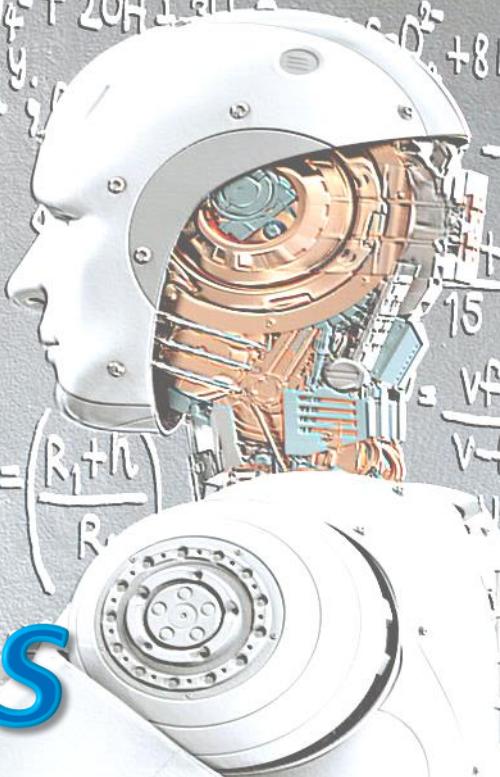


# Advanced Topics in Information Systems



**CIS8690** =  $\frac{1}{512}$  A =  $\pi r^2 h$

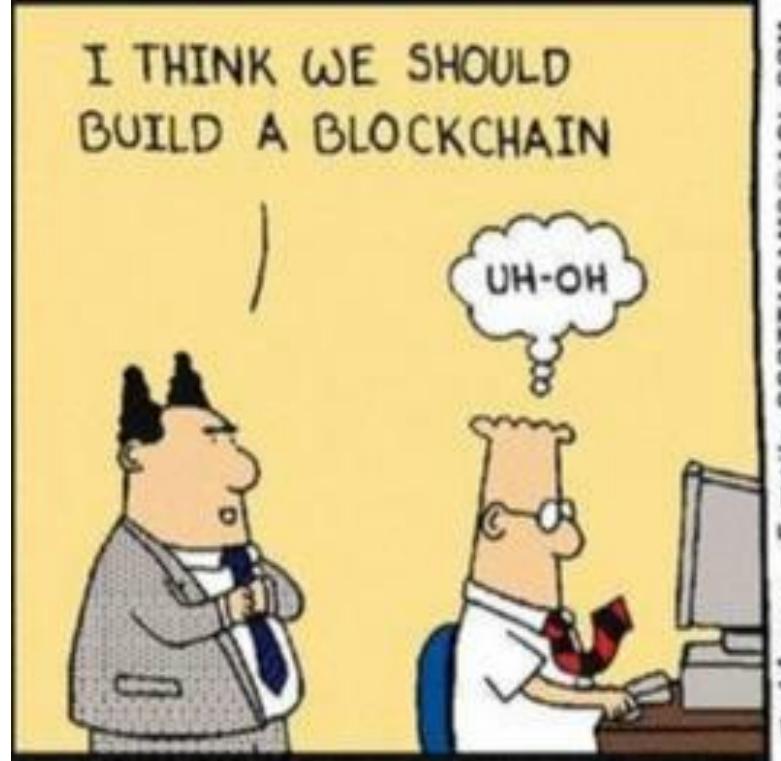
$\cos(B) = \frac{y}{x}$   $(100^2)a + 100b -$

$\sin(B) = \frac{4\sqrt{3}}{x}$   $10000a + 100b -$

$\sin(60^\circ) = 4\sqrt{3}$   $\cos(60^\circ) = \frac{y}{x}$

# Why is this Class Needed?

- ***Technology is constantly in motion***
  - Technology leaders should take ***tomorrow's queues from today's trends.***
- ***Technology, Social & Environmental forces are converging***
  - Going forward, ***companies and these disruptive forces must work together to survive***



# Agenda for Tonight

- Class Housekeeping
- 4<sup>th</sup> Industrial Revolution
- Intro to Fintech
- Course Overview
- Global Securities United Overview
- Team Assignments

# Who am I ?

- Currently ***Executive in Residence*** at GSU (3 years)
- BS in MIS from University of Maryland
- MBA in Executive Leadership Wesley College (De)
- Certified Government CIO University of North Carolina
- 9+ years of academic instructional experience
- **30+ years' IT industry experience**
  - Multiple senior executive positions Including SVP (J.P. Morgan Chase) and CIO (Georgia DNR)
- 20+ Years of Banking IT experience in every level of IT (programmer trainee to SVP)
- Nominated for Georgia CIO of the Year Award in 2015 and 2016
- Georgia Top IT Innovation award 2012, 2014 and 2015
- **Certified Fintech Professional (University of Hong Kong)**
- **Certified in Blockchain from Linux Foundation & IBM Global Learning**
- **Certified Cloud Practitioner (AWS)**
- Certified in many IT Process Frameworks (CMMI, ITIL, COBIT, 6 Sigma, TQM)

# Syllabus

This syllabus provides a general guideline for the conduct of the course and deviations may be necessary.

Instructor	John C. Martin
Office	35 Broad Street, Suite 928 (Daytime Office)
Office Hours	By appointment only
Office Phone	(404) 291-9963
Email	<a href="mailto:jmartin120@gsu.edu">jmartin120@gsu.edu</a> (primary method of communication)

# Syllabus

- COURSE TEXT
  - **Tech Trends in Practice, Bernard Marr, John Wiley & Sons Ltd., 2020 edition**
    - In Icollege Content for **FREE!**
    - If you want to buy - ISBN: 978-1-119-64619-8 (Hardback), ISBN-978-1-119-64621-1 (e-PDF), ISBN-978-1-119-64620-4 (e-Pub)
- CASE STUDY
  - We will use a real opportunity/problem (GSU) that is looking to use emerging technologies to enhance their position in their consumer market. The class will be broken up into teams, which will work with their client to solve the problems and present a “possible” solution back to the company.
- ADDITIONAL READINGS (provided in iCollege - Content):
  - See Assigned Additional Readings in Syllabus (subject to change)
- GRADING
  - Attendance & Team Participation: 10%
  - Midterm Exam: 25%
  - **Case Study Deliverables: 40%**
    - **10% Detailed problem statement**
    - **10% Draft Architectural Vision Document**
    - **20% Final Architectural Vision Document**
  - Final Exam: 25%
  - The following grading scale will be used to calculate final grades: A+ (97-100%), A (93 – 96.99%), A- (90-92.99%), B+ (87-89.99%), B (83-86.99%), B- (80-82.99%), C+ (77-79.99%), C (73- 76.99%), C- (70-72.99%), D(<70%)

# Syllabus – Class Schedule

<b>Class</b>	<b>Date</b>	<b>Agenda</b>	<b>Topics</b>	<b>Readings (Read in Advance) &amp; Assignments Due</b>	
<b>1</b>	3/3	Introduction & 4 <sup>th</sup> Industrial Revolution	<ul style="list-style-type: none"> <li>• Introduction to Emerging Technologies</li> <li>• 4<sup>th</sup> Industrial Revolution</li> <li>• Introduction to FinTech</li> </ul>	<ul style="list-style-type: none"> <li>• Fourth Industrial Revolution</li> <li>• Introduction to Fintech</li> </ul>	
<b>2</b>	3/10	<ul style="list-style-type: none"> <li>• Data Analytics</li> <li>• eCommerce</li> <li>• Intro to TOGAF/ADM</li> </ul>	<ul style="list-style-type: none"> <li>• What is Data Analytics and how does it relate to predictive Analytics and Big Data</li> <li>• What are the elements of eCommerce?</li> <li>• Architecture Development Method</li> </ul>	<ul style="list-style-type: none"> <li>• Text Book –<a href="#">Trend 4</a>, 18</li> <li>• Digital Transformation in Banking</li> <li>• Data Analysis Handbook</li> <li>• Detailed Problem Statement Due</li> </ul>	
<b>No Class</b>	3/17	<b>SPRING BREAK</b>			
<b>3</b>	3/24	Cyber Security & MIDTERM EXAM	<ul style="list-style-type: none"> <li>• Digital Signatures</li> <li>• Cryptographic Hash Functions</li> <li>• Biometrics for Security</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Text Book</a> – Trend 20</li> <li>• Biometrics in Security</li> <li>• PKI Fundamentals</li> </ul>	
<b>4</b>	3/31	IoT & Cloud Computing	<ul style="list-style-type: none"> <li>• What is IoT and how can it be used</li> <li>• Mobile Technologies</li> <li>• Wireless Computing Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Text Book</a>– Trend 2, 5, 7 &amp; 15</li> <li>• Mobile Technologies</li> <li>• Wireless Internet Network Communications</li> <li>• Draft Architectural Vision Doc Due</li> </ul>	
<b>5</b>	4/7	AR / VR & AI	<ul style="list-style-type: none"> <li>• What is AR and VR</li> <li>• What is AI and how can it help businesses?</li> <li>• How they are used in innovative organizations</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Text Book</a>– Trend 1, 8, 10, 11 &amp; 13</li> <li>• AR and VR</li> <li>• AI for Dummies (Chapters 2-4)</li> </ul>	
<b>6</b>	4/14	Blockchain/ Cryptocurrency	<ul style="list-style-type: none"> <li>• Blockchain explained</li> <li>• Mining, proof of work, proof of stake</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Text Book</a>– Trend 6</li> <li>• Blockchain for Dummies</li> </ul>	
<b>7</b>	4/21	Final Presentations Final Exam		<ul style="list-style-type: none"> <li>• Final Architectural Vision Doc Due!</li> </ul>	

