

CITY BUSINESS

Magazine

College of Business



香港城市大學
City University of Hong Kong

專業 創新 貢獻全球
Professional • Creative
For The World

*Turbulence
and Trust*



City University of Hong Kong –
College of Business

CityU_CB

香港城市大學商學院

cityu_business



城大商學院
College of Business
CITY UNIVERSITY OF HONG KONG

CITY BUSINESS Magazine

Spring 2018

College of Business



FEATURES

02 Turbulence and trust

Financial turmoil has often been a seed bed for regulatory innovation, resulting in new ways of creating trust in the financial community. Eric Collins looks at how trust has been created historically, and at the pivotal role of central banking

08 In blockchain we trust

As China files more than half of the world's blockchain patents, CB's Professor Leon Zhao, Information Systems, and Dr Ji Wu, Associate Research Fellow, Management Science at Sun Yat-sen University assess the technological issues and business impacts

16 Bitcoin – future or fraud?

The fate of the earliest and best known of the cryptocurrencies is still keenly followed. CB's Dr Zhang Zhong, Assistant Professor, Economics and Finance looks at how it works, and its prospects

PEOPLE

20 The trust machine

Dr Lawrence Ma and Gabriel Chan of Hong Kong Blockchain Society on why corporates are developing private blockchains, how Hong Kong is promoting the new blockchain sector, and the growing employment opportunities

24 Turkey – dynamic partner on the modern-day Silk Road

Consul General of Turkey in Hong Kong, Korhan Kemik, discusses Turkey's relationship with China, business opportunities available in Turkey, and his country's many tourist attractions

EDUCATION

30 CityU Digital Business Innovation Festival

34 Towards an Elderly Ecosystem

Professor Frank Chen describes the crisis in Hong Kong's public healthcare system and how he sees the "Elderly Ecosystem" developing in the future

36 Deep learning

This semester Professor Jeff Hong is offering voluntary study groups with the theme Deep Learning. CB Magazine talked to Jeff and his students to find out what deep learning is, and why it's worth studying

CONTENTS

ALUMNI

40 The rise of innovation in China

Professor Haiyang Li, PhD alumnus, Professor of Strategic Management and Innovation at Rice University discusses how companies innovate in the US and China, the growth of China's technology clusters, and the role of education in facilitating a culture of innovation

46 Filling the Hong Kong rice bowl

Anthony Lam, EMBA alumnus and Vice Chairman of Golden Resources Development International Ltd., describes how the rice business has evolved in Hong Kong and how his own company seeks a diversified future in South Asia

51 Reader's survey results

STUDENTS

52 AI transforming the financial planning industry

54 Think big act small

56 The road to entrepreneurship?

NEWS

58 College of Business Distinguished Alumni Awards 2017

59 Public forum on Partnership with Millennials

59 CityU-FudanU DBA Alumni Chapter inauguration

60 CB welcomes delegates from Russia

60 Scholarship for Myanmar students to be established

61 Accountancy students receive Silver Prize in HK4As Students' Award

61 Naming of Allen Shi Lop Tak Executive Classroom

62 Dr Haywood Cheung named CityU Distinguished Alumni

62 Strategic role of Hong Kong on Digital Silk Road

COMINGS & GOINGS

ALUMNI CLASS NOTES

From the Dean

Innovative technologies have often been the cause of turbulence on financial markets, and in this issue, we look at speculative bubbles, past and present, and how they have been a precursor for a more regulated future. Trust in the financial markets has traditionally been established around centralized institutions. Now blockchain promises not only a more decentralized future, but also transparent transactions which may affect the modus operandi of several of our current professions.



In *Turbulence and trust*, City Business Magazine editor Eric Collins takes a look at how historically financial trust has been created often against a backdrop of market turmoil through the development of national institutions such as central banks. Then, *In blockchain we trust: technological issues and business impacts*, Professor Leon Zhao and Dr Ji Wu assess the contemporary distributed ledger phenomenon, whilst in *Bitcoin – future or fraud?* Dr Zhang Zhong looks at the operation and prospects for the earliest blockchain application. Further questions about the technology are answered in *The trust machine*, an interview with Dr Lawrence Ma and Gabriel Chan of the Hong Kong Blockchain Society.

We have featured China's Belt and Road Initiative in recent issues, and it proves to be an enduring theme. In *Turkey – dynamic partner on the modern-day Silk Road*, an interview with Korhan Kemik, the Consul General of Turkey in Hong Kong, we learn about Turkey's relationship with China, the business opportunities available, and the country's many tourist attractions.

Professor Jeff Hong has been offering voluntary study groups to students at all levels in the Management Sciences for the past couple of years, and in *Deep learning* we hear about his approach to PhD study, and from some of his students on the benefits of a broad-based approach to doctoral study. Congratulations to Jeff, who has recently been appointed Area Editor for Simulation at the journal Operations Research.

Professor Frank Chen gave a President's Lecture entitled "Integrated Elderly Care, Challenges and Opportunities" in March 2018, and in *Towards an Elderly Ecosystem* we learn of the crisis in Hong Kong's public healthcare system, and how he sees such an ecosystem developing in the near future.

We are also fortunate to carry two interviews with our alumni. Professor Li Haiyang, PhD alumnus, Professor of Strategic Management and Innovation at the Jesse H. Jones Graduate School of Business, Rice University gives his take on *The rise of innovation in China*, whilst Anthony Lam, EMBA alumnus and Vice Chairman, Golden Resources Development International Ltd. describes how *Filling the Hong Kong rice bowl* has been achieved in this densely populated city which no longer possesses its own rice paddy fields.

A Big Thank You to all who responded to our Reader's Survey. Please check the results on page 51. Your feedback is invaluable to our effort and will help guide us as we move forward with our forthcoming issues.

Houmin Yan

EDITOR-IN-CHIEF

Eric Collins

EDITORIAL GROUP

Jaime Poon
Esther Lau
Hannah Leung
Karson Shek

DESIGN

LOL Design Ltd

MAGAZINE ADVISORY COMMITTEE

Professor Houmin Yan (College Dean)
Professor Frank Chen
Professor Robert M. Davison
Professor Jeff Hong
Professor Julie Li
Professor Maris G. Martinsons
Dr Hermia Chiu
Dr Yuyan Guan

ADDRESS

City Business Magazine
12/F, Lau Ming Wai Academic Building,
City University of Hong Kong,
Tat Chee Avenue, Kowloon Tong, Hong Kong
Phone: +852 3442 2266
Email: cbsmagazine@cityu.edu.hk

ONLINE EDITION

<http://www.cb.cityu.edu.hk/magazine/>

ON THE COVER

"Tulip in the Garden of Johann Heinrich Herwart" The first tulips in Europe were described by Conrad Gesner (1516-1565), a Swiss botanist and encyclopaedist who saw one in April 1559 in the garden of a German magistrate. In the background are his scribbled notes about the flower. Two years later in 1561, it was published as a wood block print in his *De Hortis Germaniae Liber Recens*, the first European illustration of the tulip.

Photo courtesy of the University Library of Erlangen Nuremberg

©2018 College of Business, City University of Hong Kong

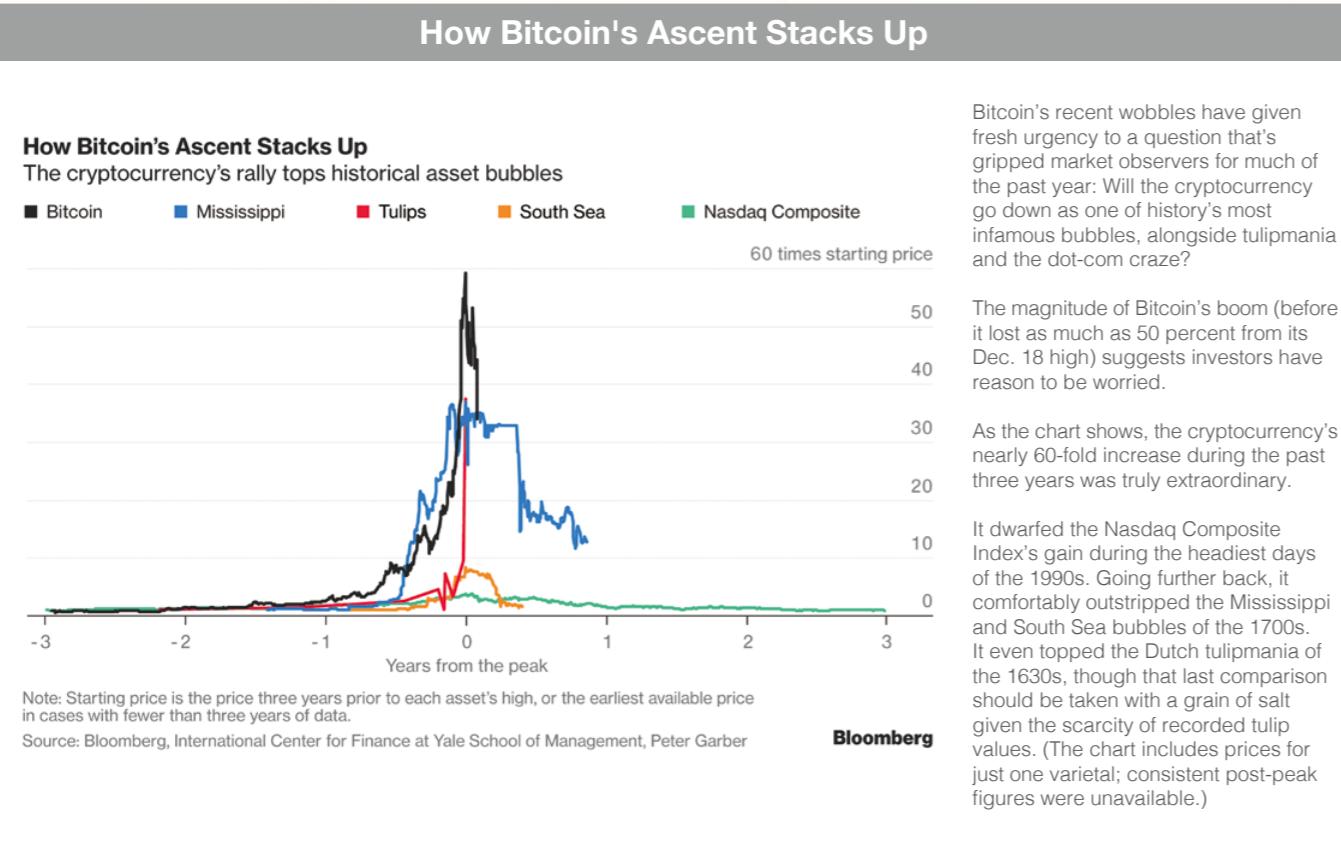
Turbulence and trust

How trust was created out of financial turmoil

By Eric Collins

Today's Initial Coin Offerings share many of the characteristics of the early European stock markets. The value of the offerings is difficult to assess, the regulatory regime is in its infancy, and the market is more concerned with speculation than long-term sustainability. Historically, the chaos of the 17th century Dutch Tulip Fever and the early 18th century new world speculations – the English South Sea Company Bubble, and the French Mississippi Bubble – set the scene for tighter regulatory measures and the establishment of centralized financial institutions designed to create trust.

In this brief sketch, we look at the three early stock market speculations, and trace the evolution of central banking through to the early 21st century, and their role as monetary managers. The story closes with national jurisdictions once again seeking to cope with turbulence on the financial markets, this time associated with the emergence of new technology. Nation states and private sector companies alike are attempting to establish standardized approaches as they seek to leverage and control blockchain's distributed ledger technology.



Tulip Fever

When the tulip arrived in Europe from the Ottoman Empire (to which present day Turkey is the closest successor state), the flower's popularity soared and it quickly became a must-have for the newly wealthy merchants of the Dutch Golden Age. At the same time a virus began to infect the bulbs, producing variegated and spectacular effects in the bloom but fatally weakening the bulbs. A speculative frenzy was triggered between 1634 and 1637. The disastrous fallout was chronicled at the time by a number of Dutch satirists, including the work of Jan Brueghel the Younger featured on the centre pages of this magazine. What could be more misguided than investing in a collection of tulip bulbs?



Bank of England was put on the subscription to a new loan. Under the terms of the Royal Charter of 1694, the bank issued banknotes that were backed by gold. But future wars needed greater finance.

South Sea Bubble

Tulip Fever may have bankrupted a few investors in the Dutch Republic, but the long-term fallout was limited. Financial speculation, however, was moving closer to matters of state. A problem common to all European nations of the time, was how to finance war. In 1690 the British were defeated by the French navy, a catastrophic blow! The navy had to be rebuilt, and the name of the Governor of the newly founded

In the early 18th century, Britain was involved in the War of the Spanish Succession. Various schemes were put forward to reduce the national debt as an alternative to the Bank of England. In 1711, the South Sea Company, a British joint-stock company was founded and granted a monopoly to trade with South America and nearby islands. The company stock rose greatly in value on "the most extravagant rumours" of



The Battle of Beachy Head, 1690. The French gain control of the English Channel. How to pay for a new British navy?



Source: Wikipedia

The Headlong Fools Plunge into South Sea Water... Venture no Deeper than the Knees or Waist

the value of its potential trade in the New World. After hitting a peak of expectations in 1720, it collapsed to little above its original flotation price. Central authority stepped in immediately after the event, and the Bubble Act ensured that all future joint-stock companies would require a royal charter, effectively reducing their number.

Mississippi Bubble

Britain's warring neighbour France fared no better. As a result of the Seven Years' War with England, the royal finances were in a perilous state. Enter Scottish financier, John Law, who in 1716 created the Banque Générale and floated the idea of another joint-stock trading company. The Mississippi Company was granted a trade monopoly of the West Indies and North America by the French government, based on the alleged wealth of the French colony of Louisiana. It took months for news to be relayed from America, so again, people were slow to figure out the truth of what was going on. An effective marketing scheme led to massive speculation in the shares of the company in 1719. And a sustained attack by Law's opponents attempting to convert their notes into coin en masse, led to the collapse of the Banque the next year.

The secret weapon

Government loans were the essential ingredient to successfully waging war. The French Monarchy opted

to fund its debt with short-term annuities and high-interest rates, and this proved to be one of the triggers for the collapse of the country into revolution at the end of the 18th century. Modern central banking was established in France only in its aftermath by Napoleon in 1800. The British on the other hand went for long term or perpetual loans or "Consols" at relatively low rates of interest, which were first issued in 1751. The integration of the bank and state functions was one of Britain's "secret weapons" in funding its navy, a key underpinning of the expansion of Empire.

