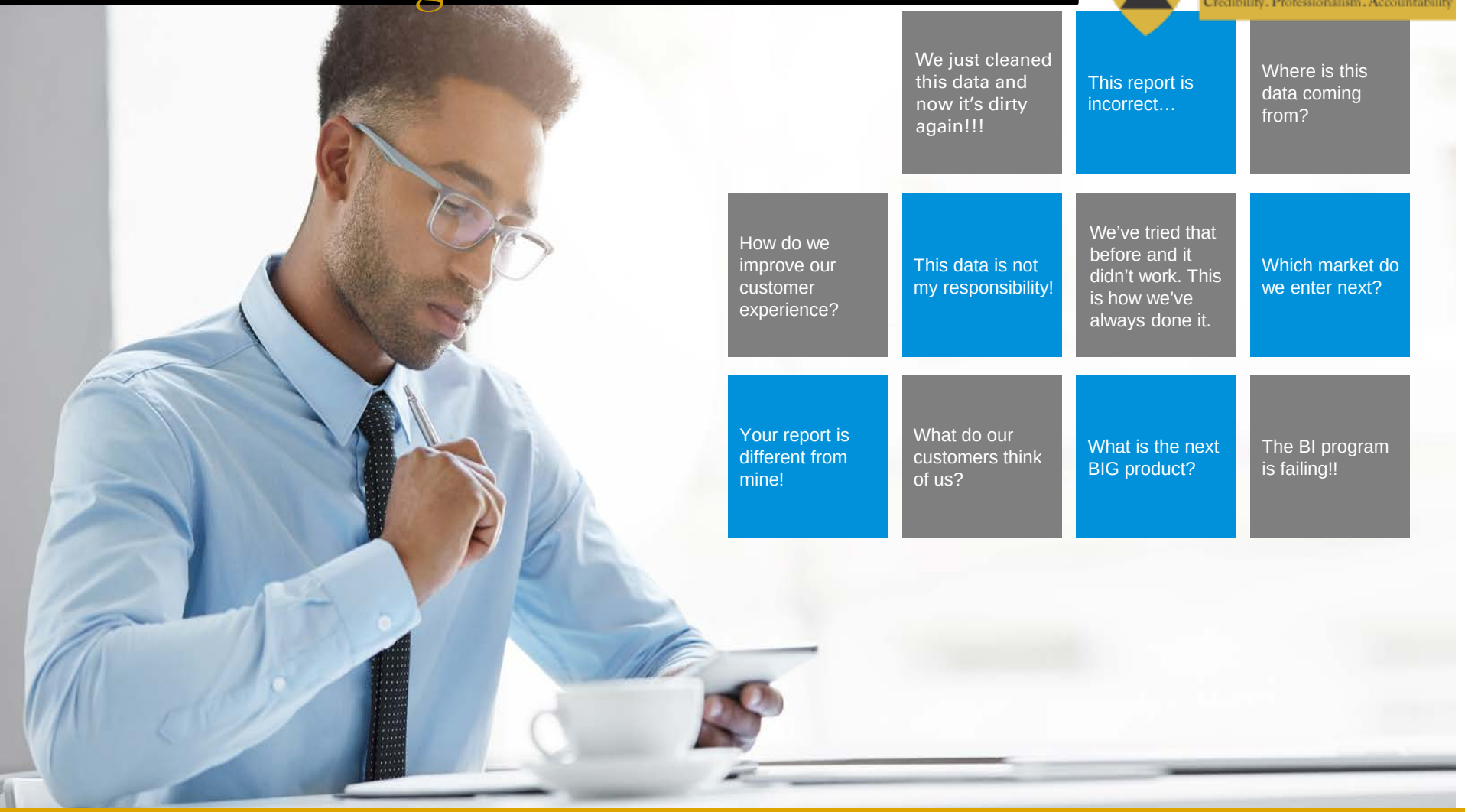


1 DATA

Data, in the context of computing, refers to distinct pieces of digital information.

Data exists in multiple structured, semi-structured and unstructured format and comes in a variety of forms, such as numbers, text, images, voice.

DATA DRIVEN ORGANIZATION- Data and lack of governance



We just cleaned this data and now it's dirty again!!!

This report is incorrect…

Where is this data coming from?

How do we improve our customer experience?

This data is not my responsibility!

We've tried that before and it didn't work. This is how we've always done it.

Which market do we enter next?

