

# AI for Financial Inclusion

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3rd Asia Finance Forum: The Future of Inclusive Finance



# Financial Inclusion

# Defining Financial Inclusion

Financial inclusion means that individuals and merchants can access secure, convenient and affordable payments and other financial services, and use them to meet everyday needs and long-term goals.

— Visa Inc.



# Disadvantages of being financially underserved

2B

People around  
the world



Half the world's  
adult population

## Economic impact of exclusion



Time



Expensive

## Who are the underserved?



46%  
Developing  
Countries



55%  
Women

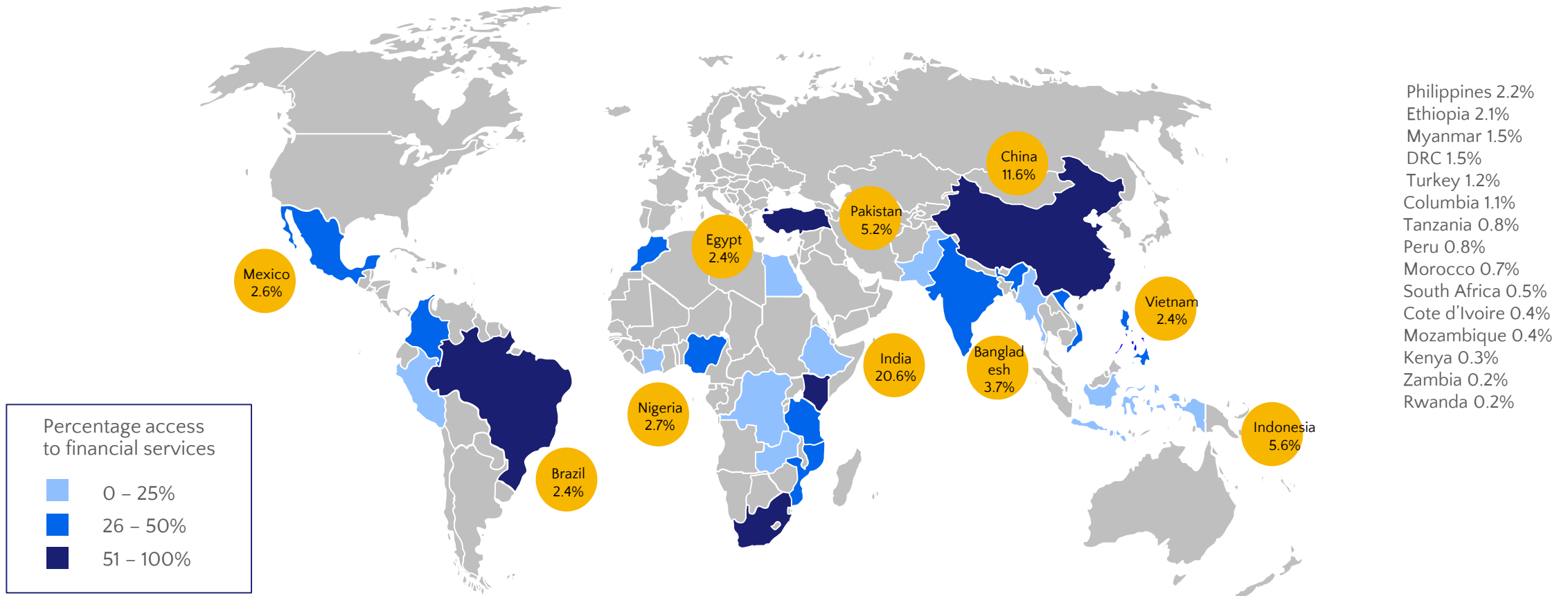
Sources: World Bank Global Findex (2014)

Ibid Portfolios of the Poor: How the World's Poor Live on \$2 a Day, Collins, Morduch, Jonathan, Rutherford, Stuart and Ruthven, Orland, Princeton University Press (2009)