# Team Assignment & Dynamics

## What I expect!

<b>Group 1</b>	<b>Group 2</b>	<b>Group 3</b>	<b>Group 4</b>	<b>Group 5</b>	<b>Group 6</b>	<b>Group 7</b>	<b>Group 8</b>	<b>Group 9</b>	<b>Group 10</b>
Sapna, Patel	Yeshwanth Reddy, Kariveda	Sanchit, Agrawal	Yash, Mitkari	Ruchita, Thombare	Varun, Jagadeesha Babu	Tirumala, Vuppu	Yan, Zhou	William, Coggin	Vasishta, Kuchipudi
Sahiti, Addanki	Rajeswari, Katta	Priti, Thakur	Saurav, Bhattacharai	Joshua, Seeb	Shivam, Shivam	Shayela, Alam	Upendra, Bharamgouda	Prithiviraj, Maniram	Eldridge Nathanael Mathew
Ranganath, S	Nidhi, Chandramohan	Komal, Mehta	Satyaraj Reddy	Gautam, Jain	Juhie, Mishra	Padma Deepika, Narayanaswamy	Twinkle, Kumari	Pankaj, Shinde	Chandan, Singh
Neha Samhitha, Pinjala	Jennifer, An	Deeksha, Rokle	Amarendra, Yendru	Ayan, Basu	Brian, Blades	Mitali, Warty	Danish, Ansari	Bhavin, Patel	Anuja, Jadhav
Abhilasha, Tiwari	Aishwarya, Chhabra	Abhinav, Bisht	Aashrith, Sangani	Ashutosh Ravindra, Kaddi	Ameya, Deo	Katlynn, Stodghill	Bharat Chandra Siddartha	Ankur, Chowdhury	

# Case Studies

- **Case Study #1\* (Teams 1, 3, 5, 7, 9)**

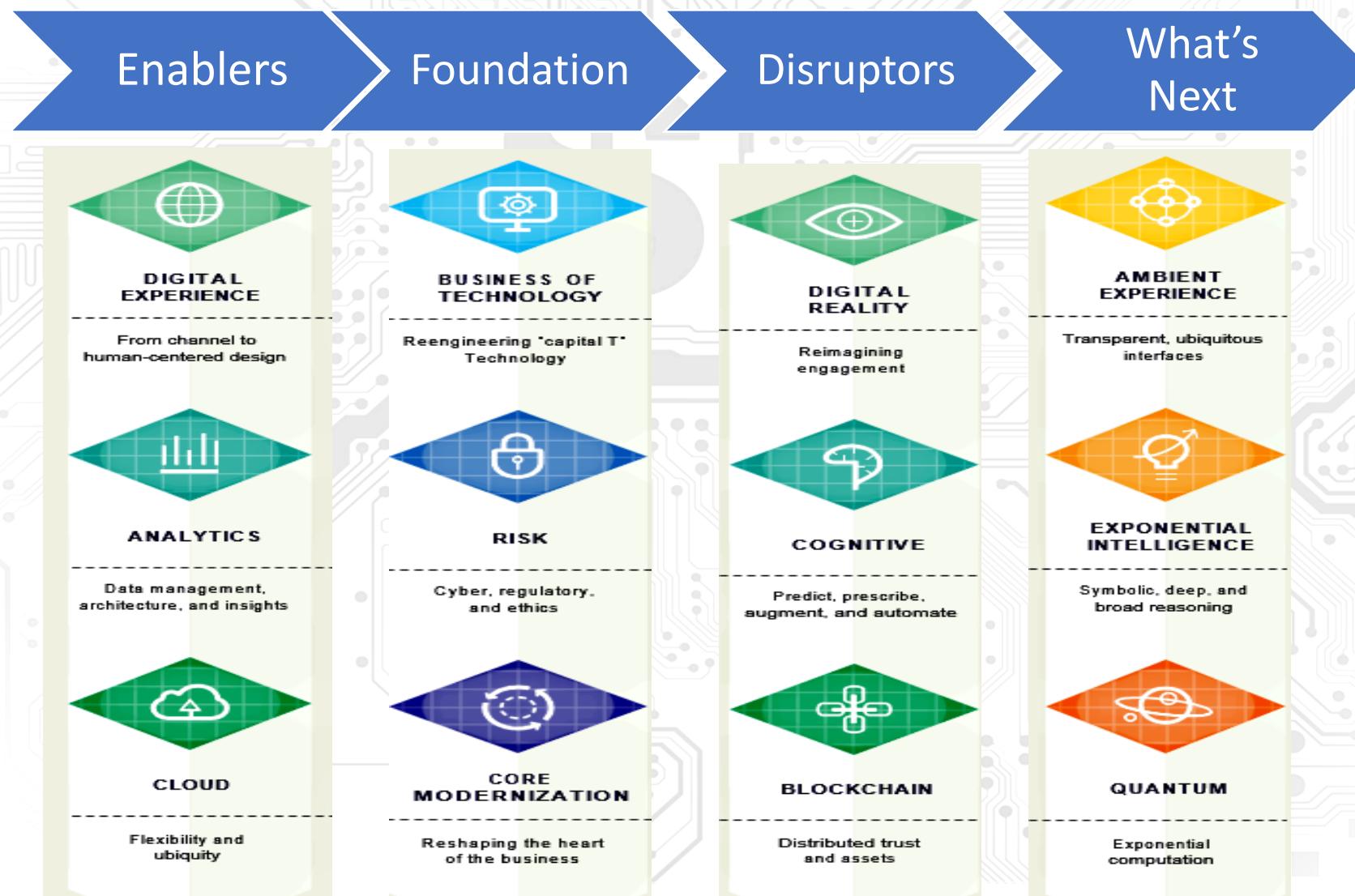
How is contactless consumer posture changing the technology landscape in context of data centers, edge computing and 5G? How can Fintech companies evolve its technology stack to prepare for the shift in how consumer and products will interact in future?

- **Case Study #2\* (Teams 2, 4, 6, 8, 10)**

What is the next evolution of eCommerce? How will cognitive technologies apply to human interactions that the Fintech should start to prepare for. What technologies play a role in this space?

**More to Come Later!**

# We are at an intersection of the Emerging Technologies



# Did not exist in 2006

When look at some of the technologies that we take for granted now. In 2006 there were no technologies like

- iPhone
- Kindle
- 5G
- Android

And applications like

- Instagram
- Snapchat
- Whatsapp
- Uber



Instagram



Snapchat



WhatsApp



U B E R

Didn't exist either. All of these are both a result of the 4<sup>th</sup> industrial revolution, and what will drive institutions to adapt the way handle their customers in the future.



# Technology Driving the 4<sup>th</sup> Industrial Revolution

A Word from the Textbook Author

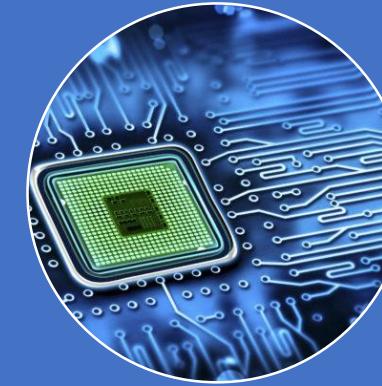
# The 4 Industrial Revolutions



1<sup>st</sup>  
Steam Engines



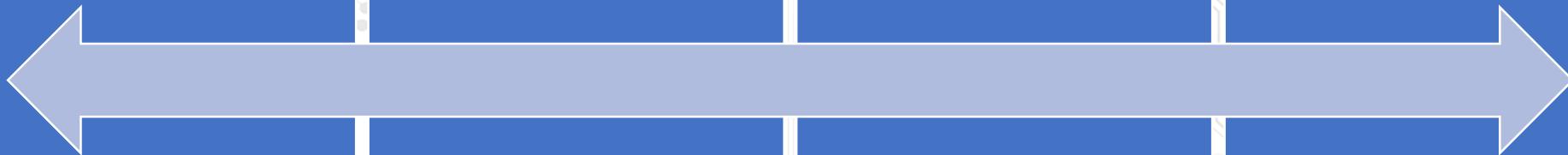
2<sup>nd</sup>  
Assembly lines



3<sup>rd</sup>  
Semi-  
Conductors



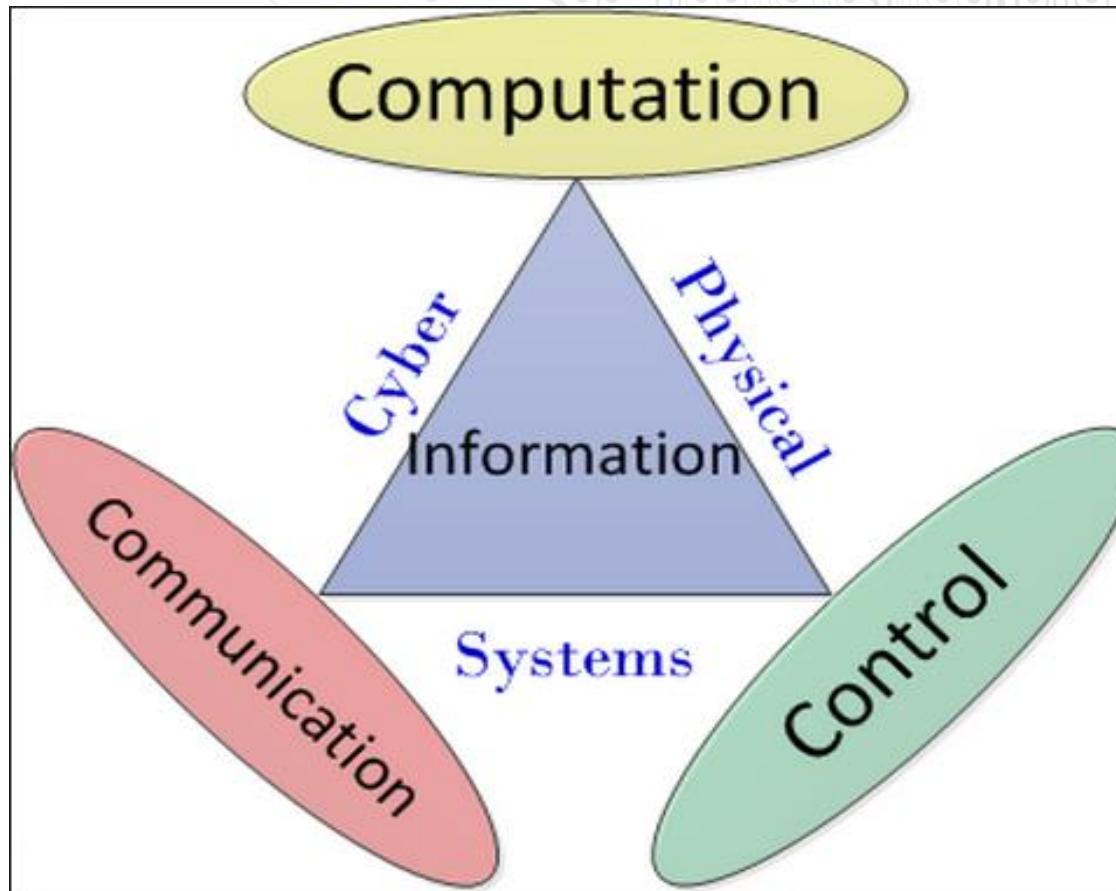
4<sup>th</sup>  
Cyber-Physical  
System





# The 4<sup>th</sup> Industrial Revolution

# What is a Cyber Physical Systems



A cyber-physical system (CPS)

But what is a **cyber-physical system (CPS)**?