Trust and gold

To this day, the Pound Sterling "promises to pay the bearer on demand" the sum represented by the bank note. What this means if you turn up at the Bank of England is difficult to say, but back at the bank's inception the public was clear: It meant gold. The Bank of England was to have an on-off relationship with its gold standard. Generally, in time of war – and during the great depression of the 20th century – more freedom was required to loosen the money supply, and the bank would go off gold.

The Bank Restriction Act of 1797 was the first get-out clause. Due to an invasion attempt by the French, and a feared run on the pound, the act removed the requirement for the bank to convert banknotes into

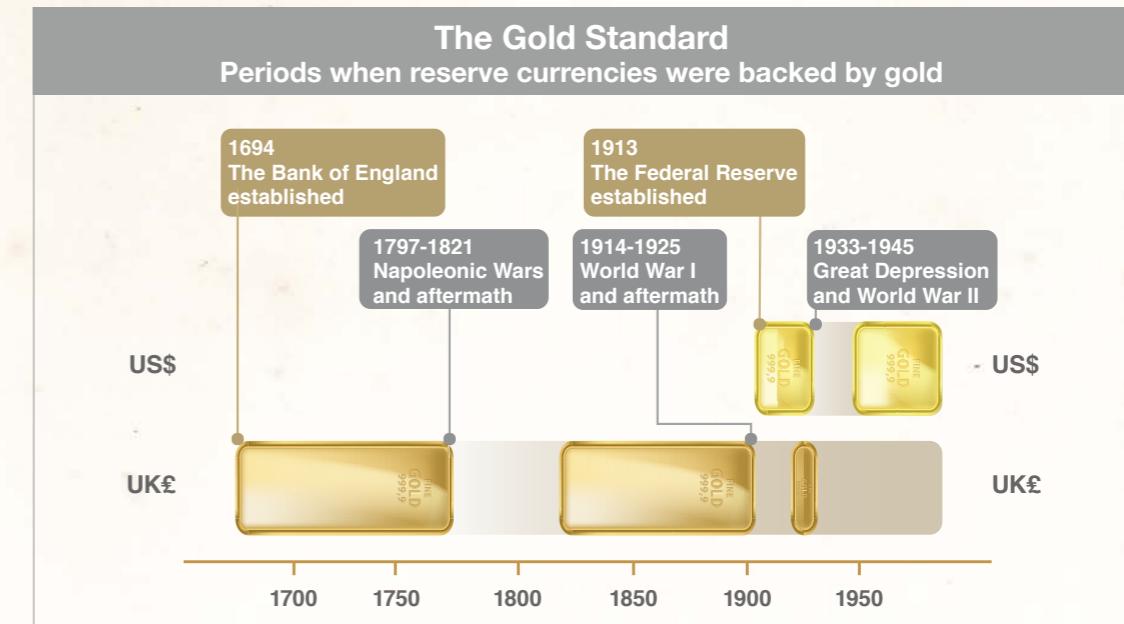
gold, and the bank only moved back on to what became known as the gold standard in 1821. The Bank Charter Act of 1844, again loosened the relationship with gold. The bank was given a monopoly of the issue of new banknotes backed by £14 million in government debt and thereafter gold bullion. The act served to restrict the supply of new notes reaching circulation, but not the creation of new bank deposits, or loans.

Pound Sterling pegged to the gold standard was to reign supreme until the outbreak of war in August 1914. Then, the Currency and Bank Notes Act gave the bank permission to extend the issue of notes without additional gold reserves. In the 1920s, the United Kingdom struggled to put Sterling back on to gold at the pre-First World War rate of 4.86 dollars to the pound. In 1925, Winston Churchill, Chancellor of the Exchequer, took the plunge, put the country back on to gold, causing the pound to rise in price, and exports to collapse. The ensuing swift contraction of the economy caused mass unemployment, and a catastrophic General Strike the next year. As the great depression hit causing further unemployment, Bank of England Governor Montague Norman, reluctantly gave up the battle and took Sterling off gold in 1931.

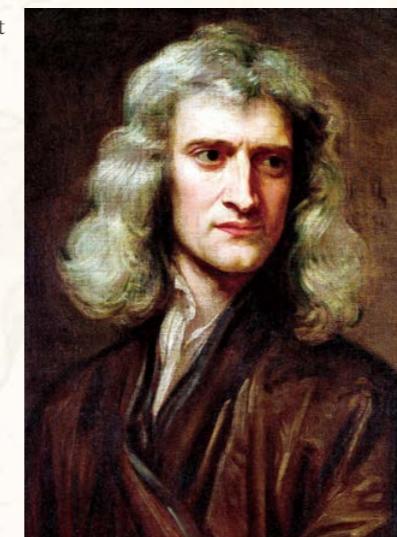
The Federal Reserve

Slowly the practice of central banking was spreading. The newly established German Reich took just five years to establish its Reichsbank in 1876, issuing a very stable currency backed by gold until the First World War. Meanwhile, in the aftermath of the American Civil War, banking remained fragmented in the United States, and endured a series of financial crises. It took Europeans to show the way. Early in 1907, German financier Paul Warburg authored *A Plan for a Modified Central Bank* in the New York Times Annual Financial Supplement, outlining remedies that he thought might avert panics. A further financial crisis in the same year helped to concentrate minds, and six years later under the new presidency of Woodrow Wilson, The Federal Reserve System was established. This proved timely. During the First World War, the Federal Reserve was to be the issuer of US war bonds.

The United States was relatively late to central banking but was on gold and anchored the international system until the great depression forced a rethink. President Roosevelt took the United States off gold in 1933, prioritising employment as part of his New Deal.



Isaac Newton, who lost most of his life's savings in the South Sea Bubble



© Lebrecht Music and Arts Photo Library / Alamy Stock Photo

"I can calculate the movement of stars, but not the madness of men"



The Bank of England in London features a defensive curtain wall, no ground floor windows or connecting buildings, designed to live up to the saying, "As safe as the Bank of England"

Lender of last resort

The Bank of England, privately owned until 1946, was slow to assume broader responsibilities. It had failed to bail out the Overend Gurney wholesale discount bank in 1866, causing a drop in confidence in the City of London. Grudgingly, in response to the promptings of theorists such as Walter Bagehot, the bank accepted a wider role as "lender of last resort" in the 1870s. When Barings Bank came under threat of default in 1890, the Bank of England led a coalition of prominent city institutions who secured a loan to save it. Since then, whether a central monetary authority steps in to bailout a private company has been on a case by case basis. In the 2008 financial crisis, the judgement call in the US went to representative institutions. The initial Senate bill was for a \$700 billion bank bailout in October 2008.

The economist as saviour

Several developments in the early 20th century expanded the role of governmental finance. The traditional role of the Treasury in London was manager of the government's budget. Under the influence of British economist John Maynard Keynes, its role was to be expanded to manager of the economy. The neoclassical economics model held that free markets would, in the short to medium term, automatically provide full employment as long as workers were flexible in their wage demands. But the working



Source: Wikipedia

The German Reichsbanknote of 5th February 1924, 20 billion Marks. The spectre of inflation was to haunt central banks in the 20th century

class was becoming more organized, as seen in the British General Strike of 1926, and the unemployment problem, which was acute in the early 1930s, could no longer be ignored.

Keynes advocated the use of counter cyclical fiscal and monetary policies to mitigate the adverse effects of economic recession, enshrined in his *General Theory of Employment, Interest and Money*, published in 1936. Amongst other proposals he advocated a fiscal response, where the government could create jobs by spending on public works. As he put it, "The economy is socializing itself."

A barbarous relic

Keynes famously dismissed the constrictions of the gold standard as a barbarous relic, and instead emphasised elasticity of money supply to stimulate the economy. His ambitions went beyond the United Kingdom, which was being economically eclipsed by the United States after the First World War. He envisaged a new set of international agreements to conduct the performance of the international economy, which in the 1930s and 40s effectively meant Anglo-American interests. Somehow, the resources of the United States, the so-called "coming nation", had to be utilised to assist those of the United Kingdom, the "going nation". In the Second World War, as Britain faced bankruptcy, the Lend-Lease

arrangement guaranteed a free flow of war materials from across the Atlantic.

The Grand Design

In the early 1940s Keynes made a series of proposals for a Grand Design when peacetime arrived. This would involve a clearing union to secure equilibrium in members' balance of payments, and a machinery of exchange controls. A new international currency, the bancor, would offer an "absolute elasticity" of supply. The proposals culminated in the 1944 Bretton Woods agreement, a fully negotiated monetary order intended to govern monetary relations among independent states, albeit minus the bancor. Bretton Woods gave birth to the International Monetary Fund and the World Bank.

The Bretton Woods system of monetary management placed the United States back on gold as the world's reserve currency at a fixed price of US\$35 an ounce. Other major currencies were pegged to the US dollar by fixed exchange rates. In the mid-term these rates proved impossible to hold, and the United Kingdom and France successively devalued their currencies. Finally, weighed down by the stagflation caused in part by the Vietnam war, on 15th August 1971, President Richard Nixon suspended convertibility of the US dollar into gold. Since then central banks have offered nothing but "fiat currencies".

Brave new distributed world

For the past two centuries, the world's financial system has been anchored by an increasingly centralized set of authorities, first at national level, and then after the Second World War at international level. From the mid-20th century, economies were managed with increasing ambition and scope as first the American New Deal and then the British welfare state took off. Post-Second World War, the European Coal and Steel Community was to evolve into the European Union, spawning a massive bureaucracy, a European Central Bank, and an ambitious economic, financial and social agenda: Under the EU four freedoms are guaranteed – the free movement of goods, capital, services, and labour. With one or two

notable exceptions (Brexit; the US withdrawal from the Trans-Pacific Partnership), the tendency has been towards ever greater supra-national organizations.

What are the implications for blockchain technology? Over the past decade, distributed ledger technology has begun to offer alternative ways of building trust by consensus. Recent iterations of blockchain can handle contingency, so people can in theory make smart contracts directly with one other. Is blockchain poised to usher in a new era?

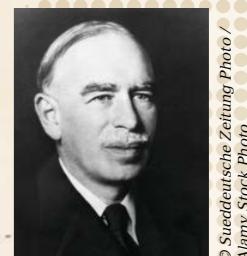
Some stumbling blocks: Currently there is fragmentation between public and private blockchains. Moreover, within the various industry sectors, leading corporates are developing proprietary blockchains. Two questions: Is some sort of regulatory authority necessary, particularly to verify digital identities on public blockchains? And, practically speaking, how is interoperability between private blockchains to be achieved? If recent history is any guide to go by, regulatory standards must evolve, and at an international level.

The gold standard is long gone, but the need to protect investors against fool's gold is as urgent as ever.

Fiat money

"Fiat Money is Representative (or token) Money (i.e. something the intrinsic value of the material substance of which is divorced from its monetary face value) – now generally made of paper except in the case of small denominations – which is created and issued by the State, but is not convertible by law into anything other than itself, and has no fixed value in terms of an objective standard."

John Maynard Keynes in *A Treatise on Money*, 1930



© Süddeutsche Zeitung Photo / Alamy Stock Photo

In blockchain we trust technological issues and business impacts



Professor J. Leon Zhao is Chair Professor and Director of the [Center on Global Internet Finance](#), College of Business, City University of Hong Kong. His research on information technology focuses on workflow technology and applications in knowledge distribution, e-learning, supply chain management, organizational performance management, and services computing.



Dr Ji Wu is Associate Research Fellow in the Department of Management Science, Sun Yat-sen University. His research interests are in the areas of social media marketing, and big data analysis in finance and organizations.

If you have been on Planet Earth over the last couple of years, you cannot fail to have heard of Bitcoin and its underlying technology, blockchain. Although the two concepts are often used interchangeably in the domain of cryptocurrency, in broad context Bitcoin and blockchain mean very different things. In this short article, let's start with Bitcoin and then focus on blockchain surrounding the issue of trust, a concept that goes to the very core of all business activities.

From Bitcoin to blockchain

Bitcoin, an invention of cryptocurrency society, has grown into a mainstream business phenomenon over the past couple of years. In simple terms, Bitcoin is a type of digital money that is independent of any government or bank and can be used to exchange value among anyone who has access to the internet. Blockchain, on the other hand, is the supporting technology that enables Bitcoin (Nakamoto 2008). The terminology is not new. "Blockchain" was first used as early as 1976 in a patent by Ehrsam et al., denoting "message verification and transmission error detection by block chaining".

Bitcoin is blockchain's first killer app, but the underlying technology can be used to support many other types of business applications. According to Wikipedia, "a blockchain is a continuously growing list of blocks, which are linked and secured using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp and transaction data. By design, a blockchain is inherently resistant to modification of the data."

How does blockchain work?

Blockchain under Bitcoin is an open, distributed ledger that can efficiently record transactions between two parties. The main ideas behind blockchain technology are a distributed ledger structure and a consensus process based on proof-of-work. This structure allows a digital ledger of transactions to be created and shared between distributed computers on a network. The ledger may or may not be owned by one central authority but in the case of public blockchains can be viewed by all users on the network. When a user wants to add a transaction to the ledger, the transaction data is encrypted and proved by other computers on the network using cryptographic algorithms.

Once there is consensus among the majority of computers that the most recent small collection of transactions is valid, a new block of data is added to the chain and shared through the network of associated nodes. A distributed blockchain structure has the potential to allow companies and individuals making transactions to cut out the traditional intermediaries, thus reducing cost of transactions and the time lapse of working through third parties. Moreover, due to the consensus process based on proof-of-work, transactions based on blockchain are secure, trustable, auditable, and immutable. Recently, more consensus mechanisms have been developed such as proof-of-stake and proof-of-importance amongst others.

Public vs private blockchains

Blockchain systems can be broadly categorized into two modes of operation: public and private. As the

names suggest, public blockchains allow anybody to use them, and Bitcoin is a case in point. Private blockchains, on the other hand, are created and accessed by a closed group of known participants that work together, perhaps in a particular industry or supply chain. In addition, blockchains can belong to a business alliance, commonly referred to as an alliance blockchain or consortium blockchain, essentially a collection of private blockchains that are governed by multiple institutions.

Since 2015, many business organizations have invested huge amounts of money to develop blockchain applications in contexts where trust is the utmost underlying business concern. Ethereum, Hyperledger Fabric, and R3 Corda are three well-known blockchain systems that have been developed to support financial and other types of business applications that require high levels of trust and better business efficiency. Table 1 gives a comparison of these three systems in terms of platform, developer, mode of operation, consensus mechanism, smart contracts, and currency. It should be noted that the extent to which R3 Corda exhibits blockchain-like features has been questioned by some researchers (Valenta and Sandner 2017).