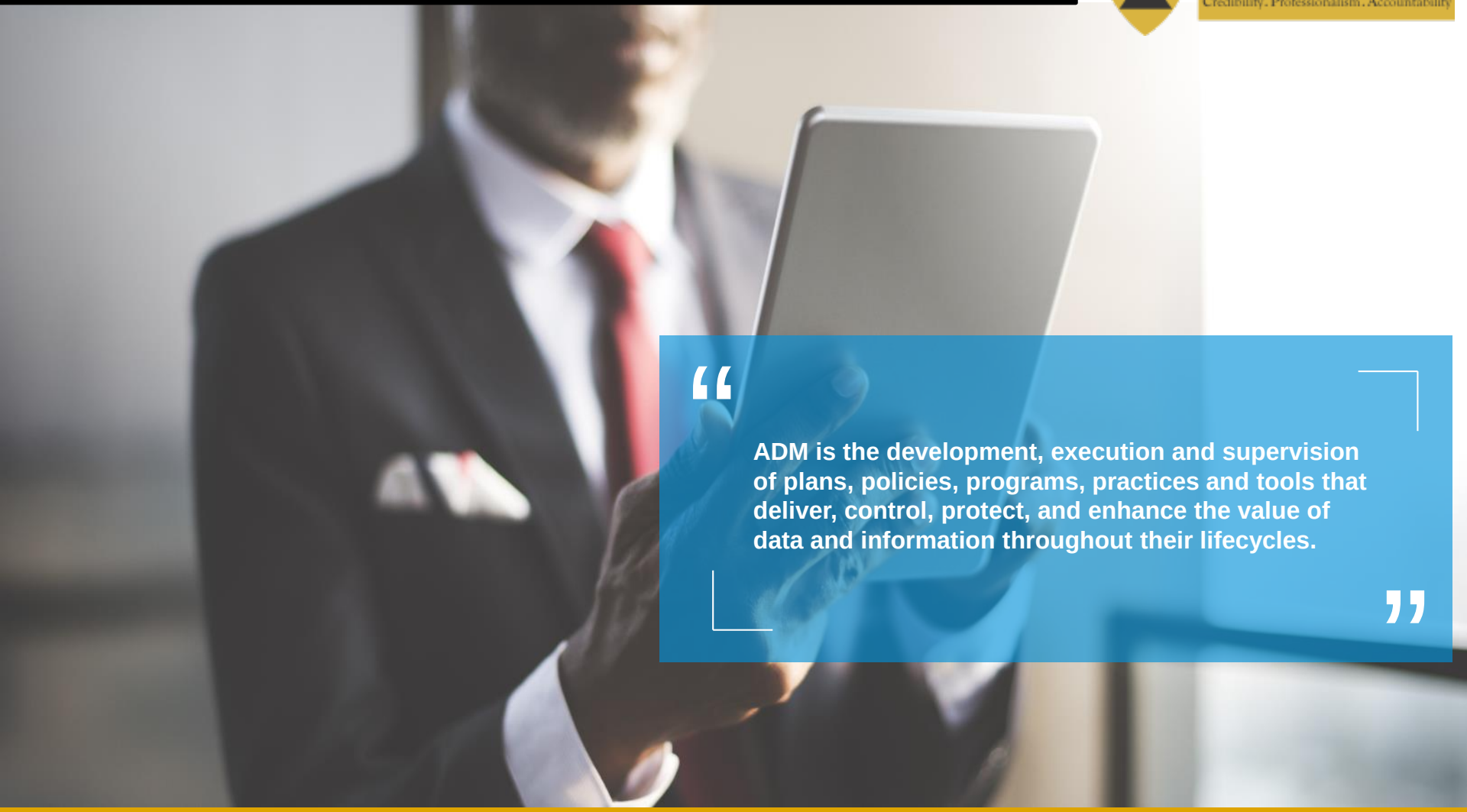
Your report is different from mine!

What do our customers think of us?

What is the next BIG product?