- A system of collaborating computational elements controlling physical entities.
- CPS are engineered systems whose operations are monitored, coordinated, controlled and integrated by a computing and communication core.
- Merging computing and communication with physical processes.

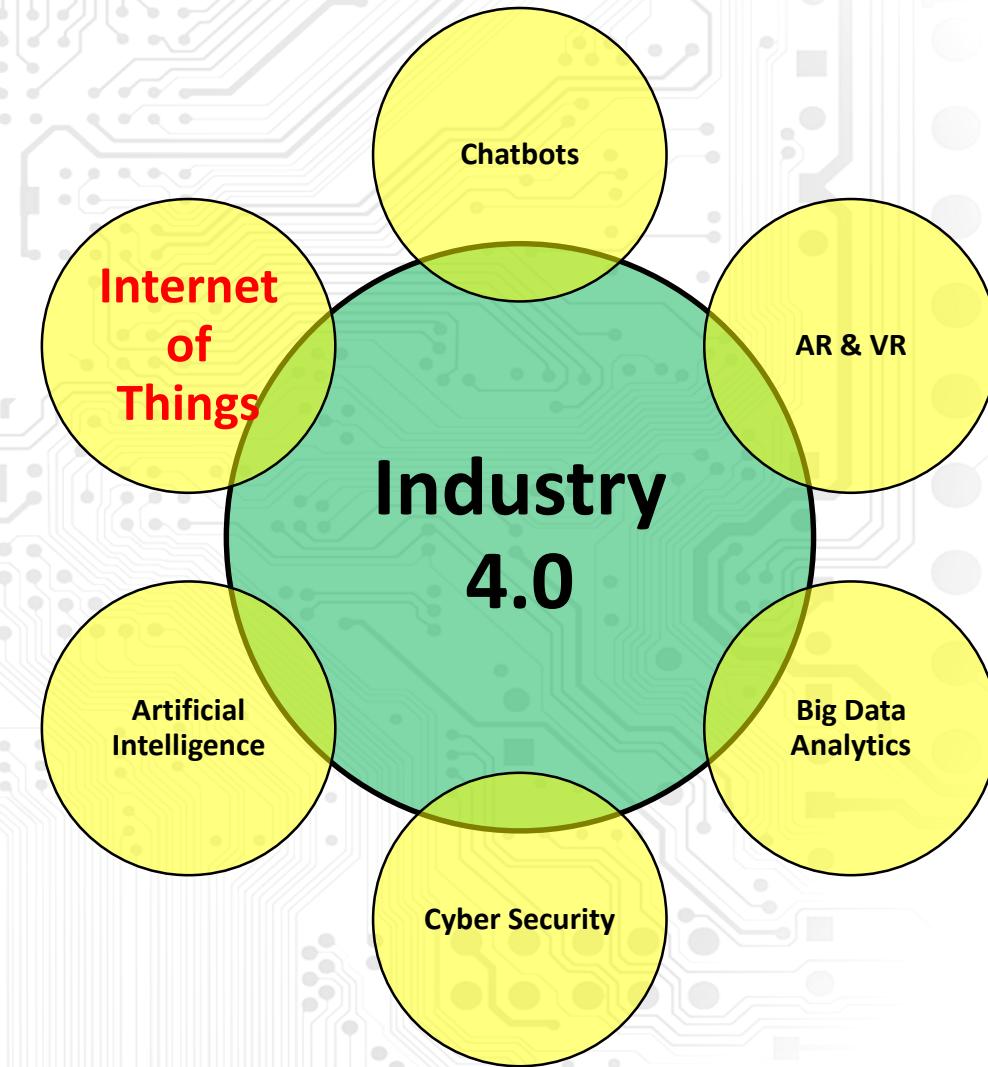
**CPS offers benefits:**

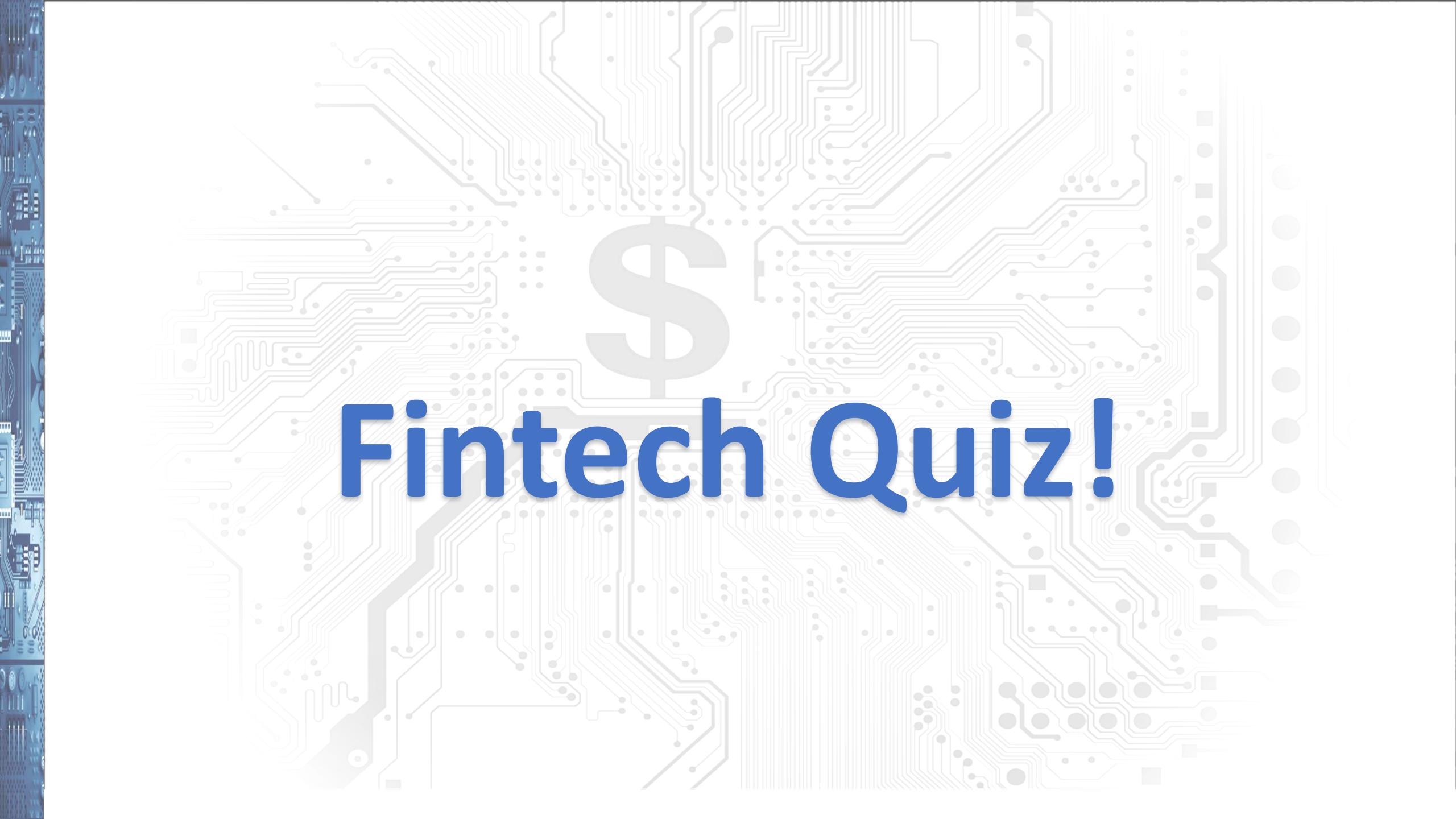
- Safer and more efficient systems
- Reduce the cost of building /operating systems
- Builds complex systems that provide new capabilities

# Some Building Blocks of Industry 4.0

So as you can see, some of the topics we will be discussing in this class ,are the building blocks for the Industrial Revolution 4.0.

That is why it is so relevant to Fintech and its future



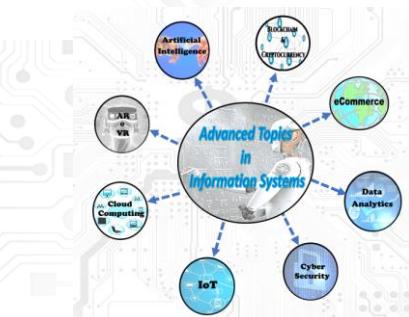


# Fintech Quiz!

# Question #1

Let's start out easy. What does FinTech stand for?

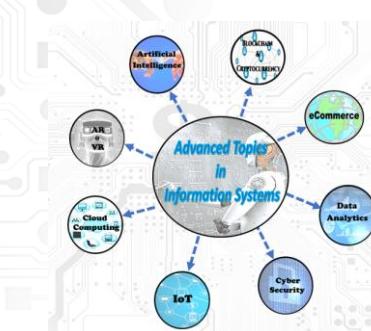
- Finest Technology
- Financial Technology
- Final Technicalities



# Question #2

That was easy enough. Do you maybe know what happened in 1967?