Ethereum is a software platform that enables developers to create markets, store registries of debts or promises, move funds in accordance with smart contracts, i.e., programmed instructions (such as a will or a futures contract) without a middleman. This platform was developed by the Ethereum Foundation, a Swiss non-profit, with contributions across the globe. Ethereum allows user data to remain private and applications to be decentralized.

Hyperledger Fabric is a software platform extending one of the Hyperledger projects hosted by The Linux Foundation. Hyperledger Fabric features a modular architecture that allows components, such as consensus and membership services, to be integrated into existing business systems. Hyperledger Fabric is a blockchain framework

Table 1: Comparison of popular blockchain platforms

Characteristic	Ethereum	Hyperledger Fabric	R3 Corda
Description of platform	- Generic blockchain platform	- Modular blockchain platform	- Specialized distributed ledger platform for financial industry
Governance	- Ethereum developers	- Linux Foundation	- R3
Mode of operation	- Permissionless, public or private	- Permissioned, private	- Permissioned, private
Consensus	- Mining based on proof-of-work (PoW) - Ledger level	- Broad understanding of consensus that allows multiple approaches - Transaction level	- Specific understanding of consensus (i.e., notary nodes) - Transaction level
Smart contracts	- Smart contract code (e.g., Solidity)	- Smart contract code (e.g., Go, Java)	- Smart contract code (e.g., Kotlin, Java) - Smart legal contract (legal prose)
Currency	- Ether - Token via smart contract	- None - Currency and token via chaincode	- None

implementation and leverages container technology to host smart contracts that automate the application logic. Hyperledger Fabric was initially contributed by Digital Asset and IBM.

R3 Corda is an open-source platform for handling complex transactions with a high level of security. The R3 consortium consists of over 70 large financial institutions that are jointly developing distributed ledger financial systems. Although it is inspired by blockchain technology and is expected to share many of its benefits, the aim of Corda is to provide a platform with common services going well beyond basic blockchain features such as cross-border payments and clearance to its network participants.

Demystifying the blockchain hype

The Gartner Hype Cycle for 2017 illustrates that blockchain has just moved beyond the peak of inflated expectations. In this stage, the bubble is bursting, and the truth about the practical potential of blockchain is coming out. This stage is a good time to sort out the fakes and seize the value. As in stock cycles, this is the time to get your cash ready and wait for the time to jump in. However, as new innovations require early investments, companies need to train

their technical people at this stage so that they will start sharpening their business strategies and get ready to adopt blockchain technologies. This chart is merely a best guess by the partners of Gartner Inc., a well-known consulting firm, but nevertheless shows approximately at what stage blockchain is along its lifecycle of development.

Blockchain or conventional database?

When should blockchain be used in place of conventional databases? Many people find it difficult to distinguish hype from real possibilities. Table 2 compares the basic features of the two information technologies. Both have security features: conventional databases rely on firewalls, while blockchains depend on dual-key encryption. Dual-key has the advantage of record-level granularity of security but suffers from low throughput in information access. That is one of the reasons why blockchain only became practical recently with the introduction of today's fast software and hardware infrastructure. Conventional databases are preferred when high throughput is a critical requirement in low speed environments. If firewall security is sufficient, it is an indication that blockchain might not be necessary.

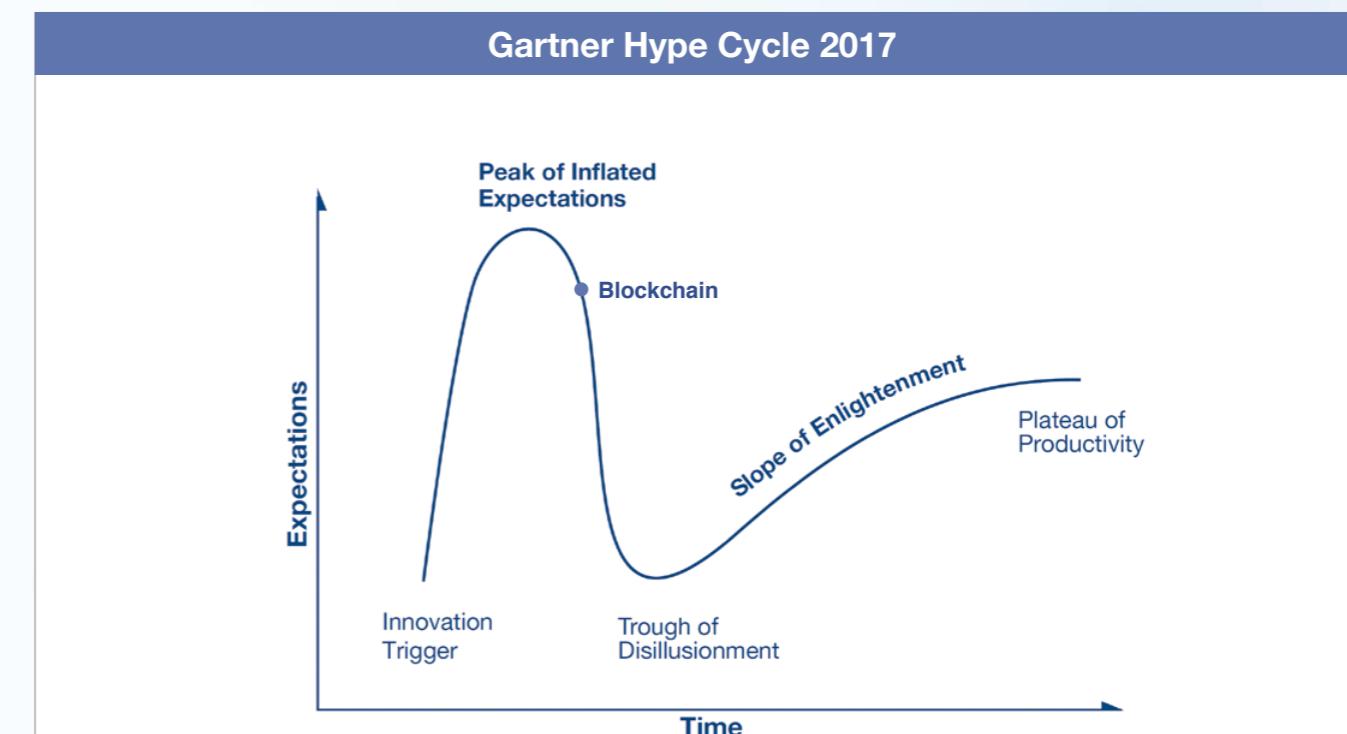


Photo courtesy of ©Gartner, Inc.

Gartner, Press Release, August 15, 2017, "Gartner Identifies Three Megatrends That Will Drive Digital Business Into the Next Decade", <https://www.gartner.com/newsroom/id/3784363>

Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology

users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

Table 2: Comparison between conventional databases and blockchains

	Conventional databases	Blockchains
Firewalls	Yes	No
Dual-key encryption	No	Yes
Consensus mechanism	No	Yes
Vulnerable to frauds	More	Less
Open organizations	No	Yes
Data duplication	Small	Great
Automatic rules	Triggers	Smart contracts

Conventional databases do not support consensus mechanisms as they are usually managed by a central authority. Conversely, public blockchains usually support some kinds of consensus mechanism since they tend to rely on collective decisions to function. If the given business application does not need any consensus mechanism, the use of blockchains must be justified for some other reason such as to combat internal frauds.

Both conventional databases and blockchains may be subject to internal and external fraud activities. Cases of stocks falling due to fraud with conventional databases have been widely reported in the media. Blockchains on the other hand are designed with the DNA of fraud prevention. So, if prevention of fraud is the dominant factor of company concern, and issues of cost and efficiency are secondary, blockchains might be a good choice.

Blockchain was originally developed to support distributed autonomous organizations such as Bitcoin, that do not depend on a central authority to operate. The new technology is therefore a natural choice for organizations where central authority is relatively weak such as the United Nations or the Red Cross. Blockchains can, however, also be used under a strong central authority such as a central bank, where they may mitigate against organizational chaos during institutional transitions such as mergers or acquisitions.

One of the weaknesses of blockchain is the significant data duplication needed to support security and consensus. While fast computing and networking make data duplication workable in highly incentivized environments such as Bitcoin, in other contexts such as healthcare, too much data duplication might be a show stopper. Bitcoin's success might partly be attributed to its very simple data structure and the relatively small amounts of data used.

Smart contracts

To automate office work, both conventional databases and blockchains have developed internal mechanisms to model and execute rule-based business procedures. In database systems, these mechanisms are called triggers, and in blockchain systems, they are smart contracts. The latter are programmes that execute business procedures set up by their creators. They were first described by computer scientist and cryptographer Nick Szabo in 1993 as "digital vending machines". Nowadays it is clear that smart contracts have wide ranging potential, and may accept input in the form of cryptocurrency, transfer payment or other data and will execute pre-configured commands as output. The trend in smart contracts is to implement more complex business procedures than triggers can model and execute, as demonstrated on platforms such as Ethereum. Smart contracts may be used in a number of sectors such as accountancy, law, healthcare, media, etc.

Blockchain in China

As blockchain moves beyond the peak of inflated expectation, many industrial and academic forums have been held in China on the development of the technology. At the end of 2017, the China Blockchain Technology and Industrial Development Forum was hosted in Guangzhou by the Ministry of Industry and Information Technology. This forum aims to develop standards of blockchain technology and to facilitate the advance of the technology into different industries. Also near the end of 2017, an academic forum on blockchain was hosted by the Center on Blockchain Innovation at the City University of Hong Kong.

Chengdu Research Institute, which attracted scholars from various disciplines, including computer science, software engineering, management information systems, economics, public administration, and information science. The forum discussed both implementation and application of blockchain technology.

Companies in China have begun to test blockchain technology in their industries. Many blockchain infrastructure providers have also emerged, such as BCOS, Onchain, and Ontology Zero. These providers offer services for companies to develop various blockchain applications based on their infrastructure by using various programming languages. Most recently, the BAT companies (Baidu, Alibaba, Tencent) have announced cloud services which will make blockchain applications easier to develop and implement.

The end of fake goods?

Alibaba and JD.com have started tackling China's fake goods problem with blockchain by giving luxury goods, from hard alcohol to Louis Vuitton bags, an electronic passport, a unique QR code to record product lifecycles from source to destination.

"Whether to guarantee safety of food or authenticity of luxury products, consumers want transparency and traceability to be sure they're eating safely, and not

What smart contracts can do		
Financial services	Trade clearing and settlement	Manages approval workflows between counterparties, calculates trade settlement amounts, and transfers funds automatically
	Coupon payments	Automatically calculates and pays periodic coupon payments and returns principal upon bond expiration
	Insurance claim processing	Performs error checking, routing and approval workflows, and calculates payout based on the type of claim and underlying policy
	Micro-insurance	Calculates and transfers micropayments based on usage data from an Internet of Things-enabled device (example: pay-as-you-go automotive insurance)
Life sciences and healthcare	Electronic medical records	Provides transfer and/or access to medical health records upon multi-signature approvals between patients and providers
	Population health data access	Grants health researchers access to certain personal health information; micropayments are automatically transferred to the patient for participation
	Personal health tracking	Tracks patients' health-related actions through IoT devices and automatically generates rewards based on specific milestones
Technology, media, and telecom	Royalty distribution	Calculates and distributes royalty payments to artists and other associated parties according to the contract
Energy and resources	Autonomous electric vehicle charging stations	Processes a deposit, enables the charging station, and returns remaining funds when complete
Public sector	Record-keeping	Updates private company share registries and capitalization table records, and distributes shareholder communications
Cross-industry	Supply chain and trade finance documentation	Transfers payments upon multi-signature approval for letters of credit and issues port payments upon custody change for bills of lading
	Product provenance and history	Facilitates chain of custody process for products in the supply chain where the party in custody is able to log evidence about the product
	Peer-to-peer transacting	Matches parties and transfers payments automatically for various peer-to-peer applications: lending, insurance, energy credits, etc.
	Voting	Validates voter criteria, logs vote to the blockchain, and initiates specific actions as a result of the majority vote

John Ream, Yang Chu, and David Schatsky, *Upgrading blockchains: Smart contract use cases in industry*, Deloitte Insights, June 8, 2016



being duped with counterfeits," says Haibo Sun, head of blockchain research and development at JD.com.

Blockchain will make the cost of counterfeiting too high to bear since generating an authentic lifecycle of each fake product is difficult. Although it will take many years to transform all businesses with blockchains, the journey has already begun, starting with some special applications such as fighting counterfeit goods.

Blockchain management

A leading China automaker Wanxiang Group, located in Shanghai, is now running its supply chain over blockchain technology. Auto manufacturers are integrated with suppliers producing fast, trustworthy, and transparent transactions. Wanxiang is looking to work with financial institutions to provide financial solutions for small and medium-sized suppliers. And the use of blockchain is not limited to manufacturing. Recently, Tsinghua University has teamed up with Walmart and IBM to digitally track the movement of Chinese pork from source to customer.

Governments at multiple levels in China are also striving to use blockchain technology to improve public services. Factom is working on a number of projects to help local government develop data infrastructure for smart cities and integrate blockchain technology with electronic data services to enhance integrity in government information management. When blockchain is used internally to replace conventional databases, governments can better

manage physical and digital assets, record internal transactions among different functions, and verify identities for public services.

The trust machine

In October 2015, The Economist magazine famously dubbed blockchain "the trust machine". The technology behind Bitcoin could transform how the economy works. The article explained how blockchain has the potential to deal with the trust problem in the business world in the absence of government or other central authorities such as a bank. Some commentators believe that this article helped propel Bitcoin onto the main stage of business worldwide.

Nowadays, blockchain is attracting serious support in China. In February 2018, People's Daily used a whole page to promote blockchain and the digital economy. It is quite unusual for a national newspaper to promote the adoption of a specific technology, indicating that blockchain is now a national strategy for China that will permeate all sectors and all enterprises. As such, the business community has been alerted to pay attention to blockchain adoption strategies. It is not exaggerating to say that blockchain will reshape many aspects of society in the years to come, hopefully towards a fairer and more efficient society.

While new technologies represent big opportunities for business innovation and market expansion, they also come with significant risks, particularly if a company does not apply blockchain properly. Consequently, risk management is a must. We give

some simple words of advice for blockchain adoption. First, a company should begin prototyping with projects that have high potential benefits. Never go all-in unless you have no other alternative. Second, demand that blockchain projects rake in benefits continuously along the way, even though benefits may not always be measurable in dollars.