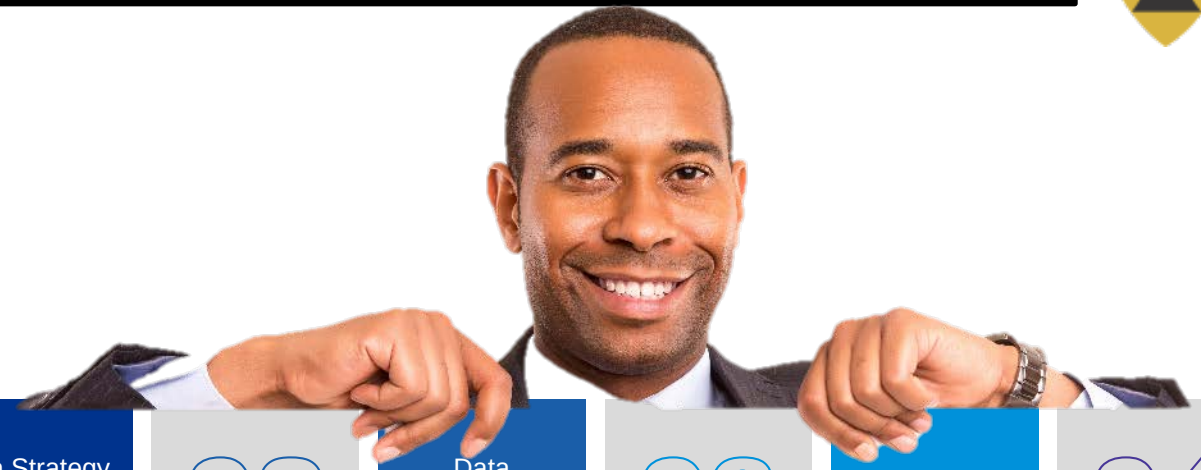
The BI program is failing!!

DATA DRIVEN ORGANIZATION-
Data and advanced data management



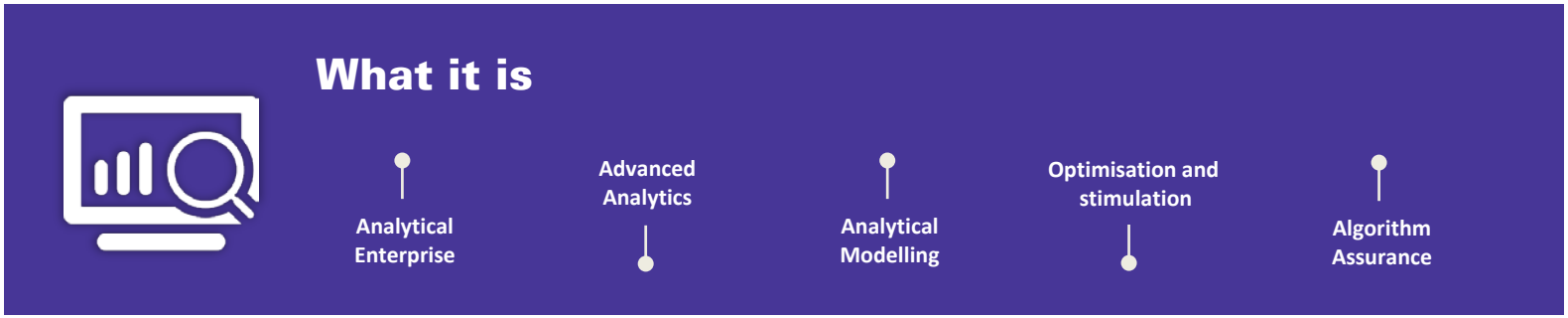
> **ADM is the development, execution and supervision of plans, policies, programs, practices and tools that deliver, control, protect, and enhance the value of data and information throughout their lifecycles.**

DATA DRIVEN ORGANIZATION-
Data and advanced data management



01	Data Strategy and Governance	02	Data Architecture and Modelling	03	Metadata	04	Data Quality
Data integration and interoperability	08	Document and Content Management	07	Data Operations	06	Master and Reference Data	05
09	Data Security	10	Dashboards and Visualisation	11	Advanced Analytics		