# Geographic concentration of the underserved

**73%** live in 25 countries

**32%** live in China and India



Source: IMF Financial Access Survey, The Global Findex Database 2014

# Visa Financial Inclusion Programs commitment

2015 World Bank Goal: Universal Access by 2020

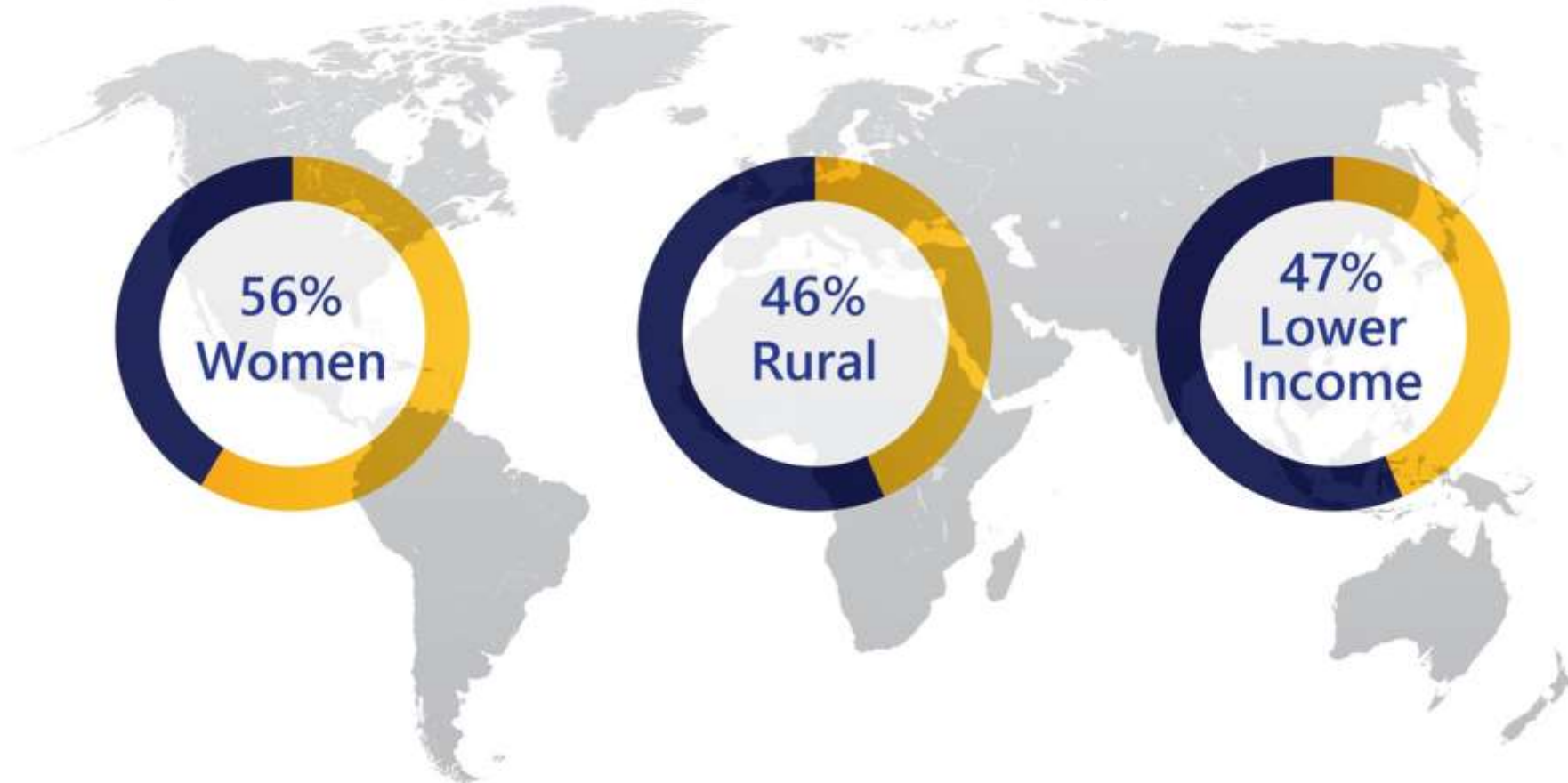




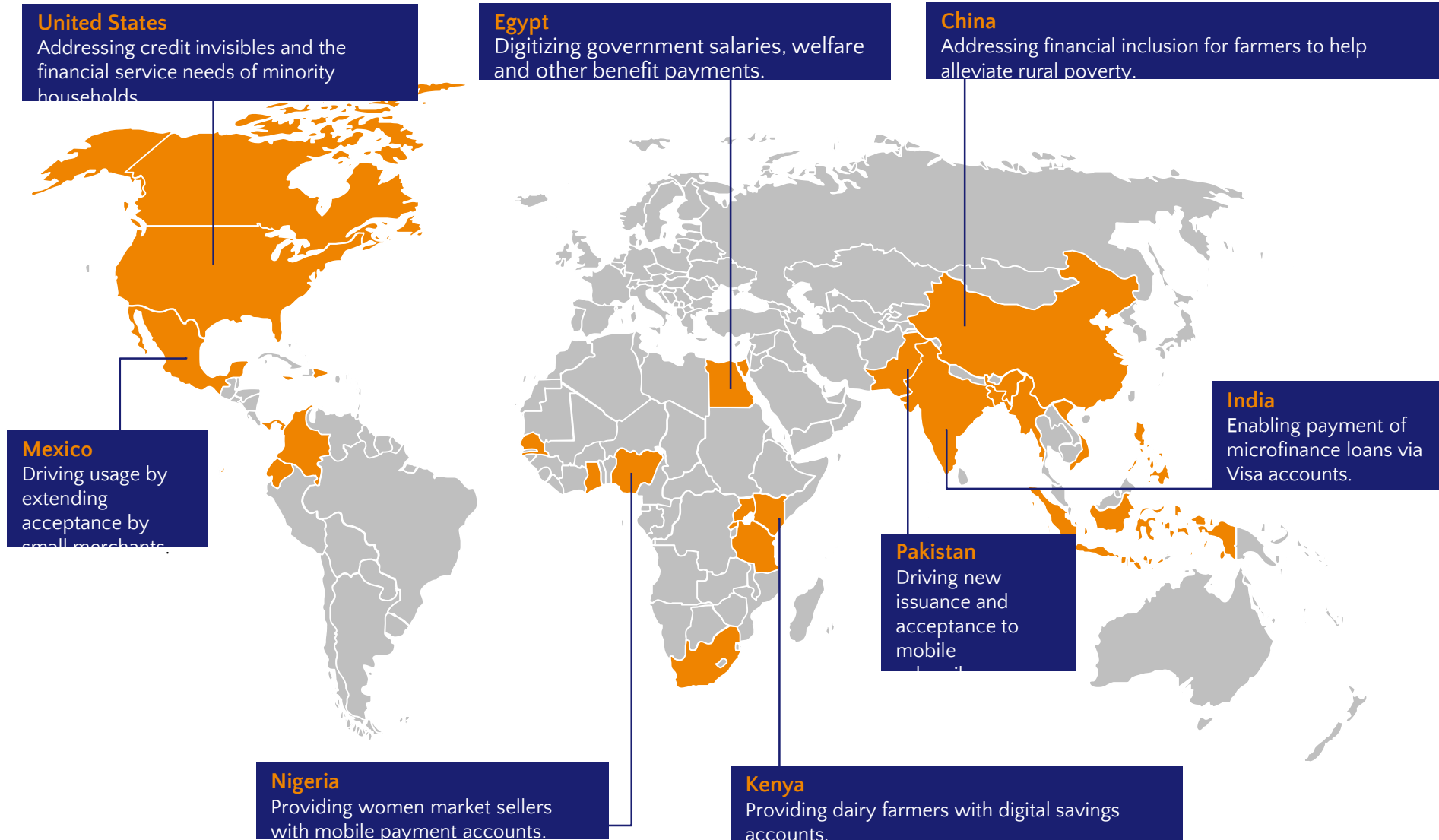
# Reach of Visa Financial Inclusion Programs

493 M Unbanked and Underserved People

*provided with first-time payment account through Visa since 2011*



# Visa is Making a Difference Worldwide





# India – Small Merchant Acceptance



- Interoperable QR code-based system
- Merchant displays a code, to be read by a supporting mobile app
- Supports mVISA & other networks
- System can support SMS-based payments
- New acceptance use cases emerging

# India – Microfinance



- More than 5.5M loans issued via Visa Prepaid cards
- Digital & financial literacy for cardholders
- Merchants as agents
- Cash out issue
- Pathway to other services



# China Financial Inclusion

Visa partners with government, NGOs, universities and financial institutions to reach 5 million rural residents with financial services



# China – Rural Poverty



- Bring 70M Chinese out of poverty by 2020
- Long-term Visa partnerships to reach 10M underserved Chinese
- Demonstration Zone in NE China targets 5M+ rural residents
- Financial education, training, & awareness

# Visa's Approach



**Provide solutions** that help clients reach underserved and unbanked



**Drive small merchant and agent acceptance** to create convenience and usage

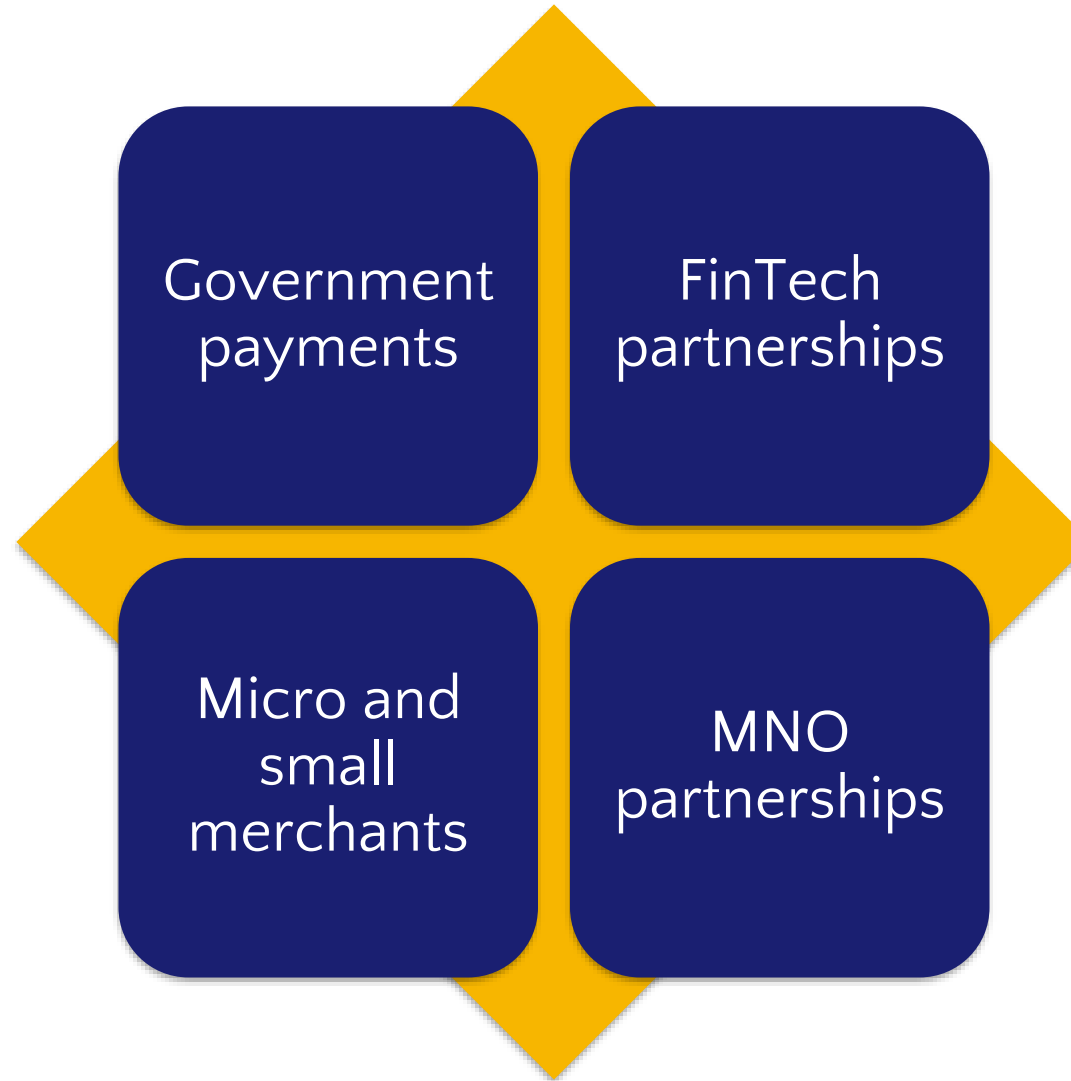


**Partner** with entities that have relationships with unbanked and underserved populations, and the capacity to reach the last mile