The Economist



The People's Daily

Recent blockchain developments in China

2017

- March** Alibaba in partnership with PwC releases a blockchain based supply-chain tracking system to trace the process of food delivery
- April** Wuzhen Institute publishes a white paper on the development of China's blockchain industry
- Tencent** releases a white paper detailing a suite of blockchain services currently in development including the Trust SQL platform
- July** The National Committee of Experts on Internet Financial Security Technology publishes blockchain compliance guidelines
- WeBank, Wanxiang Blockchain and Juzix** release the Blockchain Open Source platform providing application services for enterprises
- August** Alibaba in cooperation with the Chinese government launches the first blockchain medical application in China
- December** China files more than half the world's blockchain patents in 2017 (225 out of 406 patents worldwide) according to Thomson Reuters from the World Intellectual Property Organization database

Based on <https://blog.gatecoin.com/a-glimpse-at-chinas-blockchain-ecosystem-638c3d9988d2>

References:

1. Ehrsam, W. F., Meyer, C. H. W., Smith, J. L., & Tuchman, W. L. (1976). U.S. Patent No. 4074066. Washington, DC: U.S. Patent and Trademark Office. "Message verification and transmission error detection by block chaining"
2. Nakamoto, S. (2008, October 31). Bitcoin: A peer-to-peer electronic cash system. Retrieved from www.bitcoin.org
3. Berkeley, J. (2015, October 31). The trust machine, the promise of the blockchain. The Economist.
4. Valenta, M. & Sandner, P. (2017). Comparison of Ethereum, Hyperledger Fabric and Corda. Germany: Frankfurt School Blockchain Center.

Bitcoin future or fraud?

By Dr Zhang Zhong, Assistant Professor in the
Department of Economics and Finance

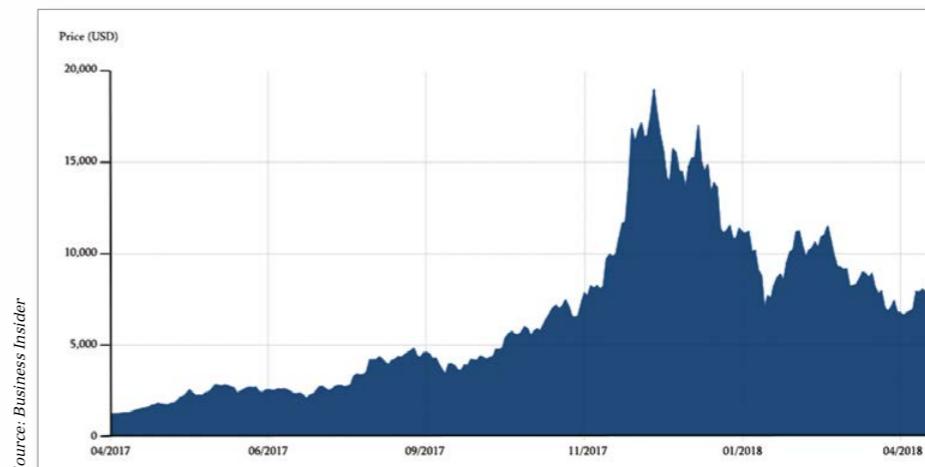


Abubble? A fraud? A way to the future? A currency? Digital gold? With all the recent fuss about bitcoin, its identity seems as mystic as its creator, Satoshi Nakamoto. The good news is that, unlike Satoshi, who intentionally tries to remain anonymous, bitcoin was designed to be transparent from day one, at least to those who are willing to dig into its open source programme files.

This article is meant to be a non-technical introduction to provide the big picture of bitcoin. So please allow me to leave most of the computer science, game theory, and cryptography details under the hood. For those who want to understand bitcoin's inner-workings, *Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction*, published by Princeton University is a great read.



Tumultuous Price Change of Bitcoin 2017-2018



Two pizzas = 10,000 bitcoins

Bitcoin is the result of a decade-long quest to create a decentralized alternative to government controlled, centralized monetary systems. It was not technically possible until we reached the mass adoption of the internet and developed the idea of open-source software. Bitcoin was launched on 9th January 2009, after the publication of Satoshi Nakamoto's white paper "Bitcoin: A Peer-to-Peer Electronic Cash System". For over a year, bitcoin remained a "garage project" for Satoshi and a few of his cyberpunk followers, without any actual interaction with the "real world". But on 22nd May 2010, Laszlo Hanyecz, a bitcoin software developer, bought two Papa John's pizzas with 10,000 bitcoins, thus creating the first record of bitcoin price in US Dollar terms. It is incredible to compare bitcoin's humble beginnings with its current over US\$100 billion market capitalization.

How does it work?

Bitcoin is the "token" of its decentralized blockchain system, which creates a public consensus about the supply, ownership, and transaction of bitcoins. In other words, bitcoin's internet based blockchain is the platform of an alternative monetary system, meant to be control-free from any entity. Bitcoin as a token and its blockchain complement each other to make this

ecosystem work (or not work), so we must always evaluate them together, not separately. Arguing that blockchain is good but bitcoin is bad, or vice versa, is equivalent to arguing car is good but gasoline is bad. All educated people should avoid that.

Why does this system need a token at all? Because it is decentralized without central control. All the rules are coded within bitcoin's software protocol. If you don't like it and change the protocol, the stuff you run is no longer a bitcoin system, and other bitcoin users will not recognize your coins. To make sure all the players, especially the "miners" who contribute computing power and extend the blockchain, behave in the interests of the system, there are two incentivizing mechanisms, one positive, one negative, and both of them rely on the value of bitcoin.

Mining rewards

The positive incentive is a "mining" reward in the form of bitcoins. The first (and only the first) successful miner who collects newly validated transactions, and solves the built-in computational puzzle to create the next block of transaction data, will be rewarded in bitcoins. This reward includes both newly "minted" bitcoins according to the supply rule in the protocol, and existing bitcoins paid by users as an optional transaction fee. As the total supply of bitcoin is



capped at twenty-one million and, as estimated, this cap will be reached by around 2140, the optional transaction fee will become the majority of mining reward. As of March 2018, close to seventeen million bitcoins have already been mined, meaning that there are only four million more bitcoins left to be created in the future. To the miners, if they behave neutrally, they can expect a highly predictable share of mining reward that is proportional to their share of all contributed computing power in the system. For example, if you control 10% computing power, measured by hashrate, of the entire bitcoin network, then your chance of being the winner of each block is simply 10%.

The negative incentive is the “mining” cost in solving the computational puzzle. It serves as a punishment for manipulating the system. In bitcoin’s blockchain, if you want to mess with the current consensus, for example to spend the same bitcoin twice (double-spending attack), your chance of success is directly tied to your share of overall computing power. If you only control a small fraction of the system’s computing power, your chance will be so low that it won’t be worth doing so. Your chances improve significantly when you control close to fifty percent of all computing power. But that means you have already deeply invested in bitcoin mining and can

receive close to half of all mining reward in bitcoins. So it doesn’t make sense to harm the system’s credibility as a major stakeholder and make your bitcoin reward worth less or zero.

Of the people, by the people, for the people

When the bitcoin system is up and running 24/7, as it is now, it serves as an internet based, decentralized monetary system that does not belong to and is not controlled by any government, central bank, or private entity. Many commentators believe this is a lethal weakness. But in fact, this is exactly what bitcoin was created for, a monetary system “of the people, by the people, for the people”. Nobel laureate and Austrian School economist Friedrich Hayek published *The Denationalization of Money* in 1976, and advocated a decentralized monetary system similar to cryptocurrency, but it was technically very different due to the absence of an internet.

Whether bitcoin’s system will succeed, and how much each bitcoin will be worth, all depends on the public’s confidence in the decentralized system’s credibility, compared to the national fiat monetary system or other cryptocurrencies’ systems. In countries with less credible monetary policy, e.g. Venezuela, bitcoin has already gained popularity as a medium of exchange. How much we can trust bitcoin depends on the quality of its blockchain consensus, which in turn depends on miners contributing plenty of computing power in an honest fashion. In the end result, a valuable bitcoin is the only way to properly incentivize miners in this decentralized system. So now we close the loop of bitcoin’s value analysis.

A system of distributed trust

Can someone destroy bitcoin’s system? Yes, but it would be extremely difficult. Decentralized blockchains work like “Skynet” in the *Terminator* movie. It is distributed across the entire internet, and has no central server or “kill switch” whatsoever. To destroy bitcoin, one must locate and wipe out each and every copy of its blockchain information from all data storages in this world, both online and offline.

Because even if only one complete copy survives the attack, the blockchain can replicate and spread into countless connected computers again.

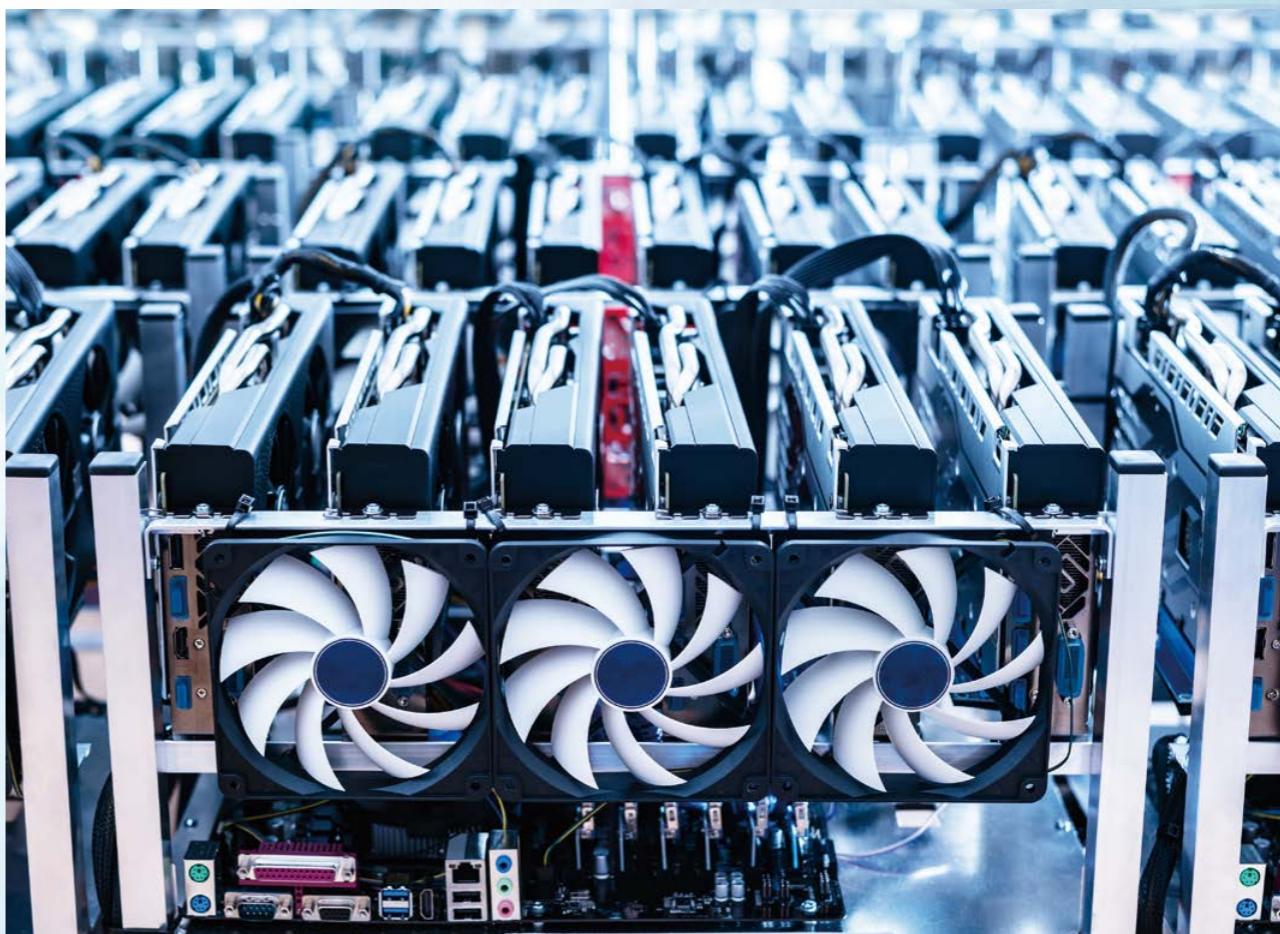
Can governments ban bitcoin? Yes, but they must completely censor the internet. It is in fact not banning bitcoin in a country, but rather blocking that country from accessing bitcoin related internet content. I doubt any truly developed society would do that. In fact, Germany just passed a law that regards bitcoin as the equivalent to legal tender for tax purposes if used as a means of payment.

Can central banks create their own cryptocurrencies to substitute bitcoin? Clearly not, because blockchain controlled by a central bank is by no means decentralized, and still requires the public’s trust in one entity. In fact, a centralized blockchain does not need a valuable token or the computational puzzle to

incentivize the miners, as the only miner is the central bank itself. Therefore, a central bank cryptocurrency would simply need government credibility to work, just as fiat money does nowadays.

Tulip Bubble 2.0?

Is bitcoin a Tulip Bubble 2.0? If we multiply its current price and supply, bitcoin’s total market value is around US\$180 billion at the time of writing. Coca-Cola has a higher market capitalization than that. Bitcoin is certainly facing a lot of challenges, both technical and political. But to anyone with a solid grasp of its underlying blockchain technology and its potential to serve as a borderless, control-free medium of exchange and store of value for any person who can access the internet, bitcoin valued at around the market capitalization of a food and beverage company looks like a steal.



Bitcoin mining consumes roughly as much energy as the Republic of Ireland



The trust machine

An interview with Dr Lawrence Ma and Gabriel Chan

By Eric Collins

Dr Lawrence Ma is founder and President of [Hong Kong Blockchain Society](#), a non-profit organization dedicated to raising awareness of blockchain technology to the public, industry, regulators and policy makers. Lawrence was educated at Yale and Stanford universities and holds a PhD from Cornell University in Maths, and is also co-founder and CEO of eMALI.IO in Hong Kong.



Gabriel Chan is Secretary General of Hong Kong Blockchain Society and graduated from Systems Design Engineering at the University of Waterloo in Canada. Gabriel is an inventor and serial entrepreneur and has co-founded numerous tech startups.