DATA DRIVEN ORGANIZATION- Analytics

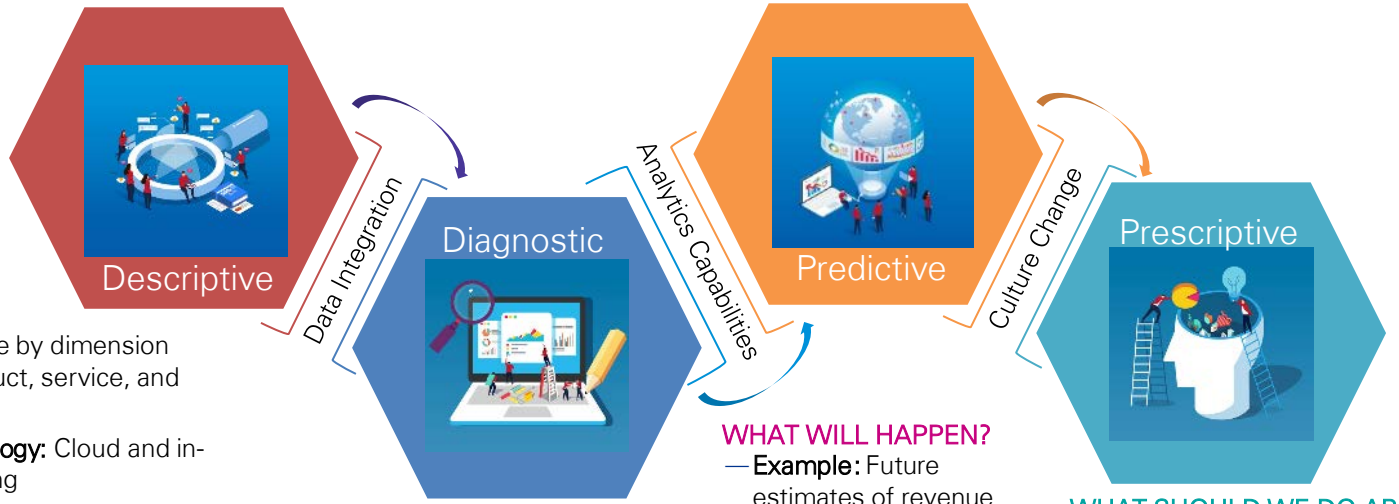


2 **ANALYTICS**

Analytics range from simple descriptive reporting to predictive and prescriptive algorithms that leverage the full potential of artificial intelligence

DATA DRIVEN ORGANIZATION | Analytics –The organization

FOUNDATIONAL → LEADING EDGE



WHAT HAPPENED?
- **Example:** Revenue by dimension (geography, product, service, and custoamer)
- **Emerging technology:** Cloud and in-memory computing

WHY DID IT HAPPEN?
- **Example:** Self-service and — root cause analysis (explanations of variances)
- **Emerging technology:** EPM digital delivery
- **What will change:** Speed of analysis with narrative capabilities

WHAT WILL HAPPEN?
- **Example:** Future estimates of revenue and profitability based on demand drivers;
- **Emerging technology:**

WHAT SHOULD WE DO ABOUT IT?
- **Example:** Strategic scenario analysis of opportunities to improve profitable growth (new markets, customers, services, and channels)
- **Emerging technology:** AI/Cognitive BiG Data analysis
- **What will change?** Hypothesis generation; advance customer and market analysis

DATA DRIVEN ORGANIZATION | – Intelligent automation

What it is

- Robotic Process Automation
- Decision Modelling
- Reasoning
- Cognitive Automation
- Virtual Agents

3 INTELLIGENT AUTOMATION

Intelligent automation leverages data & analytics, robotic, cognitive, and artificial intelligence to automate both routine business process activities as well as complex knowledge work.

Intelligent automation has the capacity to augment human capabilities to an incalculable degree , enabling both entire enterprises and individual functions to transform how business gets done

DATA DRIVEN ORGANIZATION | Intelligent automation

The intelligent automation marketplace is maturing rapidly

Technology—from robotic process automation to cognitive automation—is advancing at a staggering pace and is disrupting almost every business and industry.

Cognitive technologies

60%

Investment in cognitive technologies will be an area of focus for **almost 60% of CEOs through 2020**

81%

CEOs are emphasizing **trust**, **values**, and **strong culture** to sustain the organization's future

Connecting with customers

45%

45% of CEOs say they are not effectively leveraging digital to connect with their customers

The concern for integration

61% of CEOs are concerned about integrating cognitive processes and artificial intelligence in the workplace

Active disruption to gain insight

72% of CEOs said their organizations are actively disrupting their own sectors

Source: 2017 CEO Outlook Survey, KPMG LLP (June 2017)

Staying competitive means embracing digital

60% of CEOs worry their organizations' sensory capabilities and innovative processes will not stand up to rapid disruption

DATA DRIVEN ORGANIZATION| Analytics –Artificial intelligence

What it is

- Pattern Recognition
- Knowledge Based Systems
- Deep Learning
- Voice / Image recognition
- Machine Learning
- Natural Language processing

4 ARTIFICIAL INTELLIGENCE

Artificial intelligence is a collection of advanced technologies that allows machines to sense, discover, comprehend, reason, act and learn.