**Advocate for an enabling environment** that encourages investment and innovation

# Areas of focus for Visa



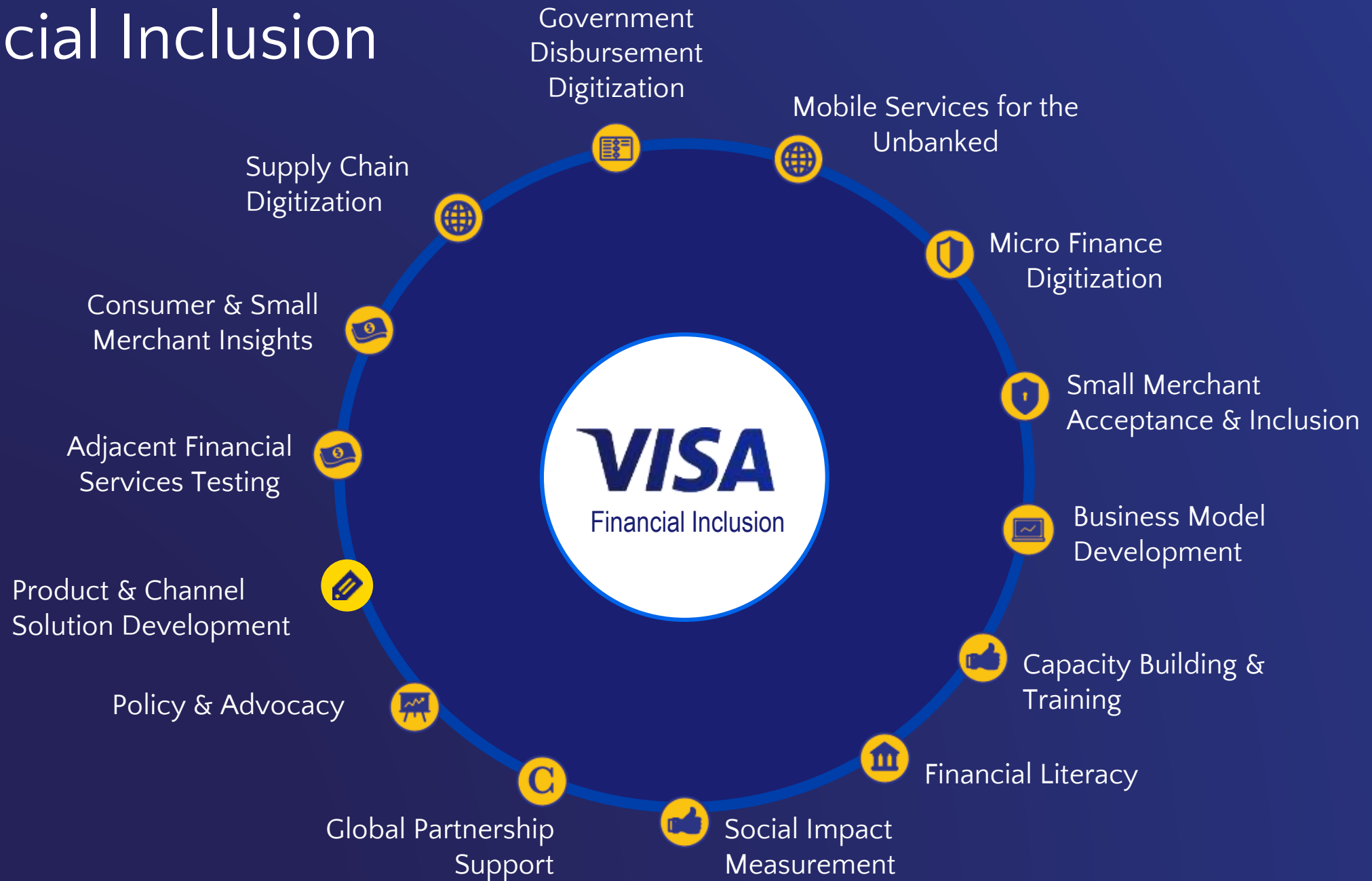



# Partnerships Help

**BETTER THAN CASH**  
**ALLIANCE**



# Financial Inclusion 360°





The last few years have witnessed dramatic changes that have fueled financial inclusion advancements



# 3 Future trends that will impact financial inclusion



# DATA



AS A VALUABLE GROWTH ENABLER

“Is data the new oil?” Data is a valuable growth driver



Data is to this century what oil was to the last one: a driver of growth and change

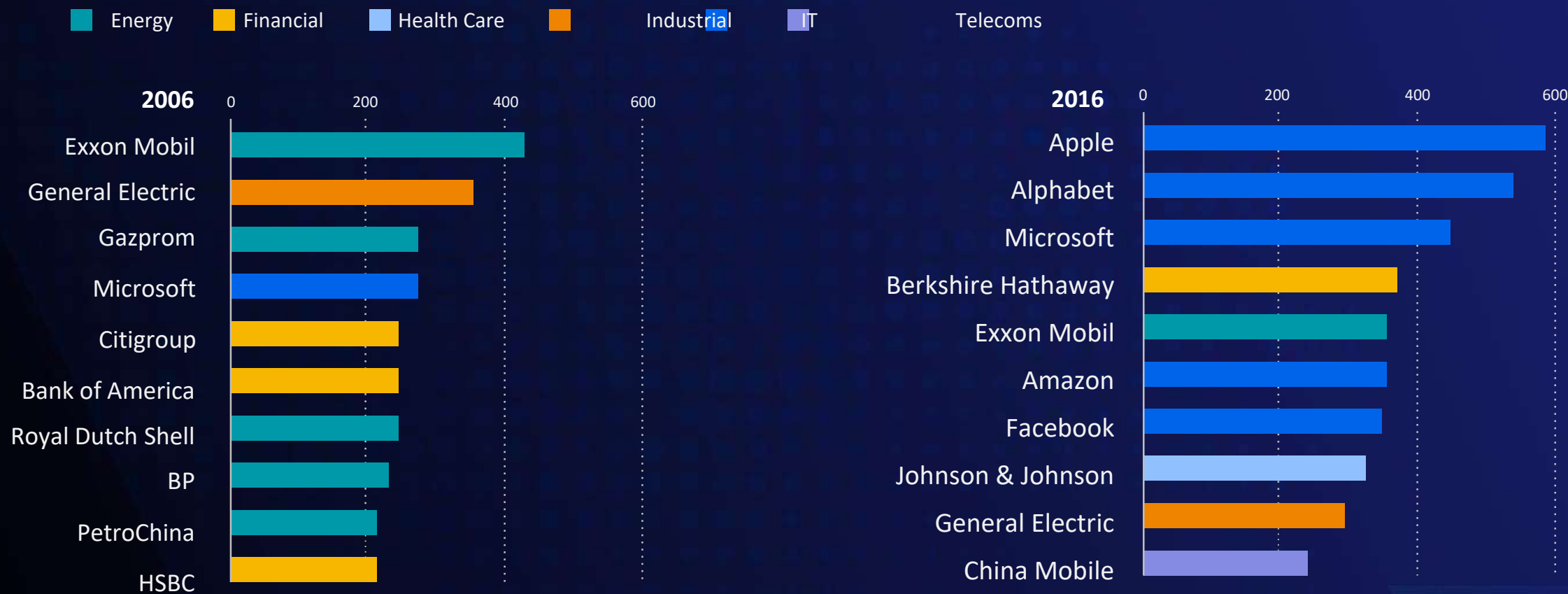
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**VISA**



# Data is a growth enabler for platform companies

**“A virtually new world”** World, largest listed companies by market capitalization, \$bn



\*At August 24<sup>th</sup> 2016

# DATA AS A VALUABLE GROWTH ENABLER

## WHAT'S DRIVING CHANGE



The rise of tech like IoT, ambient intelligence, and emerging neurotech will facilitate the collection of data on a mass scale.