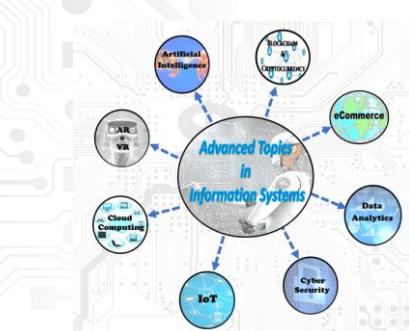
- GateHub was established
- The first transatlantic cable was successfully laid
- The first ATM by Barclays was opened.



# Question #3

It's getting harder. What about when was Bitcoin introduced to the world?

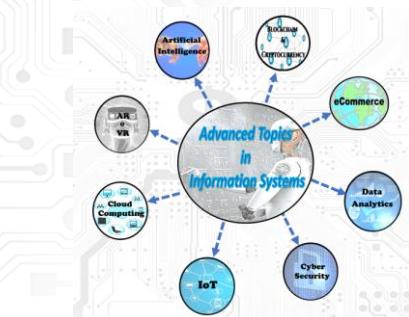
- 2009
- 1990
- 2015



# Question #4

Let's talk about statistics. 3 out of how many people have used FinTech?

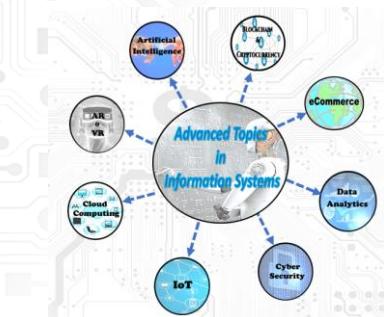
- 10
- 8
- 4



# Question #5

What generation is the main user group of FinTech services?

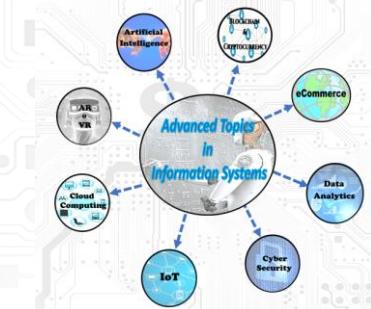
- Gen Z
- Baby boomers
- Millennials



# Question #6

GDPR is short for?

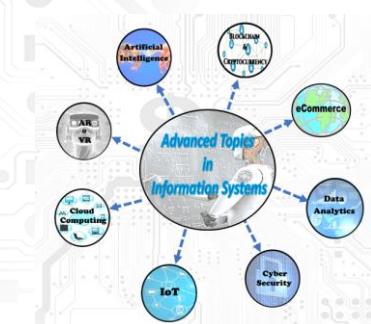
- General Data Protection Regulation
- General Directive of Protection Regulation
- General Data Policy Regulation



# Question #7

Now this one is tough. What is the total value of investments FinTech reached in 2019?

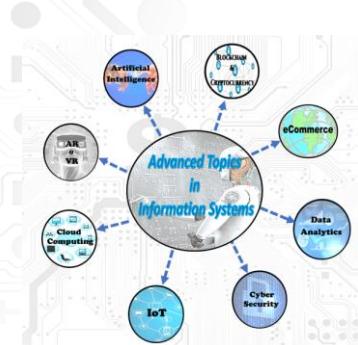
- US\$55 billion
- US\$55 million
- US\$10 billion



# Question #8

FinTech has really become a part of our daily lives. FinTech is not yet found in which area?

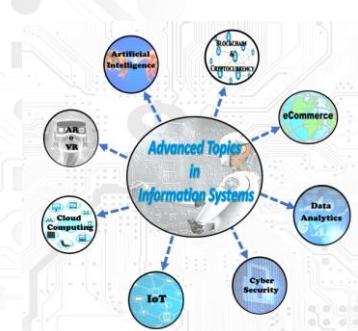
- Insurance
- Lottery
- Stock market



# Question #9

FinTech makes it a reality by using many advanced technologies. But which technology is not used in FinTech?

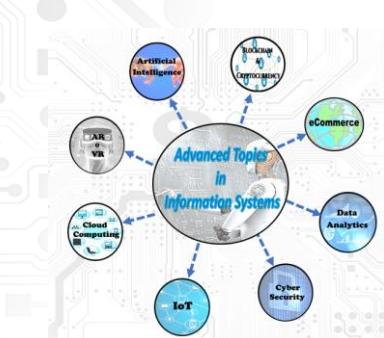
- 3D printing
- AI
- 5G



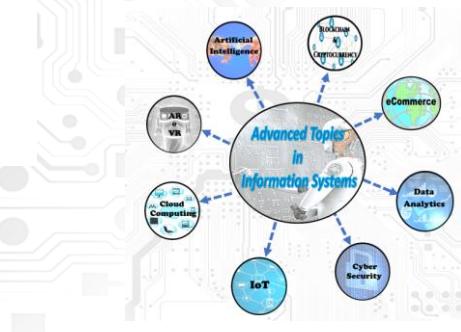
# Question #10

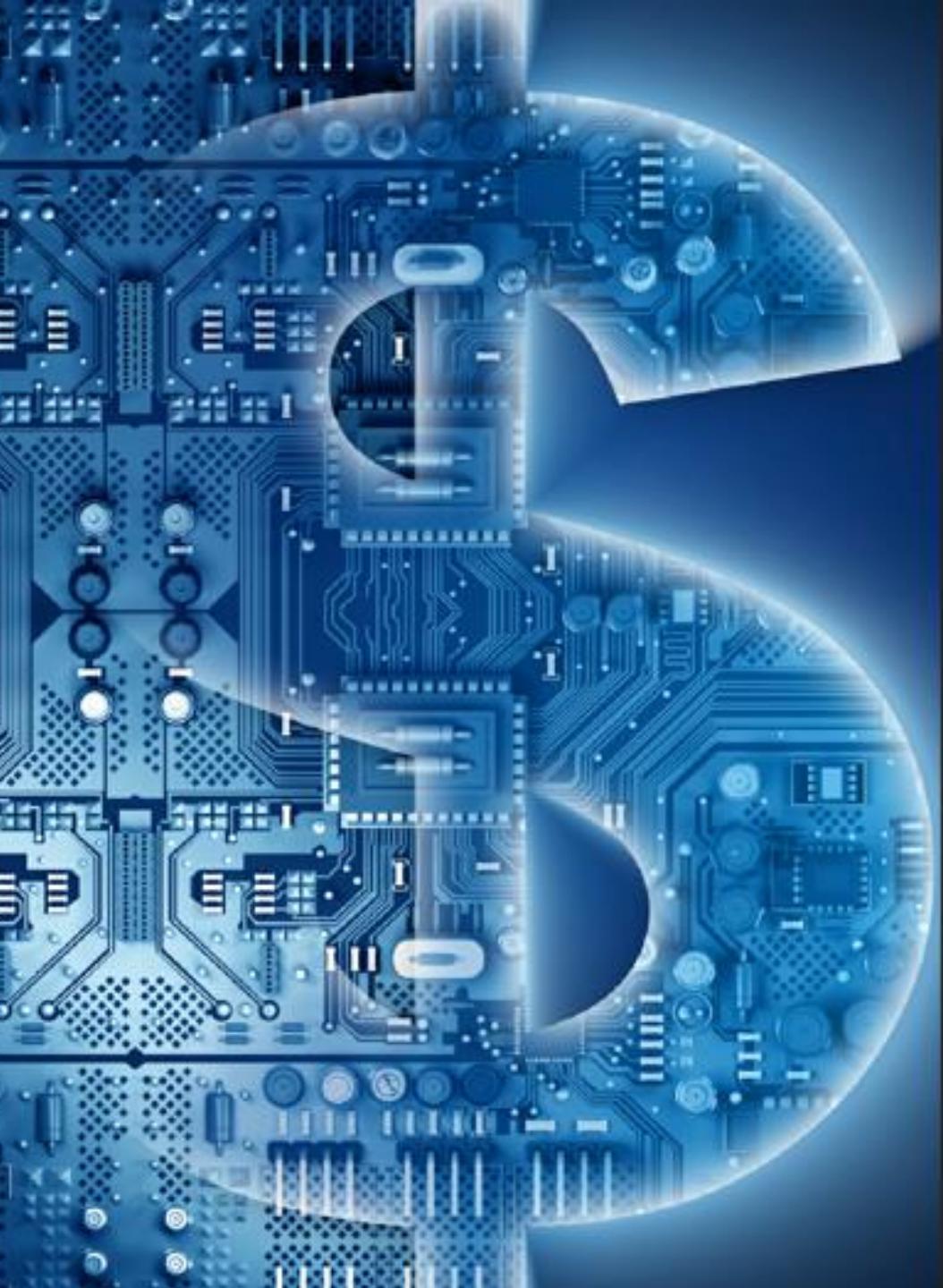
We made it to our final question. Will FinTech play a big part in our future?