AI is not something you buy, it is something you build. Delivering the promise of AI is not possible without identifying and utilizing

- Right data
- Right algorithms
- Right tools
- Right people

DATA DRIVEN ORGANIZATION | Artificial intelligence - positives

The positive side is that algorithms help us make better decisions or make our lives more convenient...

NETFLIX

HOW?

It analyzes billions of records to suggest films that you might like based on your previous reactions and choices of films.

Source: *10 powerful examples of artificial intelligence today - Forbes*

nest

HOW?

The Nest learning thermostat uses behavioral algorithms to predictively learn from your heating and cooling needs, thus anticipating and adjusting the temperature in your home or office based on your own personal needs

Source: *10 powerful examples of artificial intelligence today - Forbes*

HOW?

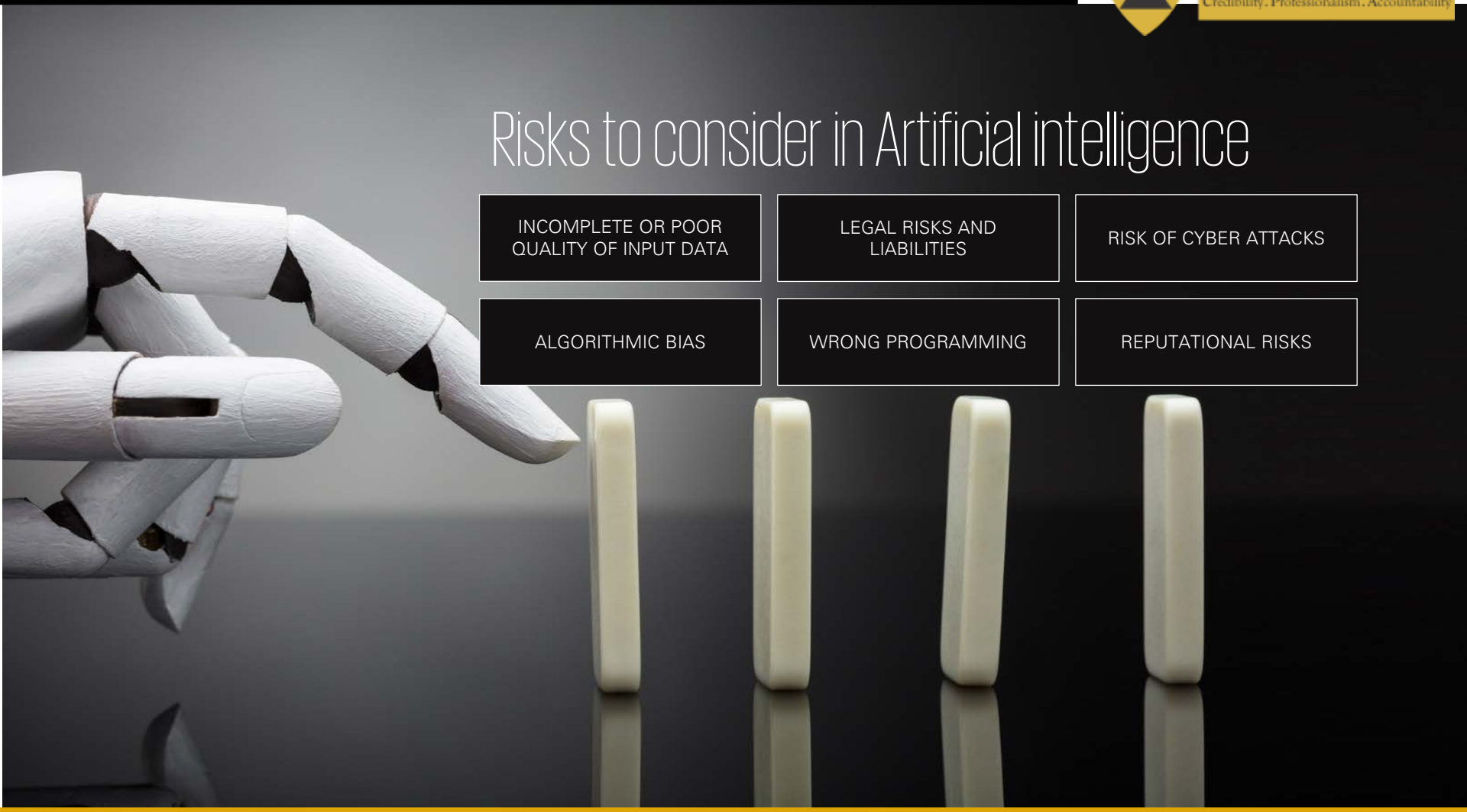
Siri is the friendly voice-activated computer that we interact with on a daily basis. She helps us find information, gives us directions, add events to our calendars, helps us send messages and so on.