Public and private organizations are increasingly sharing their data sets. Breaking down data silos will increase the value of data.



The rise of big data analytics and AI-as-a-service will increase the number of applications making data more valuable.

# 2020

## DATA AS INFORMATION

Data becomes a new asset class that has value and can be transacted.

# 2030

## DATA AS ENABLER

## GATED AND SILOED DATA

Previously disparate silos of data held by different entities are now stored on platforms that enables easy sharing.

## OPEN AND DECENTRALIZED DATA

## ONE-WAY TOUCHPOINTS

Data is collected throughout the customer journey and uses in real-time to tailor the experience and product offerings to customer behaviours and preferences.

## TWO-WAY FEEDBACK LOOPS

# VIRTUALIZATION OF MONEY

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The relevance of cash is decreasing as new payment form factors and crowd-financing gain grounds.





In  
2030...

Consumers will pay for their  
shopping with a biochip  
implanted under their skin.

BIOHAX

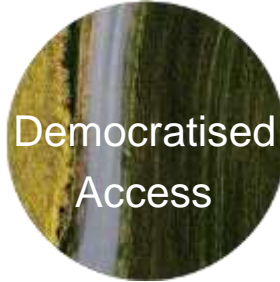
NFC implant for unlocking doors and making payments in Sweden MICROCHIP

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# VIRTUALIZATION OF MONEY

## WHAT'S DRIVING CHANGE



Democratised  
Access

Better connectivity and access to tech even for marginalized groups, will enable cashless payments to become the norm.



Decentralised  
Trust

Consumer concerns around data privacy and security will be addressed by the new tech and trusted data sharing frameworks.



Agile Living

Accelerated lifestyles and the rise of the access economy, drives demand for automated payments and fast money.



# 2020

# 2030

## **PHYSICAL PAYMENT FORMS** (CASH/CARD/DEVICE)

Physical form factors of payment like cards or cash will disappear. Shoppers will pay using biometrics (e.g. face, thumbprint, heartbeat patterns) or bioimplant



## **BIO PAYMENTS (BIOMETRICS)**

## **CONSUMERS PRIVACY CONCERNS**

Algorithms determine products recommendations and experiences, with trusted consent by consumers



## **TRUSTED DATA SHARING**

## **CONSCIOUS PAYMENTS**

Payments for small ticket purchases happen automatically in the background. Consumers are only asked to authorize the transaction when it is a big ticket purchase.



## **AUTOMATIC PAYMENTS**



# MARKETS OF ONE

From personalisation to hyper-individualisation



## In 2030...

Shopping malls will be personalised and predictive, down to the individual consumer – with the ability to change dynamically, from design and ambience to the basket of products and services offered.

“BLANK” CONCEPT STORE  
Personalised virtual shopping malls

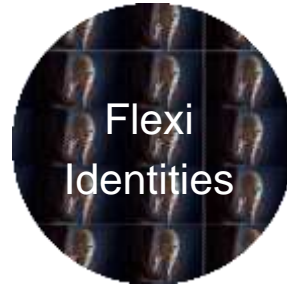
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# MARKETS OF ONE

## WHAT'S DRIVING CHANGE



Increasing complexity of individual identities will create demand for commerce to fragment and adapt accordingly



Rising influence of centennials will expand consumption considerations beyond price



Adoption of new tech e.g. 3D printing will reduce cost of customised design and production

# 2020

# 2030

**ESTIMATED  
SEGMENTS**

Consumers will trust choices to algorithms that are able to make increasingly more accurate decisions

**YOU KNOW WHAT  
IS BEST FOR ME**

**CSR FOR PR**

Environmental, social, economic and political threats are occurring at unprecedented rates, across sectors

**CSR FOR RESILIENCE**

**MASS  
CUSTOMISATION**

Traditional consumer segments will give way to the diverse individuals

**INDIVIDUALISED  
CUSTOMISATION**

# Transformation has been fueled by Industry 4.0 technologies





IBM stated that 90% of the world's digital data was created in the last 2 years



Global Internet traffic share in 2018

15%



12%



2..Estimation by Statista

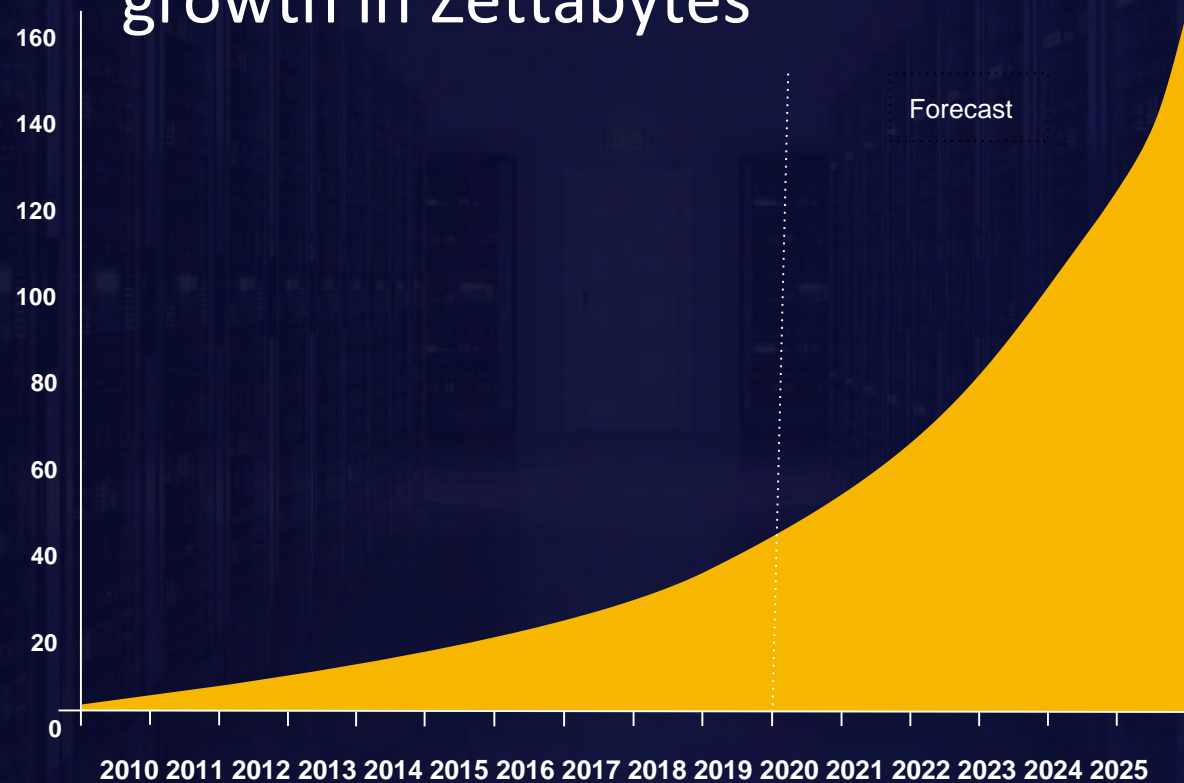
# What is data? Data is everything

A name	Likes	Financial data
Age	Time	Volume
Date	Weather	Cholesterol
Height	Population	Sentiment
Address	Length	Noise measures
Credit card	Weight	Pain ratings
Sales	Area	A Movie
Color	A book	Blood pressure
Grade	Price	Retweets
Temperature	An Image	Stock price
A website	Longitude	Salary
Video	Animation	Happiness



# Global datasphere forecasted to hit 163 trillion gigabytes or 163 zettabytes

## Global Data sphere growth in Zettabytes





1 grain of rice = 1 byte





# A bowl= 1 Kilobyte



8 sacks = 1 Megabyte





A container truck  
1 Gigabyte





A photograph of the Golden Gate Bridge in San Francisco, California. The bridge's iconic red-orange towers and suspension cables are prominent on the left side of the frame. Two large container ships, heavily loaded with colorful shipping containers, are sailing in the blue water of the San Francisco Bay. The city of San Francisco is visible in the background, nestled between hills and the water. The sky is a clear, deep blue.