- I don't know
- Yes
- No



# You Passed Your First Quiz!!!





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## INTRODUCTION TO FINTECH

# Fintech: The Definition

- ❖ Financial **Tech**nology = **FinTech**
- ❖ Technology used to enable banking and **ANY** financial service
- ❖ Used in a sentence:  
*“Fintech is one of the fastest growing areas for venture capitalists”*

# Breaking Down Fintech

- ❖ Fintech can apply to any innovation in how people transact with a business
- ❖ Financial Technology has rapidly grown since the revolution of the internet and smartphones
- ❖ Fintech was actually a term that was once used for the “back-office” work of banks and trading firms
- ❖ Now describes a broad variety of technological interventions into personal and commercial finance

# Who Uses Fintech

- ❖ B2B for Banks
- ❖ Business Clients
- ❖ B2C for some smaller companies
- ❖ **P2P in some startups!**
- ❖ Mobile banking trends, increased demand for information / data will cause increased opportunities for all the above groups

# What Skills will IT Professionals need for Fintech



## **Technology know-how:**

Any knowledge of Java, C#, Murex or Python will help you stand out from the crowd

## **Problem solving:**

This is a fairly new market which is bound to encounter various problems

## **Innovation:**

The market is evolving quickly and innovative ways of working are needed to stay ahead of the curve

## **Data analysis:**

Large amounts of 'big data' will need analyzing

## **Project management:**

Useful in almost all contract roles and especially where projects are new

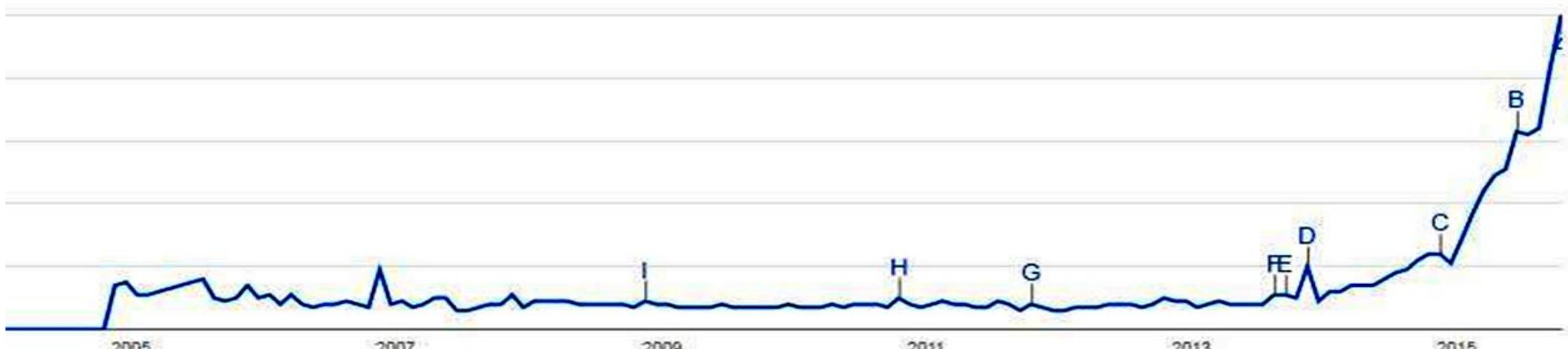
# **FINTECH**

# **HISTORY**



# Where did term come from?

The term's origin can be traced to the early **1990s** with the "**Financial Services Technology Consortium**", a project initiated by Citigroup to facilitate technological cooperation. However, **only since 2014 has the sector attracted the focused attention** of regulators, consumers and investors



Google Search Trend: Interest Over Time

# Evolution

- Fintech today is seen as the new marriage of Financial Services and Technology
- But this has a long history and is usually broken into 3 distinct time periods

Date	1866 - 1967	1967 - 2008	2008 - Current	
Era	FinTech 1.0	FinTech 2.0	FinTech 3.0	FinTech 3.5
Geography	Global / Developed	Global / Developed	Developed	Emerging / Developing
Key elements	Infrastructure / computerisation	Traditional / internet	Mobile / Start-ups / New entrants	
Shift Origin	Linkages	Digitalization	2008 financial crisis / smartphone	Last mover advantage

# FinTech 1.0 (1866 – 1967)

In the late 19<sup>th</sup> century Finance and first combined which resulted in the 1<sup>st</sup> period of Financial Globalization

**"The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his door-step; he could at the same moment and by the same means adventure his wealth in the natural resources and new enterprises of any quarter of the world, and share, without exertion or even trouble."**

**John Maynard Keynes (1920)**

## Timeline:

- **1866-1933:** first transatlantic cable (1866)
- **1945-1967:** Early post-war period – Diner's Club (1950), Telex (1966)

# FinTech 2.0 (1967 – 2008)

## Analog to Digital, led by Financial Institutions:

“The most important financial innovation that I have seen the past 20 years is the automatic teller machine, that really helps people and prevents visits to the bank and it is a real convenience.”

Paul Volcker (2009)

- **1967:** First ATM (Barclays), handheld calculator (Texas Instruments)
- **1968, 1970:** BACS, CHIPS
- **1971:** NASDAQ
- **1973:** SWIFT
- **1981:** Bloomberg
- **1983:** Mobile phone
- **1987:** Program trading
- **1983/1985:** Online banking (NBS, WF). By 2001, 8 banks in the US have 1m+ online banking customers
- **1986:** Big Bang, Single European Act
- **1990s:** Quantitative risk management / VaR
- **1999:** Internet / Dot.Com Bubble
- **2008:** Global Financial Crisis (**GFC**)

# FinTech 3.0 (2008 – Present)

Saw the emergence of new players (start-ups) alongside existing large companies already in the market space (traditional banks)

**"Silicon Valley is coming: There are hundreds of startups with a lot of brains and money working on various alternatives to traditional banking [...] They are very good at reducing the "pain points" in that they can make loans in minutes, which might take banks weeks.**

Jamie Dimon  
CEO, JP Morgan

## **Examples:**

- **2007:** iPhone launched
- **2008:** Wealthfront is founded and provides automated investment services
- **2009:** BitCoin launch. Square is created, providing mobile payments solutions
- **2009:** Kickstarter introduced a reward-based crowdfunding platform
- **2011:** P2P money transfer service Transferwise is created

# 2008: A Game Changer?

The 2008 **GFC** had a catalysing effect on the growth of the FinTech sector due to:

- **Post-crisis regulatory reforms**
- **Financing gap:** Contraction of the interbank market (*trust issues*) and increase in regulatory capital to be held against loan portfolio (*additional +US\$150bn set aside*)
- **Operational cost reduction:** Downsizing teams (*IT & back/middle office*) plus using technology to reduce costs .
- **Public perception:** Growing distrust of formal financial institutions from the public allowed new entrants to emerge (*challenger banks, P2P or FX platforms*)
- **Technology:** Smartphone penetration, directly providing Point of Sales (POS) and stored value systems to individuals, solving infrastructure mismatch

# Now FinTech 3.5 (Present)

**Africa & Asia Emergence:** Recent FinTech developments are being prompted by Financial Inclusion (underserved banking) and economic development in under-developed areas of the world

**“There are two big opportunities in future financial industry. One is online banking, all financial institutions go online; the other one is internet finance, which is purely led by outsiders”**

Jack Ma  
CEO, Alibaba

## **Examples:**

- **2007:** M-Pesa introduced in Kenya, by Vodafone for Safaricom
- **2010:** Alibaba introduces loans to SMEs\* on its e-commerce platform
- **2011:** LuFax, an online Internet finance market place, is created
- **2015:** India announces the creation 11 new payment banks (eg Fino Pay Tech )
- **2015:** MyBank and WeBank, two new Chinese private banks

\* (*Small Medium Enterprises*)

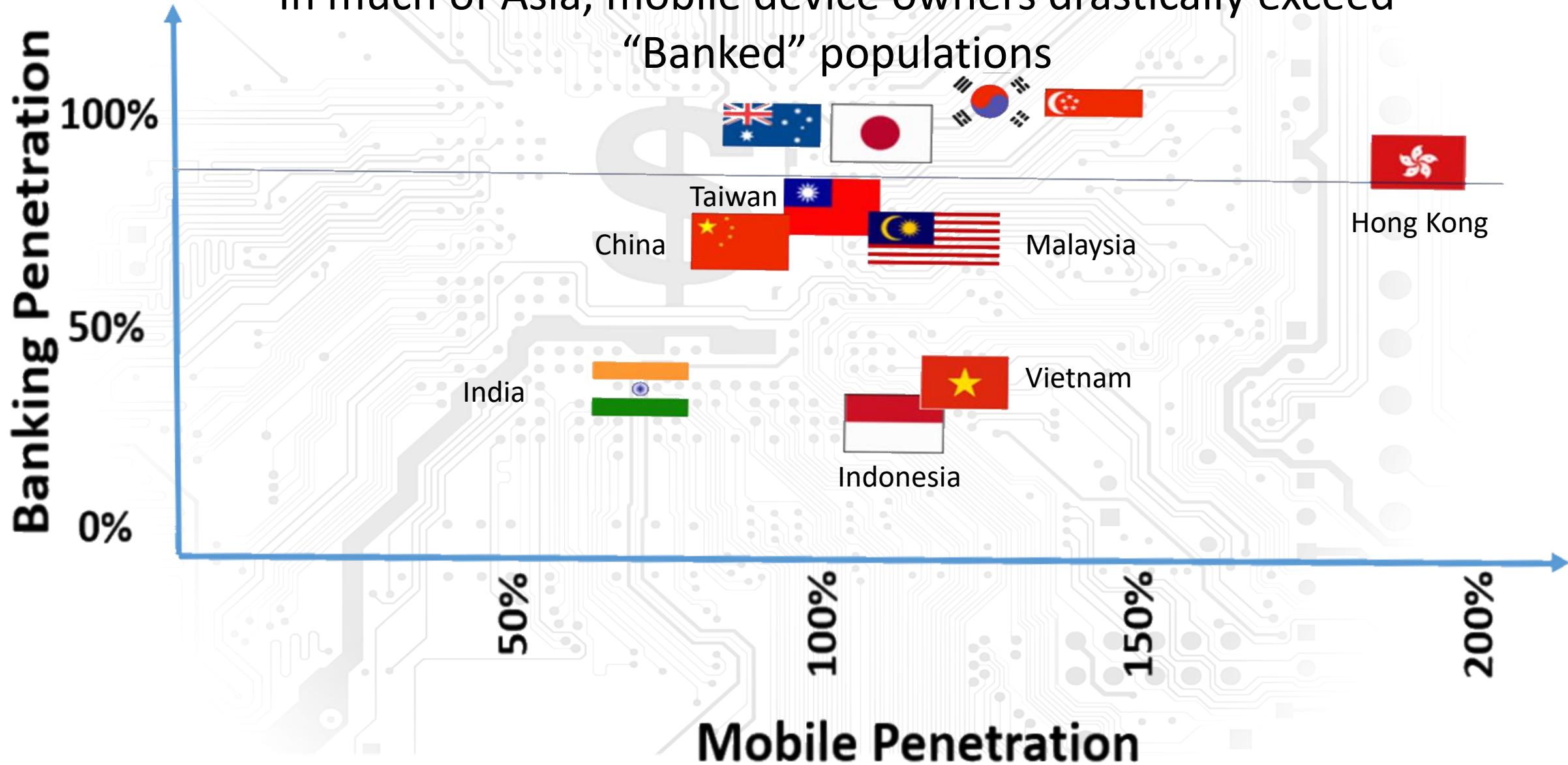
# Types of Fintech Companies

Fintech encompasses a range of actors which can all be classified as FinTech companies.