Can you give us some background to blockchain?

LM: Blockchain solves problems to do with the transfer of value without the support of a trusted third party. When the internet was designed in the 1980s, people were already checking to see if it was possible to pay in digital money. But they stumbled on the double spend problem, due to the copying potential of the technology. It would be a disaster to the economy if you can copy and spend your one hundred dollars digital cash millions of times. So nowadays, if you want to transfer money digitally it

has to go through a trusted third party such as PayPal or a bank where they can keep track of how much money you have spent.

In 2008 the paper from Satoshi Nakamoto proposed a protocol that solved the double spend problem introducing a new feature with an incentive taken from game theory. This is the proof-of-work consensus algorithm. It boils down to "If you behave honestly you will be rewarded. If you behave dishonestly you will be punished." Bitcoin was the first use case of this technology.

Why was blockchain developed?

LM: People started to ask, if we can transfer money, why not other things? How about land title, property, or stocks? That was the beginning of the idea of the smart contract. The script language of Bitcoin is very limited with only some 23 commands. Vitalik Buterin came along and wanted a more universal computer language. He created the Ethereum language that would support smart or contingent contracts.

But there have been problems, such as the 2016 DAO hack when USD50M of Ethereum was stolen. People exploited some of the bugs in this more powerful and complicated code. Bitcoin is more structured, carries fewer possibilities, and is less vulnerable to hacking. No matter whether bitcoin is successful or not, it has already played its role in history.

What are private blockchains?

LM: Enterprises very quickly realized that the existing public blockchain system had two problems that prohibited them using it. Firstly, transactions are completely transparent. This lack of privacy will be a serious issue for enterprises as they surely would not want third parties who have no part in the transaction to know anything about it. Secondly, the proof-of-work is anonymous. We only know the author of the verifier's work by an account name. In banking, the regulator needs to know that the verifier is trustworthy. If a transaction goes wrong we go back to the verifier who needs to be held accountable.

In response, R3 began to develop a private blockchain in 2015, and now leads a consortium of over 100 financial institutions. The R3 Corda system checks that the accounts exist on the network and prevents double spend by having a notary network whose identities are known to verify the ordering of transactions. This is instead of the proof-of-work consensus used by public blockchains such as bitcoin or Ethereum. R3 Corda also enables point to point communication for private transactions which don't broadcast to the whole system.

How significant are privacy issues?

LM: One of the big components of blockchain is cryptography. Privacy is very important, especially in places like Europe where you have the "right to be forgotten", and where the EU's General Data Protection Regulation will come into force this May. Right now, if you go to a site you may be asked if you are above a certain age such as 18 or 21. In Hong Kong the primary means of age identification is the Hong Kong ID card. But that is already too much information to release in answer to a specific question because your ID card has your birth date, your name, ID number, etc. If the wrong kind of person gets hold of that information along with your mobile number, they can do a lot of damage.

By using crypto there are ways of proving that you are above the age of 21 without releasing extraneous information. Nowadays you can use zero knowledge proof. With this protocol, you can release information selectively, and the choice is with the user. If your statement is true, it can always be proved mathematically. But if your statement is wrong it will not be accepted.

What about issues like know your customer?

GC: A downside of blockchain is that it cannot verify identity on public blockchains. It doesn't know if your initial data entry is true or false. It can only keep an immutable record thereafter. Blockchain talks about transferring value, but to make that effectively happen you have to be able to prove that you are the person who actually owns that asset. So, knowing the true identity of the participants or components is crucial. One solution is self-sovereign identity, where you have to give consent to the amount of information that you disclose. Self-sovereign gives identity to everyone. Right now, if the state disowns you, if Facebook closes your account you are a nobody. With self-sovereign identity you are always somebody. Self-sovereign identity solves the know your customer

problem. Incidentally, it will also give identity to the 10 million-plus stateless people identified by the United Nations High Commissioner for Refugees.

Does the Internet of Things complicate the matter?

GC: With the IoT, the components are not necessarily secure. They may be hacked and used to launch an attack into the wider system. The coffee machine may be smart and running out of milk. It may talk to the accounting department and reorder milk. That is a legitimate and benign case. But if the right security features are not in place, it might go to accounts and mess things up. Then we get headlines like "Coffee Machine Hacks Accounts!"

Human beings can be made accountable, but how about machines?

GC: With autonomous cars, if there is an accident who is responsible? It's all part of a package. There will be a rights privilege and that comes with a liability, a responsibility. As humans we will be entitled to a package, access to basic services, a passport, etc. Machines will also have entitlements because they too play a role in the economy. It will all come down to a mathematical equation, but we will still need to add the variables to that equation. Every human and every machine can have a reputation score.

How about the cost of implementing blockchain?

GC: Blockchain is not relevant to all situations. If cost is no concern, everybody will be using it. The world is constrained by time, by cost, and resources are not infinite. Look at the cost of proof-of-work in Bitcoin – using, by some accounts, as much energy as the Republic of Ireland. Against that there is also wastage in the current system. When the monetary authority produces our plastic and paper money, what is the carbon footprint?

The blockchain community already knows that proof-of-work is not the most efficient way forward. A reason that you are seeing a lot of Initial Coin Offerings is that people are claiming that they have achieved a more secure consensus mechanism. But at the moment the jury is out. We don't know what is going to replace proof-of-work. It's still being researched and developed.

Is Hong Kong sufficiently proactive with blockchain?

LM: The Hong Kong Monetary Authority has issued a second white paper and has laid down a trade finance joint initiative with the Monetary Authority of Singapore based on distributed ledger technology. The HKMA also promotes "Sandboxes" – where companies can experiment in fintech without fear of repercussions. But at the moment only the big financial institutions can play. Contrast Singapore where any fintech player is encouraged to experiment with innovative financial products or services.

"The whole ICO area is very much in flux. If you look at history, IPOs went through a similar turmoil. Then regulators figured out what to do"

What does Hong Kong Blockchain Society offer?

LM: On the training and education side, we provide workshops on the basics of blockchain, along with the technical, business and legal aspects of blockchain together with its business applications. We also organize blockchain competitions. Currently, we are running an international student blockchain competition called DappCamp with the College of Business as one of our partnering organizations. We invite students from across Hong Kong to a series of workshops held at City University, and go through all the principles of blockchain, including legal, compliance and business strategies. After that, we invite students to form teams and come up with proposals or prototypes using blockchain technology to solve problems in fintech, regtech & legaltech, and socialtech. Then the more interesting ones get to final pitch in a Developer App camp competition.

How about employment opportunities?

LM: Blockchain is a great opportunity for students because one of the big obstacles right now is that there is a real shortage of people in this field. Some of the enterprises such as banks and insurance companies can see this is coming. It is a question of when, not if. We think that some of the blockchain projects will start going live in two or three years' time. To take just one example, in 2016 one of the largest insurance companies in Hong Kong was looking for a blockchain engineer. They searched for nine months, and in the end they had to take someone in-house.

Are you commercially motivated?

GC: People educate people in order to do things economically. Obviously, we want to make sure that the community produces top blockchain engineers, developers, eco-specialists, and business strategists. The other area we want to work in is adoption. That's why the Blockchain Society works with the Hong Kong Federation of Insurers and The Law Society of Hong Kong. You have to promote the technology, let people know what it can do, before talking about whether people want to use it.

How about regulation?

GC: The whole Initial Coin Offering area is very much in flux right now. We think that they should converge to a position which is more like IPOs where there are proper governance and procedures in place. Right now, it is too wild. If you look at the history of the IPO they went through a similar turmoil, like the first IPOs such as the South Sea Company. Even Isaac Newton was fooled! But because of all the disasters the regulators figured out what to do and what not to do. History does not repeat itself, but it spirals, it echoes, it has patterns.

Turkey dynamic partner on the modern-day Silk Road

An interview with the Consul General of Turkey in Hong Kong, Korhan Kemik

By Eric Collins

How would you describe Turkish-Chinese relations?

The Turkish and Chinese civilizations have been linked by the ancient Silk Road for several millennia. Trade routes from China crossed Asia, many converging on the bazaars of Istanbul. In more modern times, diplomatic relations between Turkey and China were established in 1971, and in the past decade frequent reciprocal visits have contributed to our strategic relations. On the occasion of the Belt and Road Forum for International Cooperation in May 2017, President Recep Tayyip Erdogan visited China and met President Xi Jinping.

Economic and trade relations between Turkey and China are developing dynamically. China is our largest trade partner in Asia and our second largest trade partner globally. Our trade has surpassed US\$26 billion p.a. This is a solid relationship with a very bright future.

Let me also briefly touch upon our relations with the Hong Kong SAR. We very much cherish our growing relationship with Hong Kong as an integral part of China and value the ties that we have developed so far in trade, tourism, culture and education.



On the economic front, both Turkey and Hong Kong are gateways to their surrounding regions with huge market potential. There is ample scope for our business communities to further develop their cooperation by using this geostrategic advantage. We encourage Turkish companies to settle in Hong Kong and utilize this key Asian city for the opportunities in the mainland and other markets. As for Hong Kong companies, I trust that they may like to benefit from the foreign direct investment

friendly environment of Turkey as well as from the approximately 1.6 billion customers in the adjacent regions.

Is Turkey part of the Belt and Road?

The answer is "yes". Turkey has supported this initiative from the outset. President Erdogan, in his speech at the opening ceremony of the Belt and Road Forum hosted by President Xi Jinping in May 2017, highlighted the importance of the win-win approach in the realization of this initiative and underlined Turkey's readiness to provide all kinds of support for its success.

President Xi Jinping's Silk Road initiative has converging aspects with Turkey's longstanding efforts to revitalize the ancient Silk Road. Located in a key position, Turkey aims to realize the Trans Hazar-Middle Corridor Project, opening a new corridor connecting China and Europe. To align China's Belt and Road Initiative with the Middle Corridor Project of Turkey, a Memorandum of Understanding was signed in November 2015.

Geopolitically, will Turkey align more closely with Europe or Asia?

We live in an age of rapid changes and uncertainties, and our world is experiencing a transition period. Our policies need to adapt to constant change and help shape the dynamics around us in the direction of peace, prosperity and stability. Turkish foreign policy mobilizes several complementary political, economic,

humanitarian and cultural means to that end and has global reach.

Turkey is pursuing membership of the European Union underlining that her membership would benefit both the EU and Turkey. As an active member of NATO, Turkey has been making essential contributions to the North Atlantic alliance and the core premise of the alliance, namely "one for all, all for one". Turkey is part of the European Customs Union and is an active member of the G-20. She is also a co-founder of the Alliance of Civilizations, amongst others.

As the world pivots towards Asia, Turkey is a significant player in the global power balance. In the mid-1970s, the world's seven largest economies were in Europe, North America and Japan. Nowadays three of the seven largest economies are in Asia.

We would like to redefine the world as an area of cooperation rather than conflict. Therefore, we cannot look at the world with narrow ideologies and strict identities. We strive to embrace Europe, Asia, the transatlantic, Africa and Latin America. Turkish diplomatic outreach has grown immensely during recent years, now totalling 239 missions abroad, and is the fifth largest network globally.

What major new infrastructure projects are underway?

Turkey is building tunnels, bridges, airports and canals. Several mega projects have been completed over

The Baku-Tbilisi-Kars railway is a regional rail link that connects Kars in Northeast Turkey to the Georgian capital of Tbilisi and Baku, Azerbaijan's capital city. The railway is an important link in the modern silk road



the last 15 years, mostly using the public-private-partnership model. Istanbul's new airport project is 70% complete and the first phase will be open for service in October 2018. The Baku-Tbilisi-Kars Railway was completed in October 2017 and is one of the most important links in the modern Silk Road and a main component of the Middle Corridor.

Mega projects such as the Trans-Anatolian Natural Gas Pipeline Project and nuclear power plants projects are underway, whilst a massive new project, Canal Istanbul, will provide an alternative link between the Black Sea with the Mediterranean on Istanbul's European coast. Another huge project is the 3-story Grand Istanbul Tunnel, designed to carry both cars and metro between Asia and Europe.

Economically, what are the expected growth areas in the next five years?

Based on Turkey's long-term vision for 2023, our country aims to be one of the top ten economies in the world, with a GDP of around US\$2 trillion, a GDP per capita of US\$25,000, and exports of US\$500 billion.

Our goal is to shift production from low-technology to high-value and high-technology products. So the areas which mostly use advanced technology such as information systems, pharmaceuticals, telecommunication, defence and aviation will be the fields of growth in the forthcoming years.

Frescoes inside the Byzantine church of Saint Nicholas, Demre



©Eduardo Mifas / Alamy Stock Photo



Cappadocia

Turkey also aims to increase the share of domestic resources in primary energy production in order to alleviate its high import dependency on energy products. Diversification of routes and sources for imported oil and natural gas, increasing the renewable energy in our energy mix, increasing energy efficiency and adding nuclear to our energy mix are the other goals we want to achieve in the near future. So energy as a whole will be one of the main areas for growth for the coming years.

Finance will also play a crucial role in Turkey's economic growth. The vision of the Istanbul International Financial Centre is for Istanbul to become a regional, and then a global financial centre.