Source: *10 powerful examples of artificial intelligence today - Forbes*

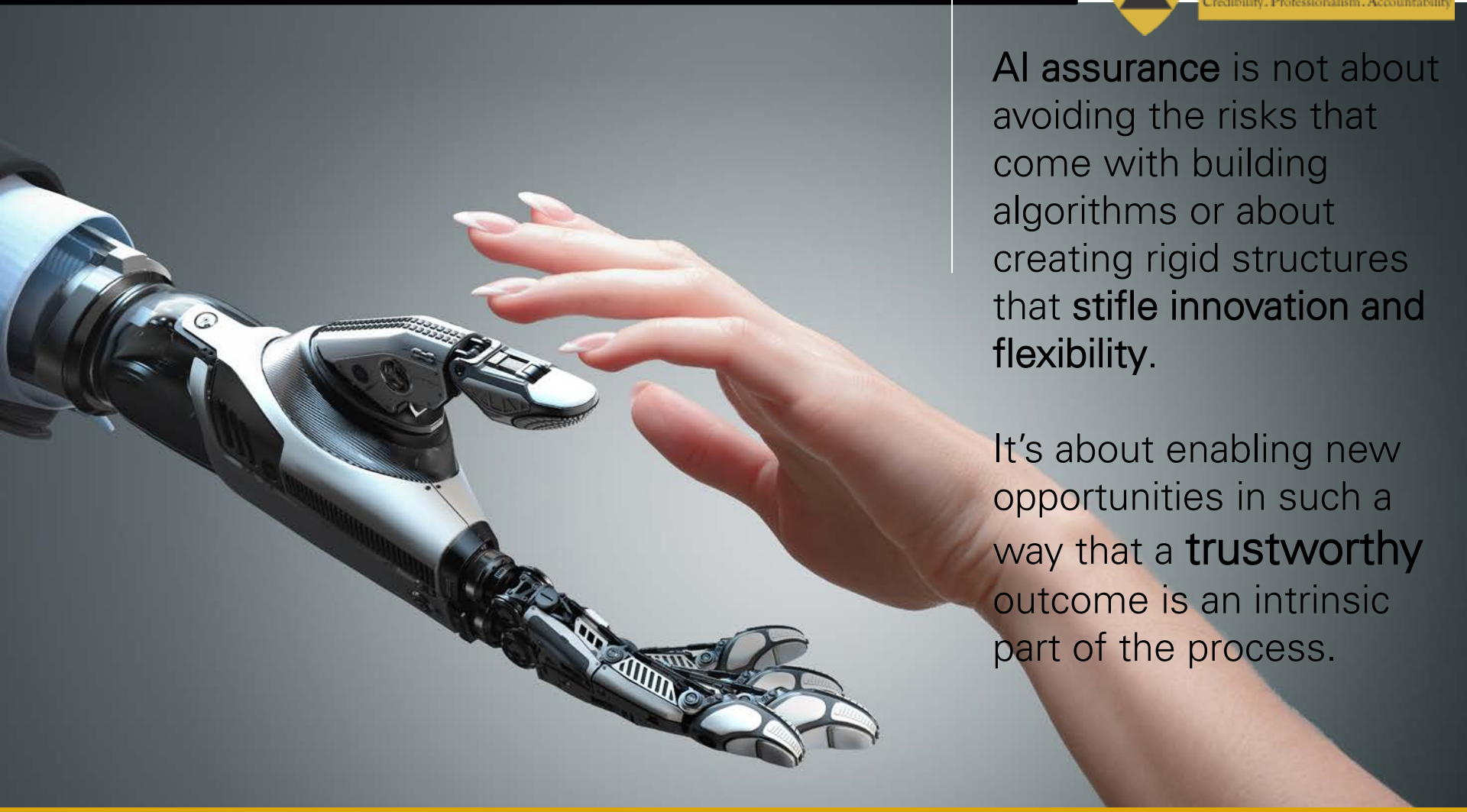
HOW?