Rank	FinTech 2.0		FinTech 3.0 & 3.5
	Banks by market cap	IT Companies by revenue	Start-ups by valuation
1 <sup>st</sup>	Wells Fargo & Co (US)	FIS (US)	LuFax (CN)
2 <sup>nd</sup>	ICBC (CN)	Tata (INTERNATIONAL)	Square (US)
3 <sup>rd</sup>	JP Morgan (US)	Fiserv (US)	Markit (US)
4 <sup>th</sup>	CCB (CN)	Cognizant (US)	Stripe (US)
5 <sup>th</sup>	Bank of America (US)	NCR Corp (US)	Lending Club (US)

# Mobile vs Banking penetration

In much of Asia, mobile device owners drastically exceed  
“Banked” populations



# Mobile vs Banking penetration in Asia & Australia

## China

Population: 1.35bn  
Formally Banked: 63%  
Mobile Phone: 89%

## India

Population: 1.25bn  
Formally Banked: 35%  
Mobile Phone: 71%

## Malaysia

Population: 29.7m  
Formally Banked: 66%  
Mobile Phone: 131%

## Australia

Population: 23.1m  
Formally Banked: 99%  
Mobile Phone: 107%



## South Korea

Population: 50.2m  
Formally Banked: 93%  
Mobile Phone: 111%

## Japan

Population: 127.3m  
Formally Banked: 96%  
Mobile Phone: 115%

## Vietnam

Population: 89.7m  
Formally Banked: 21%  
Mobile Phone: 131%

## New Zealand

Population: 4.47m  
Formally Banked: 99%  
Mobile Phone: 106%

# Lots of money being invested!

## 26 Existing Fintech Unicorns\*

### What's a Unicorn

A unicorn is a privately held startup company valued at over \$1 billion.



Note: Includes IPOs of ZhongAn, LendingClub, and Square.

\* Source: CBInsights

# U.S. PATENTS RELATED TO FINTECH (2021)

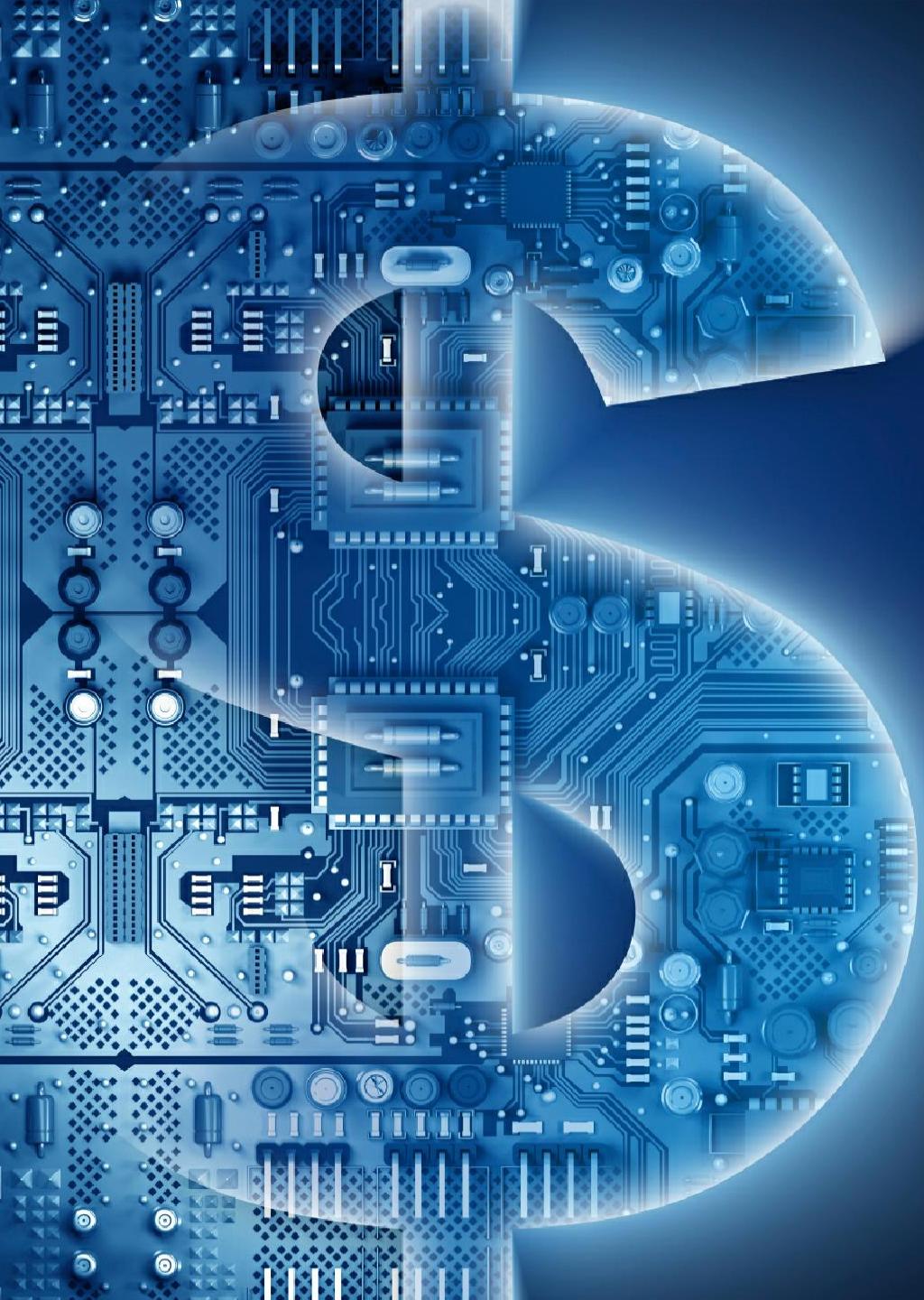
Technology Categories	Financial Categories					
	Payment	Banking	Wealth Management	Capital Market	Insurance	Lending
Data & Analytics	18,447 Hitachi (475) Sony (391)	8,736 Hitachi (360) Oki (353)	4,154 Shinhan Bank (85) Hitachi(68)	3,278 Daiwa Securities Group (91) MUFG (48)	2,679 The Hartford (163) Hitachi (46)	2,353 Shinhan Bank (91) Bizmodeline (77)
IOT	21,994 Hitachi (390) Visa (322)	6,738 Hitachi (200) Shinhan Bank (176)	2,708 Trading Tech Int Inc (43) JPMorgan Chase (40)	2,856 Hitachi (67) Trading Tech Int Inc (57)	1,443 The Hartford (37) Accenture (15)	1,957 Shinhan Bank (37) Bizmodeline (32)
Mobile Platform	16,426 Visa (654) MasterCard (257)	3,229 Visa (126) Shinhan Bank (93)	827 Bizmodeline (24) Woori Bank (20)	567 Mitake Co Ltd (19) Orbis Patents Lts (10)	609 The Hartford (32) State Farm (21)	763 Bizmodeline (30) Shinhan Bank (19)
Security	8,540 Visa (245) Hitachi (144)	2,602 Hitachi (111) Oki (82)	1,330 ITG Software (29) Goldman Sachs (28)	1,424 Hitachi (35) Goldman Sachs (33)	639 The Hartford (19) ITG Software (18)	790 Shinhan Bank (35) Freddie Mac (18)
Cloud Computing	4,585 Visa (107) Diebold (89)	1,365 American Express (44) Capital One (25)	984 GE (32) American Express (15)	612 Accenture (12) Blackbird Holdings (12)	556 The Hartford (39) State Farm (21)	516 American Express (23) Rawlin International (12)
Cryptocurrency	597 Bank of America (13) MasterCard (12)	113 PayPal (4) Sony (4)	57 American Express (4) Content Technologies (3)	28 Phone1 Inc (2)	15 Zynga Inc (4) Digonex Technologies (2)	58 IBM (3) Socolof Alex (3)