2 container ships  
1 Terabyte



# From terabyte to yottabyte



Byte



Kilobyte



Megabyte



Gigabyte



Terabyte

The UK covered in rice



Petabyte

Asia covered in rice



Zettabyte

The Pacific Ocean



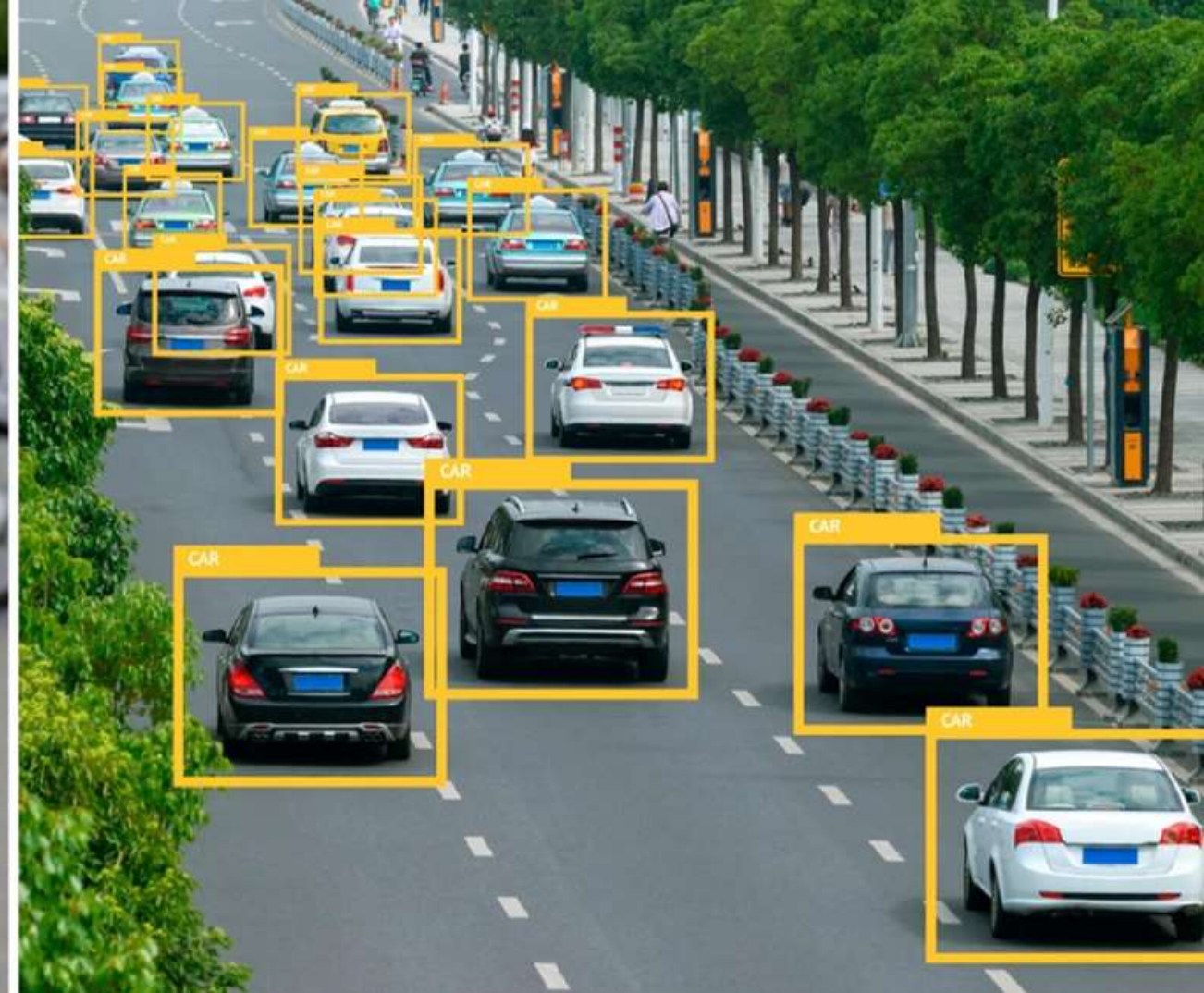
Exabyte

Planet Earth



Yottabyte

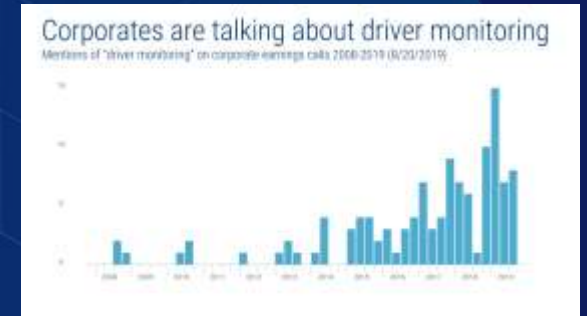
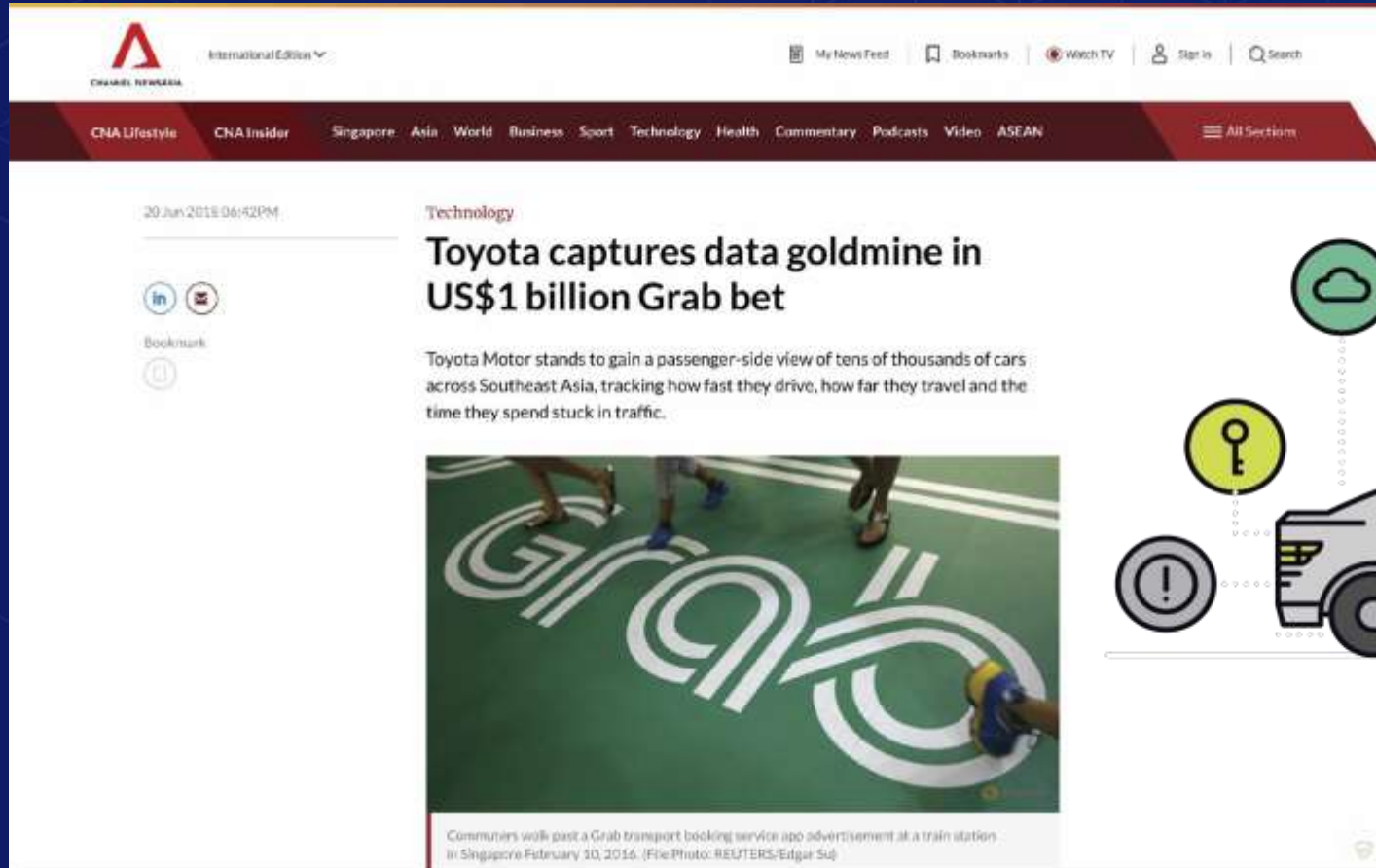
# Data is transforming how we understand our world