Find the right address on Google Maps, thanks to a system that learned to read street names and addresses from billions of Street View images.

Source: *13 ways you are using AI in your daily life - Google*


Risks to consider in Artificial intelligence
INCOMPLETE OR POOR QUALITY OF INPUT DATA
LEGAL RISKS AND LIABILITIES
RISK OF CYBER ATTACKS
ALGORITHMIC BIAS
WRONG PROGRAMMING
REPUTATIONAL RISKS

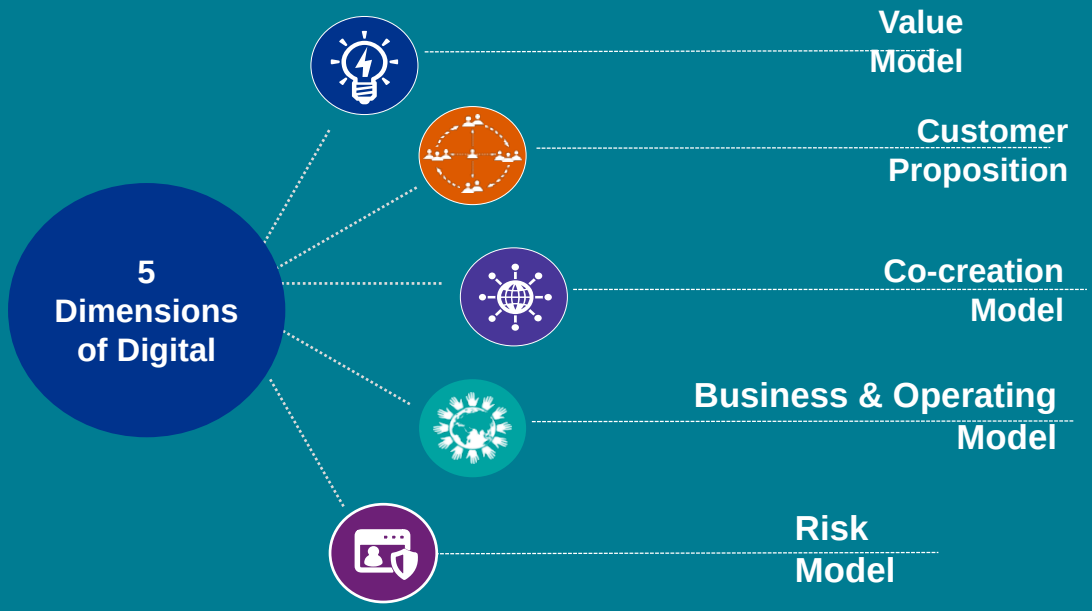
If we enter an age of governance by algorithms, we need to think about the governance of algorithms as well



AI assurance is not about avoiding the risks that come with building algorithms or about creating rigid structures that **stifle innovation and flexibility**.

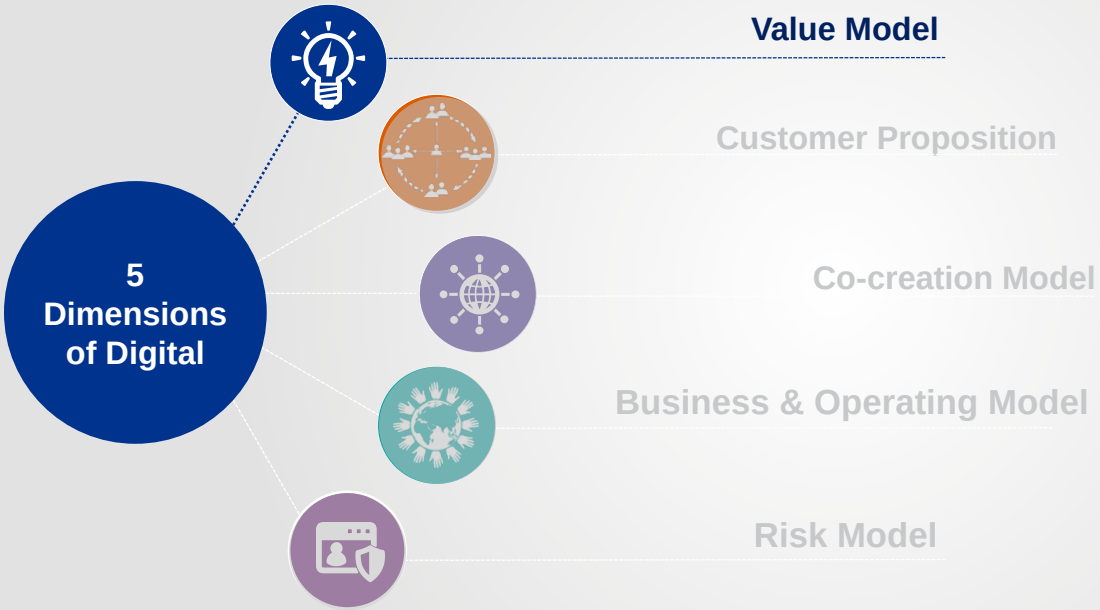
It's about enabling new opportunities in such a way that a **trustworthy** outcome is an intrinsic part of the process.