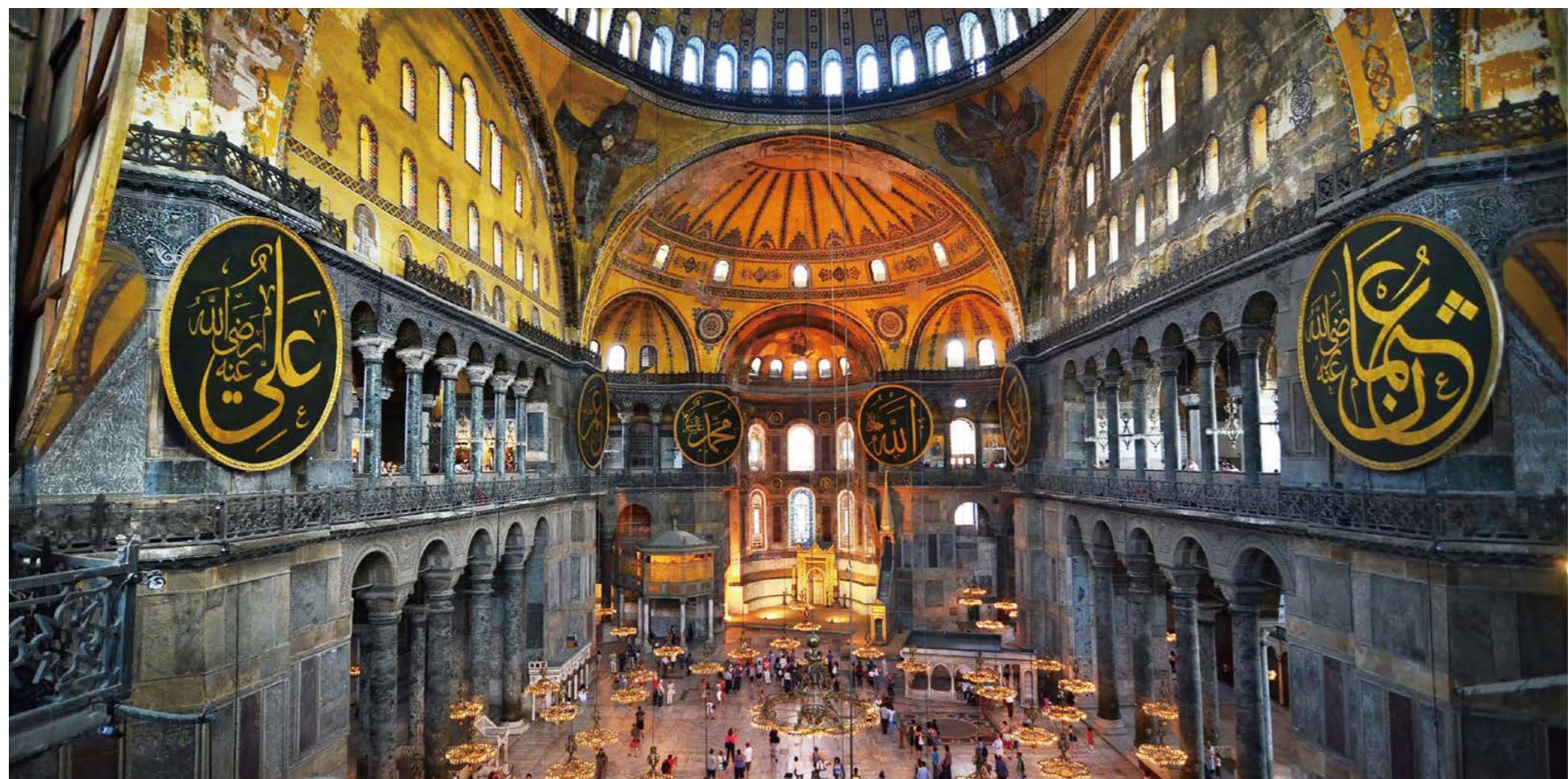
What are the highlights of innovation and R&D?

R&D activities are, of course, crucial for innovation. A network of Technology Development Zones specializes in developing the high technology sector by supporting and encouraging R&D

Saint Nicolas

Saint Nicholas was born far from the snowy landscape of reindeer and sledges on the Mediterranean coast of Turkey at Patara in CE 270. As he grew up, he felt the calling of the Christian religion and eventually accepted a position as bishop of the nearby town of Demre. When his parents died he inherited a large fortune which he used to help the poor. He started to drop bags of gold coins down chimneys, gave nuts and fruit to good children, and helped look after the sick and elderly in the community.

When Nicholas died, his sarcophagus was placed in his church. But his fame was spreading worldwide. He was named a saint and Italian sailors stole his bones to take to their homeland. Over hundreds of years, the image of Saint Nicholas also changed. The red-suited Santa Claus that we see nowadays helping to sell Christmas, bears little resemblance to the original.



The Eurasia Tunnel Project

The Eurasia Tunnel Project connects the Asian and European sides of Istanbul via a 14.6 kilometre undersea highway. The Republic of Turkey commissioned Eurasia Tunnel Operation Construction and Investment Inc. to carry out the design, construction and operation of the project. The Tunnel was opened in December 2016. The Eurasia Tunnel Project is a public-private partnership, and after the completion of the operation period of 24 years and 5 months will be transferred to the public sector. Many of Turkey's mega-scale projects also use the PPP model, such as the Yavuz Sultan Selim Bridge, the Istanbul New Airport, the Osmangazi Bridge, city hospitals in Yozgat and Mersin, and the Istanbul-Ankara High Speed Railway.



Istanbul Canal is a project for a sea-level waterway, which will be built on the European side of Turkey, to connect the Black Sea to the Sea of Marmara, and hence to the Mediterranean

Hagia Sophia is a former Byzantine church and Ottoman mosque, and is now a museum in Istanbul

activities. The zones were first established in 2001 as sites integrating academic, economic, and other structures. To date there are nearly 50 TDZs in operation. Enterprises are provided with R&D allowances, incentives for withholding income tax, insurance premium support, stamp tax and customs duty exemption, etc.

At the end of 2016, our government launched a new project-based incentive system, to provide a flexible, tailored approach to support specific projects. In this regard, President Erdoan has recently announced 23 projects worth US\$33.16 billion in sectors including aviation, renewable energy, health, defense, automotive, mining and metals.

How successful is Turkey in attracting Foreign Direct Investment?

Turkey is a major recipient of FDI, receiving nearly US\$11 billion mainly from European countries, but

also some 20% of the total from Asian countries last year. Currently we have a very liberal FDI regime. Turkish FDI frame law guarantees equal treatment to all investors and enables all international investors to enter Turkey without a preliminary authorization request, to transfer dividends freely, to access real estate, and to be protected against expropriation.

The investments of Huawei, Hyundai, Unilever, Pfizer, Ford and Microsoft in Turkey, represent important landmarks in our success story. We will continue our promotional campaign with the slogan "Come to Turkey, Discover your own Story" to project our country's strong economy abroad, and the opportunities open to investors.

What are Turkey's main tourist attractions?

Turkey is the 6th most popular tourist destination in the world and is well on the way to attracting more than 40 million tourists annually. With cities steeped

in history, beaches, and beautiful countryside, rich cultural, culinary and natural wonders, Turkey promises a unique vacation experience for all visitors.

Capital to civilizations for millennia, Istanbul is an international landmark with its historical peninsula, numerous scenic vistas and historical beauty. Further south, the Turkish Riviera, first and foremost Antalya and its environs at the Mediterranean and Izmir on the Aegean coast offer a wide variety of sun and sand holidays for families, at reasonable prices. Also on the Aegean are diverse offerings such as the UNESCO World Heritage sites, including the extraordinarily beautiful ancient sites of Troy, Ephesus and Hierapolis.

Turkey has several landmarks of the Abrahamic religions which can be seen across the natural landscape of Anatolia with major religious sites such as the House of the Virgin Mary in Izmir, Sumela Monastery in Trabzon, Cappadocia, and the

Monastery of Saint Nicholas in Antalya. Even Santa Claus originally comes from the southern Turkish town of Demre!

Last but not least, seafood lovers find terrific fish restaurants in Istanbul as well as along the Mediterranean and Aegean coasts. Gourmets should not miss the chance to taste the pastries, diverse kinds of baklava, Turkish coffee and other delicious specialties of Turkish cuisine including a variety of traditional kebabs.

Turkish Airlines flies to more countries and international destinations than any other airline. Year 2018 is designated "Turkey Tourism Year" in China. Turkey is ready to greet more visitors and tourists from China, including the Hong Kong SAR. We look forward to welcoming you!

CityU Digital Business Innovation Festival

Exploring the themes One Health, Digital Society, and Smart City, the 2018 CityU Digital Business Innovation Festival organized by the MBA Programme kick-started at a lively opening ceremony on 23rd January. Over 30 industry partners and speakers shared their vision on digital business innovations through a range of activities including an App Innovation Contest, Exhibition, SHARP Forum and Symposium. Some 2000 participants attended the five-day festival.

Opening ceremony

The opening ceremony featured distinguished guests and industry experts delivering keynote speeches on the festival's key themes. We were honoured to have Professor Way Kuo, President and University Distinguished Professor of CityU; Dr David Chung Wai-keung, Under Secretary, Innovation and Technology Bureau, HKSAR Government; Mr Herman Lam, Chief Executive Officer, Hong Kong Cyberport Management Company Ltd.; Mr Barry Chan, Partner, Financial Services Sector Leader, IBM Global Business Services; Mr Wilson Wong, Director of Advisory, Deloitte; and Dr Witman Hung, JP, Principal Liaison Officer for Hong Kong, The Shenzhen Qianhai Authority as our speakers.

In his opening address Professor Houmin Yan, Dean of the College of Business, emphasized the importance of collaboration across disciplines. "This is a good platform to bring together expertise from different industries, and to share ideas on how to enhance current systems and improve the well-being of the community. The College of Business is committed to teaching and research, which will hopefully positively impact future society."

Professor Kevin Chiang, Director of the MBA Programme and Festival Chair, said that technology advancement and business innovation are inter-



related. "These ideas can eventually bring benefits to society, but we need education to facilitate the knowledge discovery and transmission. Bridging education, technology, and business is a critical step leading to continuous improvement of our well-being, social welfare, and the quality of life. It is to this end that the CityU MBA organizes this festival with the three themes of One Health, Digital Society, and Smart City."

App Innovation Contest

In search of the next disruptive idea, the App Innovation Contest attracted 138 team entries with creative ideas from across Asia, including Japan, Korea, Singapore, Taiwan as well as Hong Kong. Shortlisted teams promoted their ideas through posters at the festival exhibition, and will present their final apps or pitch-ready prototypes at a pitching session in mid-May.

Participants are expected to benefit by joining iOS coding workshops to learn Swift, an intuitive programming language developed by Apple. Teams will also be able to fine-tune their ideas with industry professionals. And scholarships of up to HK\$20,000 are on offer to the winning teams.

SHARP Forum

The 3-day SHARP Forum highlighted the themes of One Health: Mobile Healthcare, Digital Society: Fintech and InsurTech, and Smart City: Digitalisation in Travel Industry. The forum featured presentations from the Hong Kong Hospital Authority and Hong Kong Tourism Board, and contributions from HSBC, General Electric, PwC, Peach Aviation and Connexus Travel. The forum was organized by MBA students with the support of the supervisors and the MBA Office.

Exhibition

Featuring 15 exhibitors from the digital business industry and university academic units, the 2-day exhibition showcased an array of new ideas, digital solutions and applications, including an interactive live virtual reality (VR) demo, augmented reality apps by JetOne Motion and visual recognition application of mobile devices demonstrated in the Technology Experience Zone. Student projects were exhibited in booths hosted by the CityU Apps Lab, Knowledge Transfer Office and Advanced Intelligent Information Systems Research Centre of CityU.

Symposium

On the last day of the festival, the symposium was held as a key component of the festival finale. Tech leaders from companies such as MTel, MotherApp, Optix Group, Tofugear, WiFi and WeBank demonstrated how VR, AI, and IoT are provoking substantial breakthroughs, creating new customer experiences, and transforming businesses. Leading corporates, such as Adobe and Hutchsion Telecommunications (Hong Kong) Limited, shared their visions of the future.

2018 CityU Digital Business Innovation Festival opened the lines of communication between business, education and technology sectors. Together with engaged industry partners and festival participants, the festival is creating a much needed platform to accelerate the transmission and transformation of knowledge, and the stimulation and application of innovation.



Centre pages – Satire on Tulip Mania

Jan Brueghel (II)
Satire of Tulipomania, c. 1640
Purchased with the support of the Rembrandt Society
Photography Tom Haartsen
Photo courtesy of Frans Hals Museum

Monkeys in contemporary 17th century Dutch dress are shown dealing in tulips. A satirical commentary on speculators during the time of "Tulip Mania", an economic bubble that centered around rare tulip bulbs. At left, one monkey points to flowering tulips while another holds up a tulip and a moneybag. Bulbs are weighed, money is counted, a lavish business dinner is enjoyed. The monkey at left has a list of rare tulips, his sword denotes upper class status. Farther back, a monkey sits like a nobleman astride a horse. One in mid-foreground draws up a bill of sale; the owl on his shoulder symbolizes foolishness and ignobility. Brueghel is not only ridiculing tulip speculators as brainless monkeys, the work is an object lesson for the folly of speculating to such an extent in such a transient thing as a mere bloom. In the denouement at right, a monkey urinates on the now worthless tulips; fellow speculators in debt are brought before the magistrate or weep in the dock. A frustrated buyer brandishes his fists, while at the back right a speculator is carried to his grave.

— Wikimedia Commons



Towards an Elderly Ecosystem

By Eric Collins

Professor Frank Chen, Head and Chair Professor in the Department of Management Sciences, gave a President's Lecture entitled "Integrated Elderly Care, Challenges and Opportunities" on 5th March. Professor Chen described the crisis in Hong Kong's public healthcare system, some achievements of his healthcare research team to-date, and how he sees the Elderly Ecosystem developing in the future.



Lunar New Year this February once again brought a surge of demand to Hong Kong's overburdened hospitals. The overall occupation rate hit 111%, but this masked regional differences with several hospitals in Kowloon at over 120% – and resulting in waits of over eight hours.

Is the solution more doctors and nurses in the hospitals? As one doctor in Tuen Mun Hospital put it, "with these kinds of occupancy rates, it's even difficult to walk through. Where to put extra staff?"

Ironically, the crisis in public healthcare comes against a positive backdrop. Hong Kong's women and men enjoy the longest life expectancy in the world, with women living for an average of 87.3 years, and men 81.2. But therein lies the root of the problem. Hong Kong's population is rapidly aging.

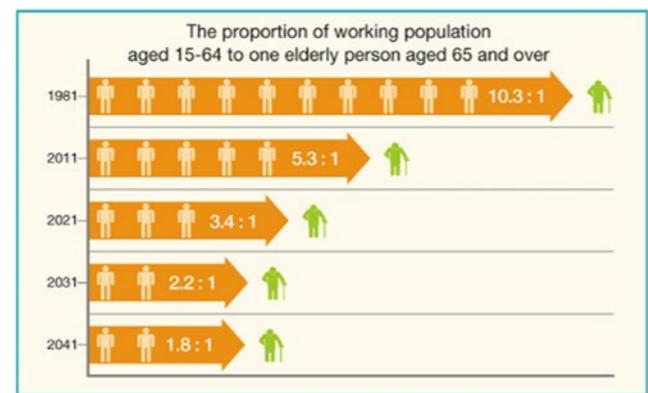
Hong Kong's hospitals are in fact performing efficiently and with relatively thin resources. Total GDP in healthcare is at 5.7%. Compare this to 17.2% in the US, or 10.1% in Japan. And inside the two-track system, public hospitals are taking the brunt of the work, handling 90% of the patients whilst employing just 40% of the doctors. Above all, the main problem is with the care of elderly people, those aged 65 or above. They make up half of all patients in Accident and Emergency as well as half of all inpatient admissions. It is no exaggeration to say that healthcare is and will be about elderly care in the coming years.