# Toyota invested \$1 billion in Grab for their data

“Toyota will gain a passenger-side view of tens of thousands of cars across Southeast Asia, tracking how fast they drive, how far they travel and the time they spend stuck in traffic.”



New cars have more than 500 IoT sensors

# More data is giving organizations better actionable insights

Human data and sensor data are growing exponentially compared to business data

By increasing our ability to:

- Collect
- Store
- Analyse





With behavioural biometrics,  
authentication will become  
more seamless and secure



Users will be able to snap pictures to search online, making all visual content instantly shoppable

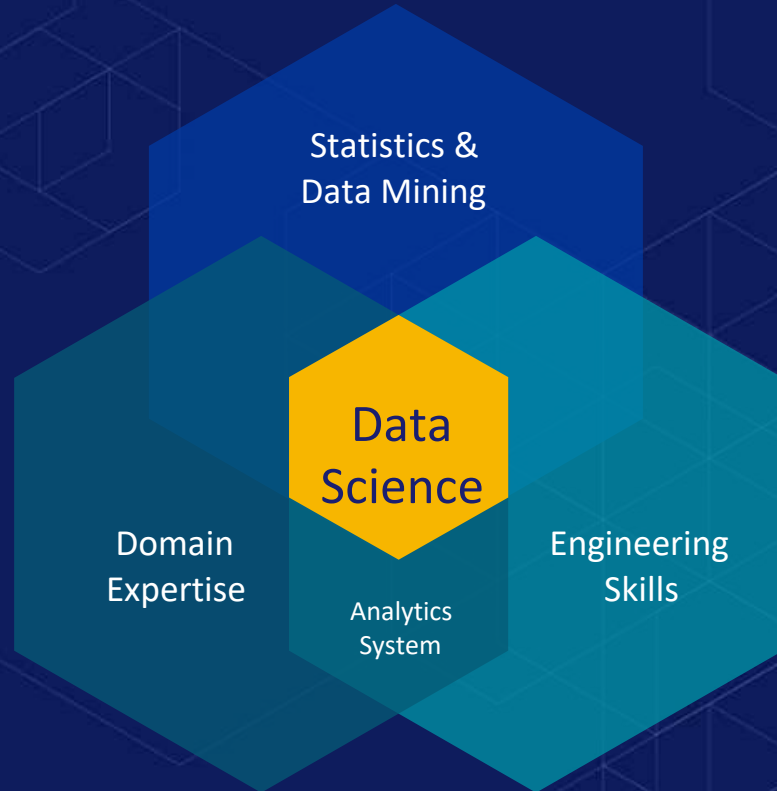




# New data science techniques are transforming analytics



# Data Science today is a multi-disciplinary area



## **Statistics**

Experiment design, modeling, machine learning

## **Engineering**

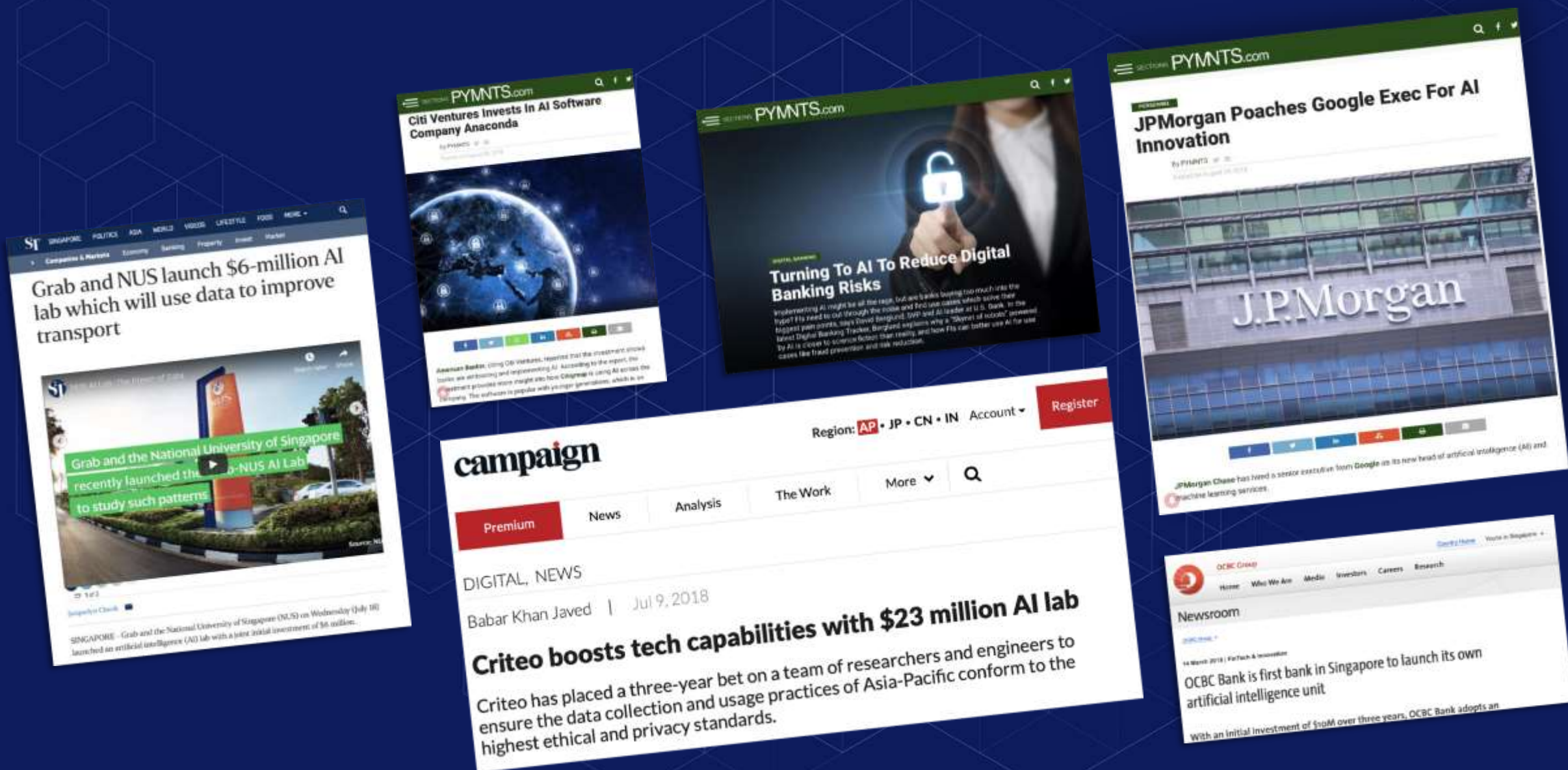
Software and Applications, Big Data Infrastructure and Tools

## **Domain expertise**

Business Analytics (BA) and Business Intelligence (BI)



# Data is enabling Artificial intelligence at scale



# Data enabled technology is disrupting industries

## Manufacturing



## Transportation



## Healthcare



## Financial Services





# Example: trading has been replaced by algorithmic systems

Before 2008

After 2016



The USB Trading Floor, Stamford Connecticut, USA



# What is AI

## artificial intelligence

*noun*

the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.