Dimensions of digital



Value Model

Define the business goals, metrics and value realization framework that set the agenda for digital

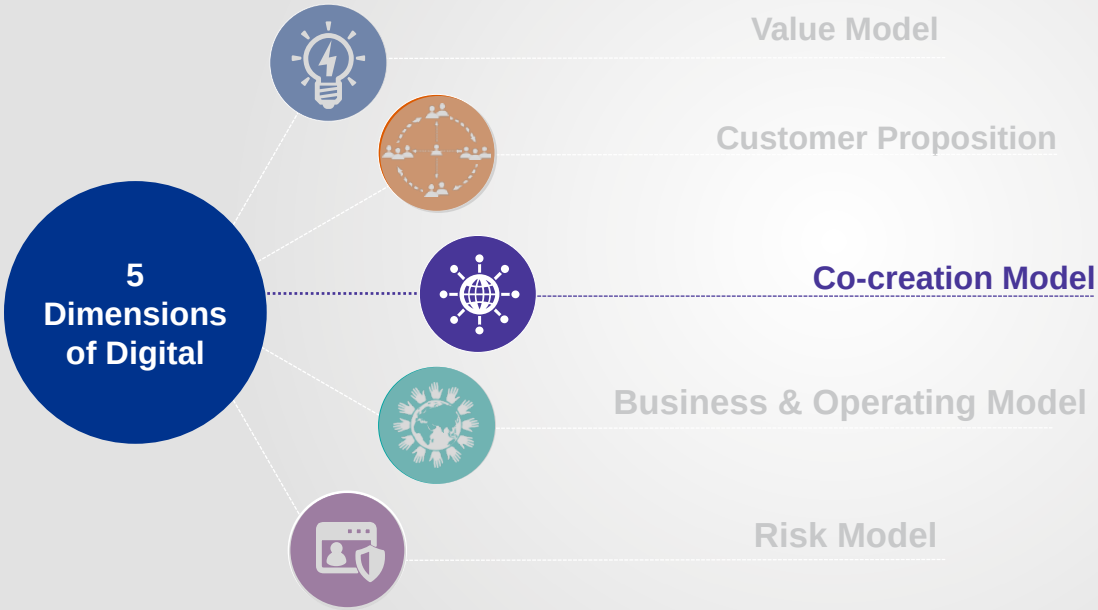


Customer proposition

Exploiting market opportunities and transforming customer experience to drive growth and profitability

Co-Creation Model

Harnessing the potentials of emerging technology to actualize digital agenda



Business and operating model

Architecting a new business and operating model to seize distilled market opportunities and support innovation culture

Risk Model

Safeguarding proposed investment in digital

Questions to think about

1. What emerging technologies may disrupt our business and industry in the next 36 months?
2. What are the **opportunities and challenges** resulting from these new technologies?
3. How are new technologies impacting our **customers, and third parties**? What are the business **implications**?
4. **How is management and the board proactively assessing technologies** that will enable new business models and signal the end of business-as-usual for market leaders?
5. What actions can the board and management team implement to **take advantage of these tech disruptors**?
6. **Is your business strategy and operating model** enabling the organization to drive new opportunities resulting from new technologies? Do you have the **expertise and agility** to take advantage of these technologies?
7. Are you fostering a culture of **innovation**? Are you enabling **experimentation**? Do you have the right incentives?
8. Are you prioritising investments in **the people, partnerships and resources** to capitalize on opportunities driven by tech innovation?


Q&A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