Achievements to-date

Professor Chen and his team, with the support of Dr Eman Leung, have been working on multiple fronts. They have proposed practical solutions to mitigate hospital overcrowding, to estimate the effect of community service provision on minimizing hospitalization, and to anticipate hidden risks from elderly people not currently under the care of the social services. The work has been achieved with the support of the UGC funded theme-based research project "Delivering 21st Century Healthcare in Hong Kong – Building a Quality-and-Efficiency Driven System" and donations by Dr Joseph Lee Chung-tak and Mr Tat-chuen Lau.

Improving acute care hospitals

In the crucial battle against the severe over-crowding in Hong Kong's hospitals, the team has developed and validated three models: a new model for predicting patient segment-specific length of stay, a new estimator for hospital readmission risk, and



Source: Census and Statistics Department, HKSAR Government

a hybrid decision tree to optimize the allocation of post-acute care for minimizing readmission. The team has also developed a novel tensor factorization-based machine learning method for predicting the development of new chronic diseases. Currently, the theme-based research team is working with one of its hospital partners to implement the above analytic models at different junctures of the patient journey. This will improve the quality and efficiency of acute and post-acute care through data-driven discharge planning at admission.

Improving residential services

A data-driven care planning model has been developed in care homes to minimize emergency hospitalizations. The team has also created a decision modelling for frontline health workers to minimize unnecessary hospital readmissions.

Improving community services

A hierarchical frailty hazard model has been developed to estimate the effect of post-discharge service provision on minimizing re-hospitalization. One immediate takeaway: Elderly people who received social service support in the community such as sorting out medication, accompanying to follow-up hospital visits, meal delivery and basic care, stayed out of hospital longer compared to those who did not.

Identifying potential risks

Not all elderly persons are currently under the care of the social services. Data has been collected by a team of nurses and social workers from 1,500 elderly people living in the community on their clinical, functional, psychological and social metrics to develop risk profiles and identify personalized care plans to manage risk. Again, the main idea is to minimize hospitalizations.



A crowded ward in one of Hong Kong's public hospitals

What for the future?

Professor Chen proposes an Elderly Ecosystem working with assistive technology at six levels. One overall result would be to reduce the demand on human resources in the community.

- *Individual level – Artificial intelligence-assisted individualized care planning for chronic diseases management, fall prevention, mild cognitive impairment interventions, etc.*
- *Organization level – Data-driven optimization of service delivery and resource allocation.*
- *Community level – Advanced analytics to optimize the coordination between medical and social services, minimize hospital readmission and delay entry into residential care homes.*
- *Public health level – Health and disease surveillance and modelling.*
- *Government policy – Evidence-based policy design to incentivize private enterprise entry into the silver market and create a sustainable elderly care ecology through public-private partnerships.*
- *Long-term Sustainability of Healthcare transformation – Talent training for the elderly healthcare ecosystem, internship opportunities would be created for university students to expose them to a silver market.*

The scope of this multidisciplinary work is wide-ranging, and would involve many key academic units in CityU, as well as the Hong Kong Government and other stakeholders. Professor Chen looks forward to the theme-based project making further positive impacts on the elderly health ecosystem.



Deep learning

By Eric Collins

Professor Jeff Hong is Endowed Chair Professor in the Department of Economics and Finance and Department of Management Sciences. This semester he is offering a voluntary study group with the theme deep learning. The group follows a Stanford University online course “[CS231n: Convolutional Neural Networks for Visual Recognition](#)” and consists of students at all levels from undergraduate to PhD, as well as faculty members. City Business Magazine went along to one of the seminars to find out more and talked with Kiko Zhang, MPhil, Management Sciences, Yifan Zhang, Research Assistant, and Dr Zhankun Sun, Assistant Professor in the Department of Management Sciences.

Why are you offering this study group?

Jeff: I want to learn. Machine learning has changed many things. Back when I did my PhD study we didn't have these tools. I also want my PhD students to learn. I don't know if they are volunteers of this group in the true sense of the word! In the management sciences field we can see that machine learning and data science are changing the way we do everything. Now, when people talk about this it is no longer a mystery.

How important is it for PhD students to learn tools?

Jeff: I think it is very important. From my own experience as a PhD student, I took more than 70 different courses. I didn't know how I was going to apply them. I was just curious. It's like Steve Jobs said, if he hadn't taken a calligraphy course at university there wouldn't be all the fonts in programmes today! Even if our current research is not directly linked to this, give me some time. I think in two or three years, I may write papers using these tools.

How does deep learning work?

Kiko: If we are talking about visual recognition, you have this ground truth label with say 10 classes of image and you calculate the difference between the ground truth and a value x . But this method can be applied to any prediction problem. So, with the price of a flat you have some trigger parameters such as the location of the house, number of rooms, maybe the wealth of the family. Prior to deep learning you wouldn't have a hidden layer, but now from just these three values, you can try and predict the number of family members, the school district, the distance you have to walk to school. Ultimately you predict the house price.

Where can deep learning be used?

Kiko: The techniques can be applied to any research area, for example, engineering, image recognition, or finance – to any classical statistical prediction problem. The main motivation in management sciences will be reducing costs.

From the research perspective you can use Python and all the APIs it is built on in any field. If you are in genetic science you can predict gene mutations. In medical science you could also use the tool.

Can you give a specific example?

Yifan: Take bicycle sharing. Ofo has flooded cities with bicycles, but sometimes you still can't find one. The company doesn't have enough data to train the neural network to get the bicycles where they are needed.

Now we have many neural networks, and need a lot of data to train these networks and make them more efficient in solving problems. We often don't have enough data to solve our problems. So there is a tool called Generative Adversarial Networks. This is a class of artificial intelligence algorithms used in unsupervised machine learning, implemented by a system of two neural networks contesting with each other in a zero-sum game framework. They can generate more data to train our neural networks.

Is this study group helpful to you?

Yifan: It's been very beneficial. I now know how to run a programme on Google Cloud. You can also initiate your Graphics Processing Unit instance, you might have millions of parameters.

Kiko: It's my first time working with Python programming language, and very beneficial. Now when I read a paper from deep learning, I am no longer lost!

Who is teaching the class at Stanford?

Jeff: This class is being taught by a PhD student for Stanford undergraduate students (something that would not currently be possible at CityU), and they are teaching research papers that are appearing in the same year. That's completely cutting edge and it's the first time I have seen that.

Which classes were important to you in your own PhD study?

Jeff: As I said I took dozens of courses. One on Computer Aided Design stands out. Half the course was talking about computational geometry, which

Deep learning (also known as deep structured learning or hierarchical learning) is part of a broader family of machine learning methods based on learning data representations, as opposed to task-specific algorithms. Learning can be supervised, semi-supervised or unsupervised.

Deep learning models are loosely related to information processing and communication patterns in a biological nervous system, such as neural coding that attempts to define a relationship between various stimuli and associated neuronal responses in the brain.

Deep learning architectures such as deep neural networks, deep belief networks and recurrent neural networks have been applied to fields including computer vision, speech recognition, natural language processing, audio recognition, social network filtering, machine translation, bioinformatics and drug design, where they have produced results comparable to and in some cases superior to human experts. —Wikipedia

had nothing to do with my field of study. However, we learned this thing called Voronoi diagram, a partitioning of a plane into regions based on distance to points in a specific subset of the plane. I spent a long time writing a computer programme. I never expected that one day I would use Voronoi to solve what turned out to be the core problem (a simulation optimization problem) in my PhD. People said, how come you got so creative? But it wasn't like that. One day I just thought "Oh, this is very similar to the Voronoi diagram."

Steve Jobs said, life is about connecting dots backwards. If those dots have been planted, they will allow my students to move forward.

Should PhD students take broad study programmes?

Jeff: PhD students often concentrate on a particular research area, but I want my students to be trained in a broad sense. Research topics come and go. If you only learn the topic of the day, five years down the road, you may become very narrow and may fossilize. You won't be able to solve new problems because you don't have the tools. That's why I am still learning new tools!

I think the relationship between advisor and advisee is quite important. To some extent the way my students

think after they have finished their PhD is affected by the way I think. For myself, I see similarities between the way I think and my advisor, and his advisor too. In a sense it is a learning lineage that we are passing down. As Isaac Newton said, we stand on the shoulder of giants. We use the tools that we have to solve problems. And in the process, we may invent new tools.

Can this study group experience affect current teaching?

Zhankun: I agree with Jeff. I am not too far away from being a student myself, and I hear about new methods, and wonder if I can solve problems using them. Learning by yourself is not always the most effective way. Your professors are better placed to pick out what is the core content of a particular subject. Now, machine learning is no longer so mysterious for me.

First this study group satisfies my own curiosity, second it might be helpful in my future research, you never know. It's only afterwards you can make the link. Lastly, it will have an effect on my own teaching. I am teaching a course which is quite statistically related, but there is a lot of classical statistical content, and a lot of it was invented 100 years ago. Image recognition is being applied to the driving of autonomous vehicles now. So, this is an opportunity to introduce cutting edge content to my courses.

Machine Learning for Business Research

AI is everywhere. Face detection, speech recognition, predictive advertising, email spam detection, are all AI driven. Machine learning is equally important in business research, and is enabling research work of unprecedented scope. The new learning tools deliver us new data and methods, and also focus on new questions such as out-of-sample prediction and high-dimensional algorithms.

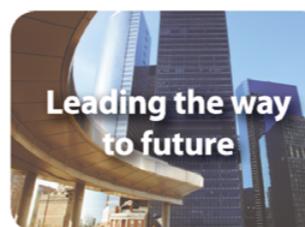
Machine Learning for Business Research, FB8918, is a new elective course to be offered by the College of Business from Semester A 2018/19. Machine learning stands at the core of many business models nowadays and this course will teach machine learning models and tools and enable students to conduct related business research. The course will cover supervised learning in

depth, including regression, classification, regularization, tree-based methods, ensemble methods etc., and will also introduce the basic concepts and tools in unsupervised learning, including clustering and principle component analysis, etc.

The course focuses on practical training using business data including marketing and financial market data, as well as unstructured text data in news media. Applications with business data use clustering, tree & forest, support vector machines, boosting and ensemble methods, and neural networks. These include classification with applications in marketing data, prediction problems and applications in finance, and text analysis and applications in event study.



Asia's First EMBA + MPA Programs City University of Hong Kong & Tsinghua University



2 master's degrees from 2 distinguished universities

- EMBA from City University of Hong Kong & MPA from Tsinghua University
- Emphasis on leading-edge knowledge and practices on Belt and Road (OBOR) and Public-Private Partnership (PPP)
- Support and best practices from the United Nations Economic Commission for Europe (UNECE) including a field study trip to UNECE

Learning and networking beyond boundaries

- Unique learning experiences across business management and public administration
- Extensive networking with business leaders and government officials in the Greater China region and Belt and Road countries
- Strong alumni communities of Tsinghua University and City University of Hong Kong

Master the future with best-in-class EMBA + MPA experience

- Stay ahead of the curve with best-in-class business and public management know-how
- Well-positioned for opportunities in and across public and private sectors

Offered by:



城大商學院
College of Business
CITY UNIVERSITY OF HONG KONG



清华大学
公共管理學院
School of Public Policy & Management
Tsinghua University

www.cb.cityu.edu.hk/EMBA_Tsinghua-MPA

CB-EMBA_Tsinghua-MPA@cityu.edu.hk

The rise of innovation in China



© Visual China Group

By Eric Collins

Dr Haiyang Li is Professor of Strategic Management and Innovation at the Jesse H. Jones Graduate School of Business, Rice University. He received a bachelor's and a master's degree in economics from Renmin University of China, and a PhD from City University of Hong Kong. Professor Li was a recipient of the [College of Business Distinguished Alumni Award](#) 2017. Here he talks about how companies innovate in the US and China, the growth of China's technology clusters, and the role of education in facilitating a culture of innovation.

Back in 1995, the China tech landscape would be unrecognisable to a young person of today. Nokia reigned supreme in the mobile phone sector, Alibaba was just a glimmer in Jack Ma's eye, and the internet was the elephant in the room, its potential only dimly realized.

One China company stood out. Lenovo was an early mover in building PCs in mainland China. Founded in Beijing by academic Liu Chuanzhi in November 1984, and incorporated in Hong Kong four years later, Lenovo bucked the trend. Here was a Chinese company that was doing battle with the best of international competition. The company caught the eye of the young Haiyang Li.

"One of my classmates had gone to work at Lenovo after graduation. He earned 400 RMB per month, a fabulous sum! At that time, China companies did not have a developed technology sector, products, or a market. So I was fascinated. How did this company become successful so quickly? And how significant was product innovation in its rise?" says Professor Li. Lenovo was to go from strength to strength and in 2005, famously acquired IBM's personal computer business. So this early Chinese big step acquisition of a western company begs the question: How do companies best innovate? In-house, by developing open-source platforms, by acquisition – or by other means? It is a question that Professor Li has put some thought into over the past twenty years.

Technological vs business innovation

Firstly, how should we understand innovation? What models should we follow? Professor Li sees that the traditional paradigm of big step innovation is being supplanted by a hybrid model.

"Companies are starting to shift to business model innovation as a new process for creating, delivering and extracting value. Companies may not now offer significant tech or breakthrough products, but they are still successful in creating a big step up in value."

Professor Li cites the emergence of Walmart many years ago, and the current success of Alibaba and Tencent. All have significant elements of business model innovation.

"I spent my early academic research years focusing on product innovation, but the landscape is changing. Now the business model is as significant as product or technological innovation."

The processes are parallel. Indeed, it may no longer be enough to innovate products. The business model must also work. He continues: "When eBay came to China, although it was a first mover in the market, it didn't do very well. Its business model didn't fit the Chinese market. Again, many Apple products are not new but based on existing technologies, adding business model innovation. By combining the two, they create something new and popular."

How innovative are China companies?

China is now a major driving force for innovation. For example, among the world's top 20 most innovative companies ranked by Fast Company in 2017, five are from China, and all of them are private firms – Alibaba, Tencent, Xiaomi, Huawei, and Dalian Wanda.

Ecosystems

China has made rapid strides to become the world's second-largest economy and today accounts for 20% of global R&D expenditure, according to the US National Science Board. Meanwhile, the US still leads

the market with a 27% share, but this figure is down from almost 33% a few years ago.