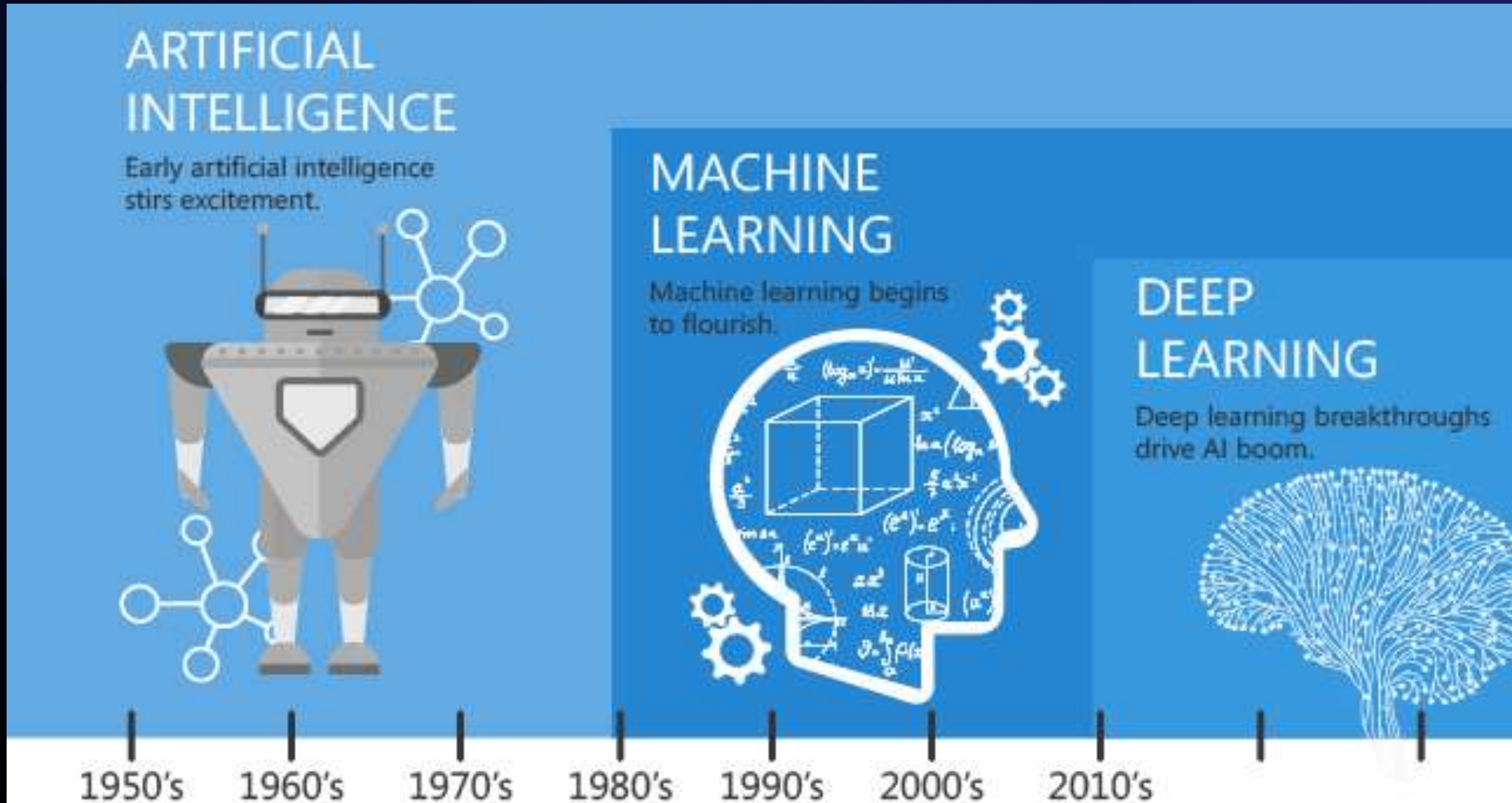


VISA

# Google Home and Alexa are changing our habits



# The evolution of Machine Learning





# AI can help design effective policies

## Satellite imagery + machine learning

Forecasts more accurate than the survey-based estimates from the US Department of Agriculture



Big data ethics refers to  
the ethical dilemmas  
presented by  
big data technologies

# Data can also be an enabler of abuses of privacy

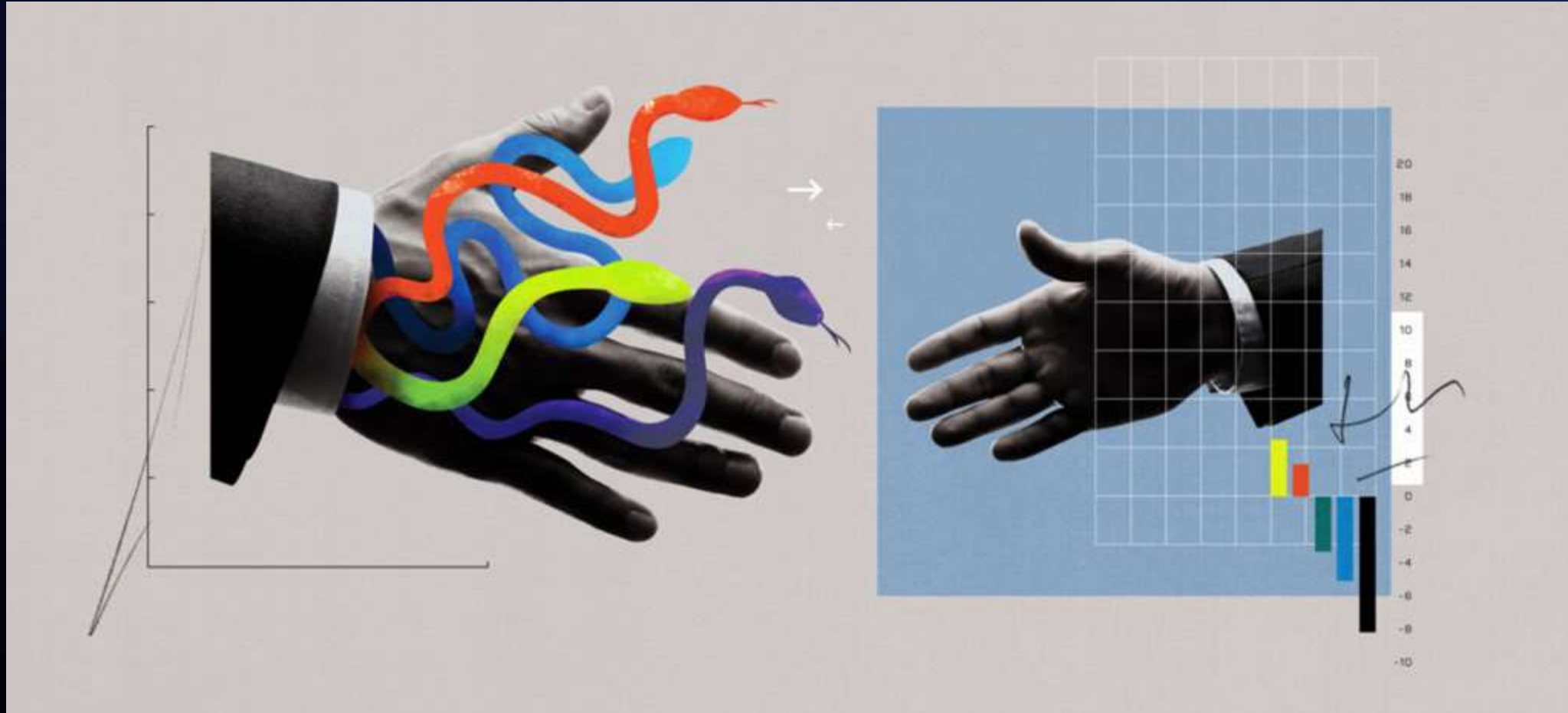




# The Trust Crisis

by Sandra J. Sucher and Shalene Gupta

Facebook, Boeing, and too many other firms are losing the public's faith. Can they regain it?