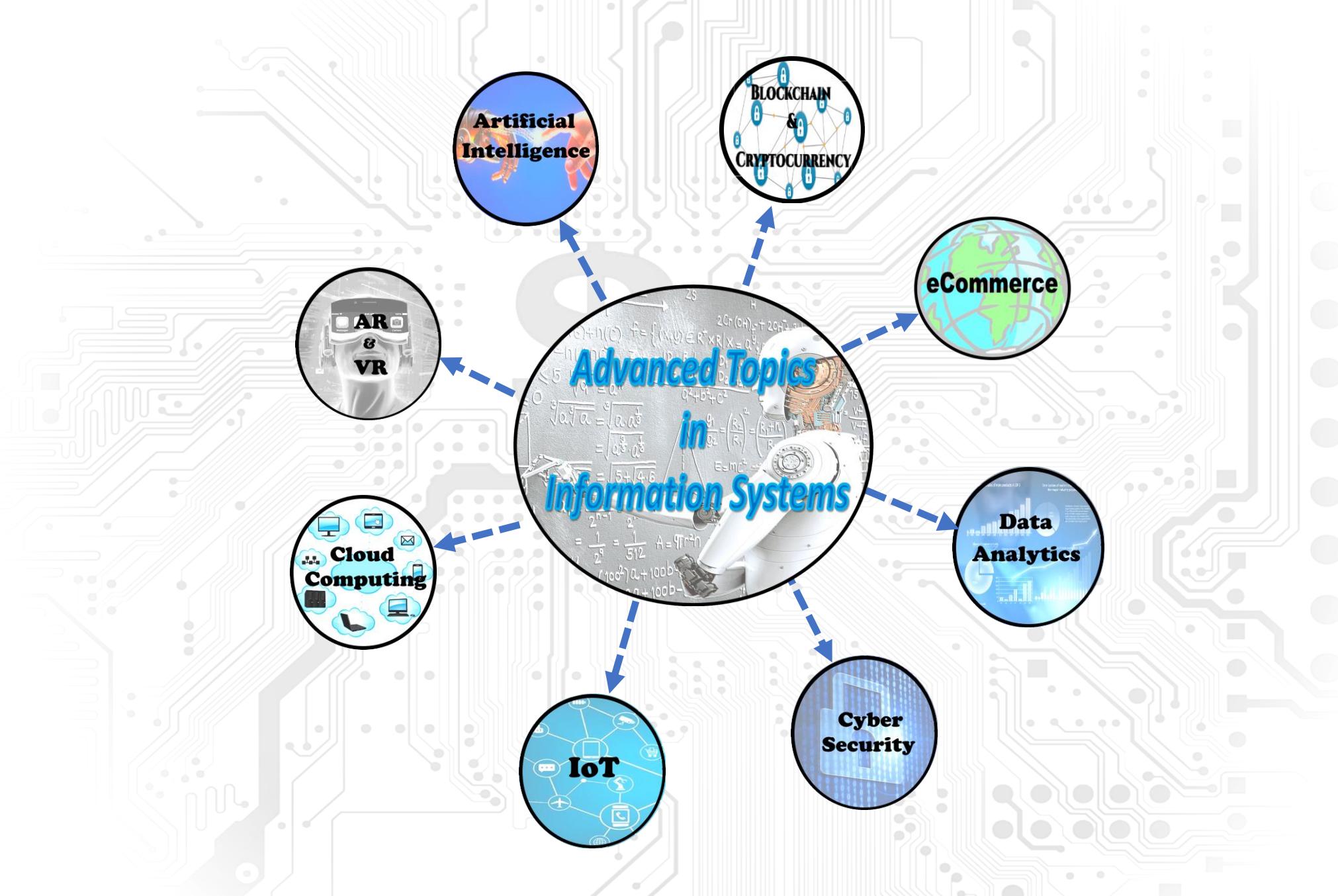
**BREAK**

**PLEASE STAND BY**





**Innovating in Fintech  
with  
Emerging Technologies**



# Advanced Topics in Information Systems

Cloud Computing

AR & VR

Artificial Intelligence

Blockchain & Cryptocurrency

eCommerce

Data Analytics

Cyber Security

IoT

# *Our Organization for this Semester*

**Global Securities United**  
*(Fictional)*

# **GSU**

# **BREADTH AND DEPTH BY THE NUMBERS**



# GSU

**Their purpose** is to help businesses and communities thrive by advancing commerce and the financial world



**55K**

Colleagues



**52**

Countries



**\$12.4B**

Revenue



**\$85B**

MarketCap

# What they do



## MERCHANT SOLUTIONS

---

We provide a unique capability to **power global omni-commerce**



## BANKING SOLUTIONS

---

Our solutions allow people to **borrow, save, pay and invest**



## CAPITAL MARKET SOLUTIONS

---

We facilitate the **movement, management and growth of money**

**ADVANCING THE WAY THE WORLD PAYS, BANKS AND INVESTS**



## MERCHANT SOLUTIONS

Powering global commerce

>1 MILLION  
Merchant Locations



They accept over **300** payment methods in more than **125** countries across markets covering **99%** of the world's GDP.



Processing for  
**8 of the Top 10**



Global Internet Companies



Global Retailers



Global Airlines



## BANKING SOLUTIONS

Individual and commercial borrowing, saving, paying and investing

Move



**\$5T**

Wealth  
Services Assets



**\$3.3T**

Retirement  
Services

**\$10 TRILLION** Annually



**\$112.7B**

Annual US Dollars  
Moved



**260.1M**

Supported  
DDA Accounts



**14.3B**

Annual US Card  
Transactions





# CAPITAL MARKETS SOLUTIONS

Enabling institutional money movement, management and growth

# \$40 TRILLION



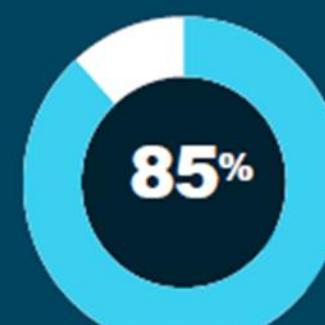
Of the  
**TOP 50**  
Largest  
Asset  
Managers