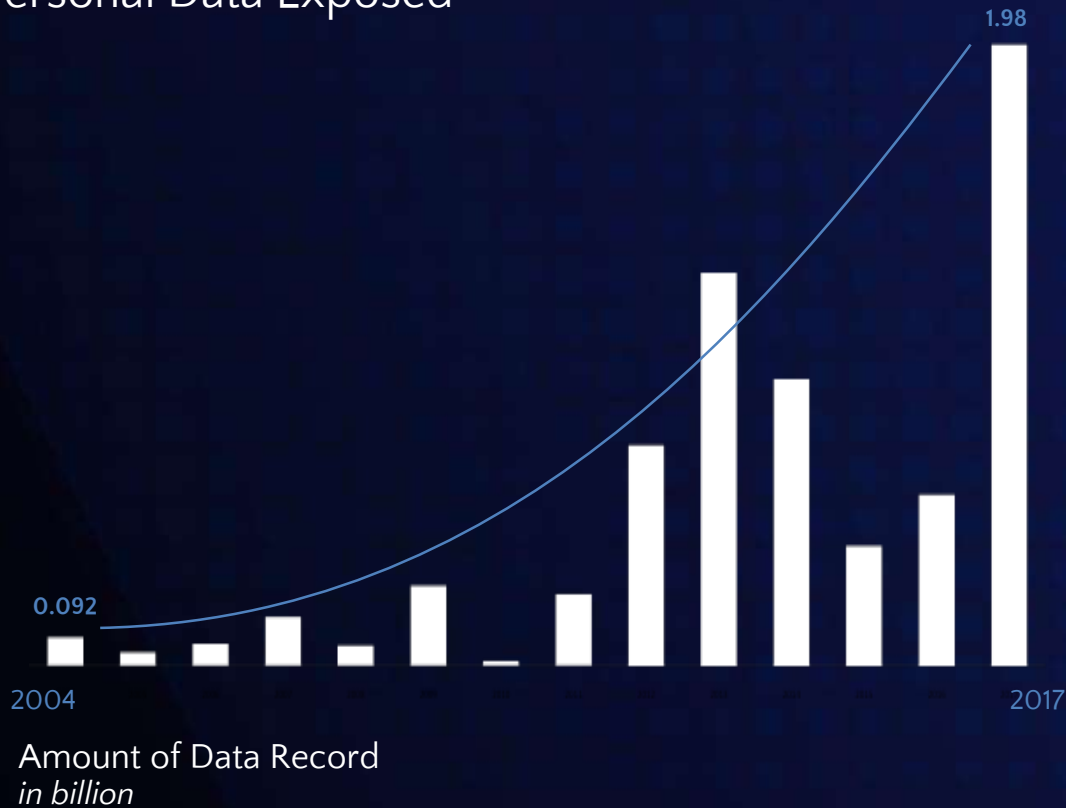
The proliferation of Fintech players may indicate we are willing to share data



# However, giving access has risks...

Average data records stolen  
every day across H1 2018

## Personal Data Exposed



18.5M

Compromised every day

>2X

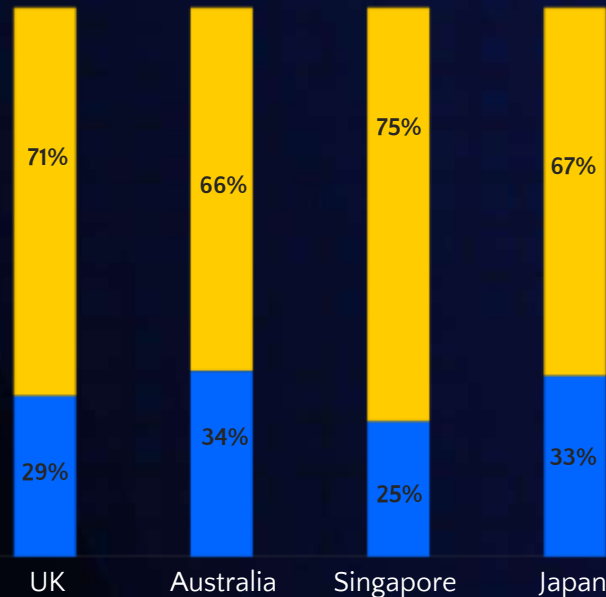
Compared to the year before

Source: Kantar Global MONITOR (U.K. N=1,000, Australia N=1,000, Singapore N=1,000, Japan N=1,000)

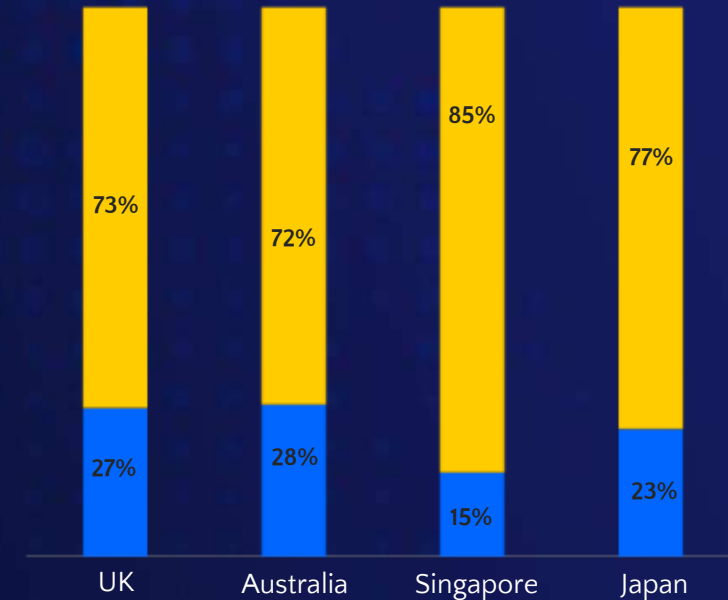


# Consumers rate high the importance of data privacy

"I believe it is important to keep track of any online personal data held about me by businesses"



"I am concerned about data protection and privacy on the internet"



Source: Kantar Global MONITOR (U.K. N=1,000, Australia N=1,000, Singapore N=1,000, Japan N=1,000)

# What is our data culture? a great one



Visa, along with the Bill & Melinda Gates Foundation, USAID, Citi, the UN Capital Development Fund, Ford Foundation and the Omidyar Network, formed the Better Than Cash Alliance to speed the transition from cash to electronic payments, an important step in advancing greater inclusion.

**VISA**

Visa, the Citi Foundation and the Center for Financial Inclusion at Accion founded the Financial Inclusion 2020 initiative to help achieve a world with universal access to quality financial services.



# Investing in Data Literacy is a key success factor



Educate leaders and stakeholders  
on the strategic value of data



Engage industry experts and  
players to drive innovation



Co-create with partners  
to develop new solutions



Thank you