Of the  
Largest Private  
Equity Firms  
Globally  
**\$4 TRILLION**



Of the  
**TOP 50**  
Largest  
Insurance  
Companies



Of the  
**TOP 20**  
Clearing Firms

Citizens  
Access<sup>®</sup>

LVMH



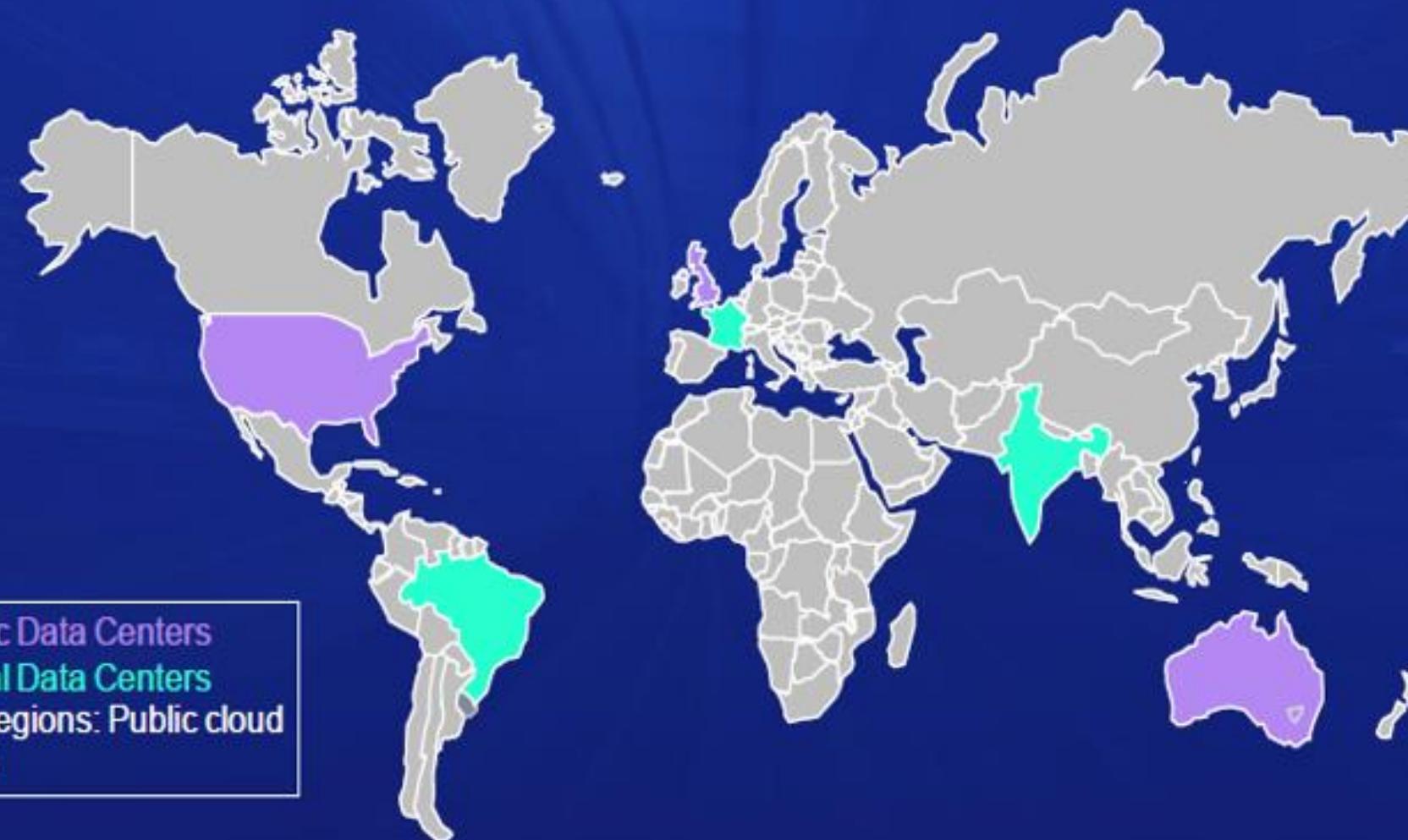
**GSU**

# **TECHNOLOGY OVERVIEW**



# Technology Landscape

The brain that enables business



30+ Major Hosting Locations

100,000 Servers

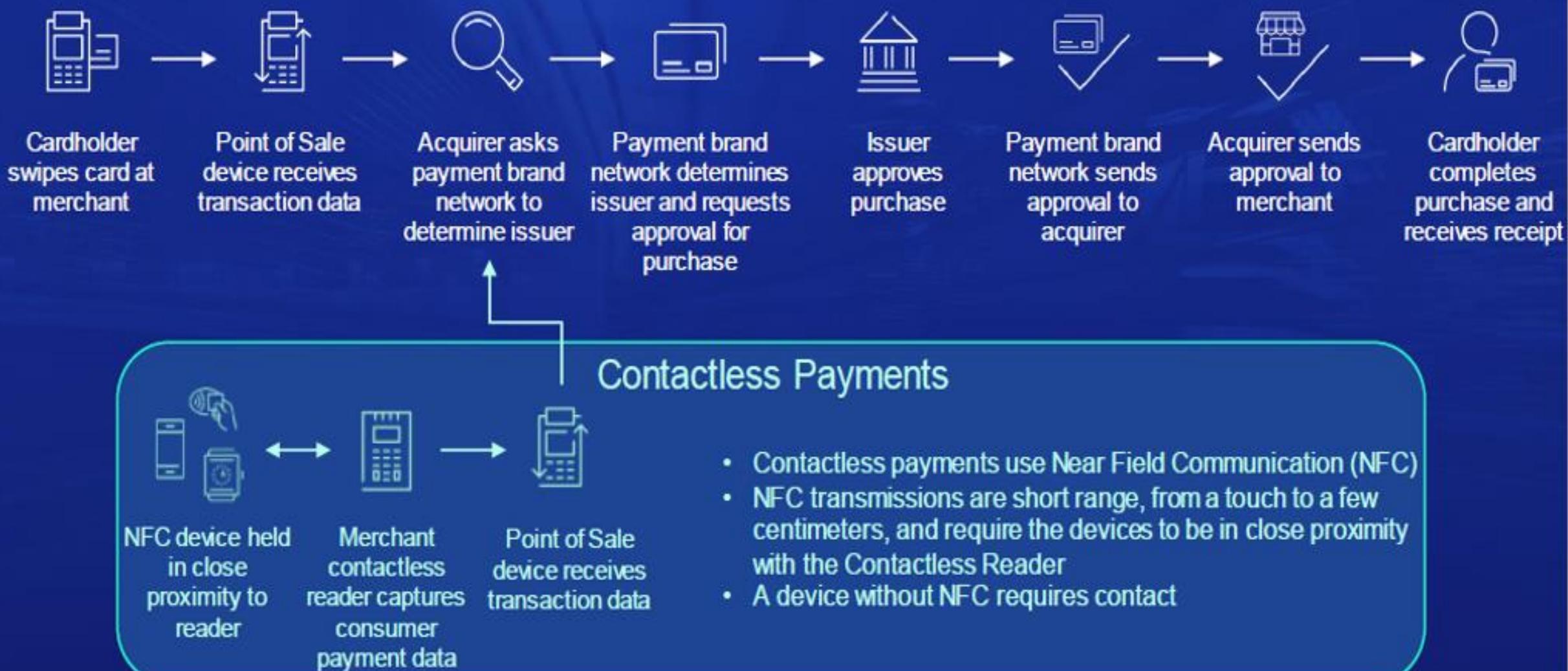
84PB of Data

## Key External Hosting Constraints

- Data Sovereignty
- Data Processing Regulations
- Latency/Market Proximity
- Performance

# Transaction Processing Flow

## Card Processing Authorization



# Contactless Payments: Benefits and Trends

## Consumers



- Convenient, easy-to-use cash alternative
- Same dynamic EMV security as chip cards
- Speedy card transaction processing time
- Reduce contact with shared public surfaces amid pandemic

## Contactless Device Options

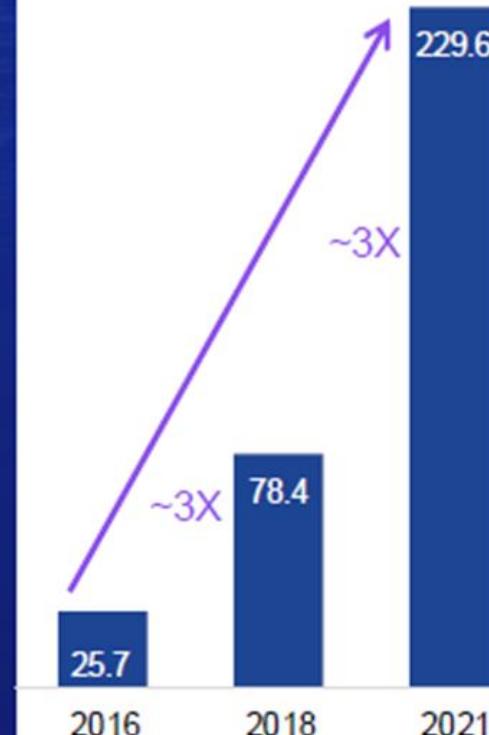


## Merchants

- Shorter lines as consumers served more quickly
- Reduced time and cost of cash handling
- Customer buying behaviour data
- 70% of US merchant locations have contactless-capable POS terminals



## Projected US Contactless Card Shipments\*\*



## Financial Institutions



- Incremental card-related profitability
- Reduced cash handling costs from customer banking activity
- Drives market leadership, innovation, loyalty and stickiness

**GSU**

# **CASE STUDIES**



# Case Study 1: Contactless Consumer Behavior

How is contactless consumer posture changing the technology landscape in context of data centers, edge computing and 5G?

How can a Fintech company evolve its technology stack to prepare for the shift in consumer and product interaction in future?

## Goals →



- **Goal #1:** Get a good understanding of Global Financial Companies and the challenges/opportunities they are facing in their current business models
- **Goal #2:** Define where eCommerce is now and what the landscape will look like in the future?
- **Goal #3:** What are cognitive technologies and how do they apply to they currently apply to human interactions, and how will they evolve in the future?
- **Goal #4:** What technologies will be required in order to participate in this area.
- **Goal #5:** Recommend a solution from the provided possibilities along with the reason for your choices

# Case Study 2: eCommerce and Human Interaction

What is the next evolution of eCommerce?

How will cognitive technologies apply to human interactions that the Fintech should start to prepare for?

What technologies play a role in this space?

## Goals →



- **Goal #1:** Get a good understanding of Global Financial Companies and the challenges/opportunities they are facing in their current business models
- **Goal #2:** Define where eCommerce is now and what the landscape will look like in the future?
- **Goal #3:** What are cognitive technologies and how do they apply to they currently apply to human interactions, and how will they evolve in the future?
- **Goal #4:** What technologies will be required in order to participate in this area.
- **Goal #5:** Recommend a solution from the provided possibilities along with the reason for your choices

# Case Studies in Icollege



TOPICS IN INFO SYS



JM

John Martin



Content Webex Assessments ▾ Grades Classlist Course Tools ▾

Search Topics



## Case Studies ▾



Print



Settings

Add dates and restrictions...

Add a description...

Upload / Create ▾

Existing Activities ▾

Bulk Edit

### GSU Case 1

Word Document

### GSU Case 2

Word Document

Table of Contents

18

Additional Readings

11

Project Documents

5

Case Studies

2

Add a module...



Add a sub-module...

# Problem Statement Due Before Class Next week

The screenshot shows a course management system interface with a sidebar and a main content area.

**Top Bar:** Includes icons for Home, iCollege, Topics in Info Sys, and user John Martin.

**Navigation Bar:** Content, Webex, Assessments, Grades, Classlist, Course Tools.

**Left Sidebar:** Contains links for Overview, Bookmarks, Course Schedule, Table of Contents (18 items), Additional Readings (11 items), Project Documents (5 items, highlighted with a red arrow), Case Studies (2 items), and an Add a module... button.

**Main Content Area:** Title Project Documents, sub-section Add dates and restrictions..., Add a description..., buttons for Upload / Create, Existing Activities, and Bulk Edit.

**Document List:** A list of files with edit and delete icons.

File Name	Type	Actions
Architecture Vision Draft	Word Document	Up, Down, Delete, Checkmark
Architecture Vision Final	Word Document	Up, Down, Delete, Checkmark
Constraints	Excel Spreadsheet	Checkmark
Problem Statement Instructions & Template	Word Document	Up, Down, Green Checkmark, Checkmark
Solution Evaluations	Excel Spreadsheet	Checkmark

**Bottom:** Add a sub-module... button.

# How to Create a Problem Statement

**A great problem statement should answer the 5W's:**

- **Who**: Should explain the specific individuals, groups or organizations that the problem affects.
- **What**: Should describe the problem's boundaries, the problem itself, the effect it has, what would happen if the problem gets solved or what would happen if you aren't able to find a solution.
- **When**: Should state when the issue started and when you need to solve it.
- **Where**: Should state where the problem happens whether it's just in a specific location or in different areas.
- **Why**: Should talk about the importance of solving the problem and how solving the problem would impact everyone and everything involved in it.

# Problem Statement Template

## **Company Overview:**

A couple of sentences describing the organization.

## **Problem Description:**

Provide a brief description of the problem as discovered using the 5 W's.

## **Problem Background:**

Describe the business context and why that creates the problem in the business.

## **Change Drivers and Opportunities:**

Identify the environmental (market, technology, etc.) change drivers and opportunities behind a vision for a new target architecture. This could be a business problem that could also be seen as a business opportunity.

## **Stakeholders:**

Identify all entities internal and external, that may be impacted by the problem detailed above. These impacts internally could be at the organizational, departmental, or individual employee level, and externally consider impacts to vendors, competitors, customers, etc. Also, please understand that the defined impacts could be either negative or positive.

# Break Into your teams!

<b>Group 1</b>	<b>Group 2</b>	<b>Group 3</b>	<b>Group 4</b>	<b>Group 5</b>	<b>Group 6</b>	<b>Group 7</b>	<b>Group 8</b>	<b>Group 9</b>	<b>Group 10</b>
Sapna, Patel	Yeshwanth Reddy, Kariveda	Sanchit, Agrawal	Yash, Mitkari	Ruchita, Thombare	Varun, Jagadeesha Babu	Tirumala, Vuppu	Yan, Zhou	William, Coggin	Vasishta, Kuchipudi
Sahiti, Addanki	Rajeswari, Katta	Priti, Thakur	Saurav, Bhattacharai	Joshua, Seeb	Shivam, Shivam	Shayela, Alam	Upendra, Bharamgouda	Prithiviraj, Maniram	Eldridge Nathanael Mathew
Ranganath, S	Nidhi, Chandramohan	Komal, Mehta	Satyaraj Reddy	Gautam, Jain	Juhie, Mishra	Padma Deepika, Narayanaswamy	Twinkle, Kumari	Pankaj, Shinde	Chandan, Singh
Neha Samhitha, Pinjala	Jennifer, An	Deeksha, Rokle	Amarendra, Yendru	Ayan, Basu	Brian, Blades	Mitali, Warty	Danish, Ansari	Bhavin, Patel	Anuja, Jadhav
Abhilasha, Tiwari	Aishwarya, Chhabra	Abhinav, Bisht	Aashrith, Sangani	Ashutosh Ravindra, Kaddi	Ameya, Deo	Katlynn, Stodghill	Bharat Chandra Siddartha	Ankur, Chowdhury	

# Get into your Groups

- ❖ Exchange Contact Information
- ❖ Choose a Team Lead, will be primary contact for the whole team!
- ❖ Pick a “Cool” Consulting Company name that you will be using for the rest of the course.
- ❖ Email and your Team Lead, new Team Name (& Number) to me by 6 PM Tomorrow!

**jmartin120@gsu.edu**

## Conclusion:

*“Look around you. Everything changes. everything on this earth is in a continuous state of evolving, refining, improving, adapting, enhancing, and changing. You were not put on this earth to remain stagnant.”*

Dr. Steve Mataboli