Strategic government planning can offer a major competitive advantage. Whereas the US under President Trump seeks to shrink the role of government – recently failing to appoint a Presidential Science Advisor, China prioritises innovation in science and technology. The Third Plenum of the Chinese Communist Party's 18th Congress in November 2013 made it clear that the nation's growth model needed to be changed to be more innovation-driven.

"Rather than simply focusing on technological innovation, the reform plan viewed innovation as supported by ecosystems. Chinese leaders have realized that there is a need to explore innovation as a system. This includes the financial market, the talent

The World's 20 Most Innovative Companies 2017

- | | |
|----|----------------------------|
| 1 | Amazon |
| 2 | Google |
| 3 | Uber |
| 4 | Apple |
| 5 | Snap |
| 6 | Facebook |
| 7 | Netflix |
| 8 | Twilio |
| 9 | Chobani |
| 10 | Spotify |
| 11 | Alibaba |
| 12 | Tencent |
| 13 | Xiaomi |
| 14 | BBK Electronics |
| 15 | Huawei |
| 16 | Dalian Wanda |
| 17 | Airbnb |
| 18 | BuzzFeed |
| 19 | Open Whisper Systems |
| 20 | Illumination Entertainment |

market, the social security system, as well as the technology management system," says Li.

This approach has been supported by the phenomenal growth of science parks in China. The first was founded in Beijing back in 1988. Now they feature across the country. Ten years ago there were 53. Now there are more than 150. They are a useful way of attracting young startups.

How effective is China's approach? Professor Li gives a qualified "thumbs up".

"Innovation happens despite central planning, not because of it. You cannot plan for innovation. A lot of it happens by accident. All the current investment in China R&D will have an effect, but it may take years for big step innovation to come."

Innovation US style

The American approach offers a contrasting way forward.

"The US companies are private, not state owned, and their strategies follow a bottom-up model. In China companies follow top-down procedures with lots of

resources from the government, an incentive culture, and tax breaks," says Li.

In the US firms are more motivated to grow innovation organically.

"The US firms have a very strong innovation infrastructure within the company, the leadership, organization structure, and the culture. Facebook gives a lot of freedom and empowerment for innovation, for employees to be the champion of innovative ideas."

"Proctor & Gamble and General Electric are also developing an open innovation process, and getting sources, ideas and support from outside."

Education and exploration

The role of schools remains crucial in cultivating an exploratory attitude to life.

"I am a father with two kids, one just going to college and one in middle school, and we can observe the differences in terms of how we are trying to educate our kids compared to our friends back in China."

"In the US, society tries to provide opportunities for kids to grow based on their own interests. Even if you don't go to an Ivy League school or college, there is a lot of support for individuals to pursue their interests, and to be innovative."

This contrasts with his experience growing up in China in the 1980s where going to college was the main way to move up and there weren't a lot of other opportunities, particularly for young people in rural areas.

Parenting

Underpinning the approach of the two education systems are varying attitudes to risk and differences in values. As Professor Li puts it:

"US culture supports people who do something different. That's critical. In China people are trying to conform. Parents have their kids go to classes to follow what other people are doing, rather than ask what their kids really want to do. The motivation is quite different, from kindergarten right through to College."

"It's still US individualism compared to China collectivism. China is more hierarchical, and people are trying to obey senior people. In the US, people seem to be more equal in many ways and you do not have to follow a hierarchical structure. You can follow what you think is good for you."

Corporate campuses

The diversity in the US approach is also seen in the new corporate campuses springing up across the country.

"Apple is not the first US company to build its own university. Look at GE, which opened its corporate training centre back in the mid-1950s."

But Professor Li points out the advantage of the traditional university.

"The comprehensive university can offer more subjects than a particular company. The liberal arts are especially important in placing specialisms in context."

"In many universities in the US for the first two years students haven't decided on their major. They can do what they want. Indeed, at Rice 90% of our students eventually will have double majors. So there is a lot of flexibility and freedom to explore options."

Firewall

One of the more inconvenient aspects of living and working in China is its great firewall. Old work-arounds are no longer effective, so is the firewall disempowering China technology companies?

"The short answer is yes. If you want to be innovative, a seamless flow of information is key, otherwise it is very difficult to share ideas and learn from others. Therefore many Chinese technology firms are investing overseas for the technological freedom."

"Even VPNs are not working in China now, which will bring a lot of frustration for all kinds of areas. Free access to Google Scholar is becoming more and more difficult."

Science Parks in China

The Beijing Zhongguancun science and technology industrial park was approved by the Chinese State Council in 1988. As of February 2018, China has 19 national-level innovation demonstration zones, alongside 147 regional parks which play a significant role in boosting the economy. China has launched more than 1,600 high-tech start-up incubators, the highest number among all nations worldwide. New innovation hubs offer cutting-edge research centres, which have attracted international attention such as Apple's recent decision to build a new R&D centre in Suzhou.

Zhongguancun Science Park in Beijing



Mergers & Acquisitions

Professor Li points out that M&A is a time-honoured approach to introducing innovation into US companies. Apple, Microsoft and Google have all bought a lot of tech startups, as opposed to going solely for organic growth. This is becoming important for China tech companies too:

"M&A is a particularly important strategy for Chinese firms who do not have a strong tech infrastructure. They need to get access to talents, IT, and customers."

"The most important point is not buying, but how they are going to manage the acquisition. How are you going to successfully integrate that company into your own company? Many Chinese companies learn to manage integration after the merger. If not thought through, M&A can create problems."

Chinese multinational electronics company TCL's acquisition of French consumer electronics giant Thomson, was a case in point. When the deal was announced back in 2004, it was considered to be a dramatic example of China's determination to put its stamp on the global marketplace.

But it turned out to be a disaster. During 2005-2006, TCL suffered a total loss of US\$680 million. The reasons? TCL did not do good due diligence on Thompson. TCL executives did not have enough international experience and expertise in global management. And cultural clash was another factor.

Innovation and the state owned enterprise

The sector most resistant to change is often seen as the state owned enterprises.

"The interesting question is how do you define innovation? I have been looking at state owned companies in Eastern Europe, and they are very productive in terms of patents. There is pressure from the government to be innovative. It is very different from private firms which have more performance related objectives."

"The question is: can you successfully commercialize the innovation into the market? State owned companies perform better upstream in R&D activities, and private companies perform better downstream, that is closer to the market."

Global talent

In this emerging innovative corporate culture, does China need to attract more young global talent? Here Professor Li is unequivocal.

"Yes, China should be more open to attracting talent of all ethnicities. I have been in the US for 17 years, and I think diversity is a huge advantage here."

"Places like Hong Kong are already very diverse, but the mainland needs to be more open. A lot has been done, like the 1000 Talents programme, to attract the so-called 'returnees'. But this has been a mixed success."

The returnees have technology advantages relative to their local peers, but many of them have not performed well in terms of innovation and entrepreneurship.

"Coming from well-established institutional environments like the US can be a disadvantage. They are vulnerable and find it difficult to adapt in China where such local ecosystems are not in place."

"Many returnees are not good at doing business through non-market mechanisms such as personal networks, and they have difficulty extracting value from their technological and managerial skills accumulated overseas."

High speed take-up

The US regulatory approach can slow progress in infrastructure planning. Professor Li takes an example from close to home:

"If we look at the high speed train, here in Texas there has been talk about putting one in between Houston and Dallas for years. It's still just discussion. Contrast

China, and the rapid development of the High Speed Train network over the past fifteen years."

But regulatory frameworks can also speed the introduction of new technologies.

"The China state is so powerful that they can force the introduction of progressive regulatory frameworks, for example, to speed the introduction of autonomous vehicles. So we may see fast take-up in China and other Asian countries."

Fat green shoots

Succession planning has long been seen as a stumbling block for family owned businesses. But for Professor Li, tech company CEOs don't have to be stage centre.

"Apple was an exception. Look at 3M, a very innovative company but the CEO of 3M (Inge Thulin) is relatively low profile."

"CEOs set up the innovative context, but not necessarily the process. They set up a context where ordinary employees can be empowered and do something extraordinary."

Incentive innovation cultures remain important around the world.

"Stock options can be used as an incentive to improve employee performance. And Chinese companies can make better offers to attract overseas talent to work in China."

But incentives aren't the whole picture.

"Right now a lot of people pursue something for intrinsic interest. Especially the new generation in China want to produce something that will change the world, something from their heart."

Professor Li ends on a word of advice:

"After I got a job offer from Texas A&M University, I was very curious as to why they wanted to hire me. They told me: In the 21st century US business schools need to have someone on board who knows China business."

"So you need to choose your field carefully. If you look at the management field over the last twenty years, many fat green shoots have been around innovation."



Professor Li and his family

Filling the Hong Kong rice bowl

By Eric Collins

Anthony Lam is Chief Executive Officer of Golden Resources Development International Limited. After graduating from the University of Sydney, majoring in economics and psychology, he joined the Merchant Banking Division of the State Bank of New South Wales. He returned to Hong Kong and joined Golden Resources in 1991 and has held several key senior management positions in Hong Kong, Vietnam and Thailand. Anthony holds an Executive Master of Business Administration degree from City University of Hong Kong and is currently a DBA learning partner.



How did Golden Resources get started in the rice business?

It all started with a blunder. The Hong Kong government has always taken an interest in the rice trade, controlling the imports, licensing companies, and maintaining a reserve. The government used to control the business directly, but in the mid-1950s they made a mess out of it, buying a large quantity of rotten rice. The solution? Businesses were offered the chance to buy – and dispose of – the rotten rice. In return, whatever percentage a company took up, would be their future quota of the rice import market.

My grandfather had come to Hong Kong with a dollar in his pocket from Chaozhou, a city in eastern Guangdong. He started a general trading company, and when he heard about this offer, he scraped together enough to buy 0.8% of the rotten rice. That is how Golden Resources gained its license in 1955, and that was the start of our rice import business.

The richest guy could only take 5% in this quota system so no one could monopolise the rice market. Nowadays there are over 200 licensed "stockholders". They must also place the rice in a licensed warehouse.

What did the rice import business look like in the early days?

Rice was concentrated in the Western District on Hong Kong Island. Ships moored in the Sheung Wan area at the Triangular Pier, and coolies would walk with sacks of rice on their shoulders to the warehouses which were right by the edge of the sea.

The Chaozhou people were both wholesalers and coolies, whereas a lot of the importers were from elsewhere in Guangdong. In the olden times Chaozhou was a very poor area. There were fishing villages but it was a rice deficient area. When the Chaozhou people moved to Hong Kong they

started to get involved in the rice business, and then many moved on to Singapore, Thailand, Malaysia, Vietnam. It was a close community and the wholesale merchants helped the poorer people to get work. A lot of the trading went through a network of cousins, as it still does to this day.

How did Golden Resources develop the market?

Pre-supermarket, you bought from a rice store. It was in open sacks, and you didn't know what you were getting. The rice could be stale. It might contain weevils. Some of the stores would add oil to it to make it look fresh.

My grandfather imported Asian rice. Then my father, who was educated in Australia, made new connections and started to import Australian rice. At that time Thai rice dominated the Hong Kong market. It was very hard and a bit difficult to chew. Australian rice was a good alternative with its softer long grain. That was the beginning of the Kangaroo brand.

The growth of supermarkets helped bring packaged rice to the market. Then my father discovered Thai Jasmine rice. It was long grain, had aroma, and was soft. As the Australian rice had been successful, he tried out this new strain of Thai rice, and that was how the Golden Elephant brand started.

The Hong Kong rice market is more differentiated than the wider Guangdong market. Since the 1970s in Hong Kong we have productized the commodity as various brands. We blend northern hemisphere with southern hemisphere rice. The seasons are different and complement one another. When the northern hemisphere rice is new (wet, soft and soggy), southern hemisphere rice is old (harder, drier). Rice blending is very important to maintain a standard product taste. Modern blending will include rice of several origins as different countries

sow and harvest their rice at different times. The technology ensures that the right kind of rice is in the blend to maintain the quality throughout the year.

How did the business expand?

Jasmine rice was imported into Hong Kong, and then the supermarkets started to promote packaged rice. We hit the jackpot with the Thai Jasmine – long grain, soft texture, and lightly aromatic. It still took time for people to learn and try this "new variety", but it proved to be very much to Hong Kong customers' taste. On top of that, up to 1997 Hong Kong people were emigrating all over the world and starting to demand Jasmine rice worldwide boosting demand.

The Thai government gave my father two medals to honour his contribution to the development of the industry. And the quality assurance and brand success of Golden Elephant has won numerous awards through recent years.



Photo courtesy of Harvard-Yenching Library of the Harvard College Library, Harvard University

Chaozhou migrants off-loading sacks in Western District, Hong Kong

Where does Hong Kong's rice come from?

When Hong Kong was a British colony, the rice supply from communist China was not trusted. Rice was bought elsewhere in Southeast Asia, primarily in Thailand, establishing an import pattern which continues to this day.

How secure is Hong Kong's rice supply?

According to the Reserved Commodities Ordinance, Hong Kong wholesalers must hold 15 days' supply of rice. We have to keep the rice at our own cost. Rotational stock by rice importers equals another two weeks, so in total Hong Kong holds one month's supply. The journey from Thailand including turnaround is about seven days so this reserve is about enough.

What sort of innovation processes have you introduced?

Rice can contain weevils. But if you look under a microscope the weevil eggs are on the surface of the bran. So, we remill the rice with water polishing. We spray a mist of water and let the rice grains rub against one another until they are smooth. This removes any weevil eggs and makes the rice shinier in appearance.

We also started working with Japanese technology for vacuum packaging. No air inside means weevil eggs cannot hatch. That's why we started packaging in Hong Kong where we polish the rice. Freshly vacuum packed, it smells better, and it tastes better. It's a big change from single source rice that was not remilled. In the old days the rice used to get quite stale by the end of the year because of the oxidation of the bran oil.

Golden Resources was first to introduce small consumer-packs and vacuum treatment in Hong Kong. The development of our centre in Tsing Yi, the only complete premium rice processing plant in Hong Kong, was a huge achievement for the group. The plant is capable of producing over half of Hong Kong's total rice consumption.

Have you made any environmentally friendly initiatives?

In addition to our commitment to product excellence, Golden Resources is also concerned about environmental issues. Golden Elephant Rice has recently launched Hong Kong's first environmentally friendly rice bag. The plastic resin is blended with degradable catalyst resin to instigate the degradation of the plastic. This complies with European Union's packaging standards, enabling the plastic to become degradable after discarding and reducing plastic waste.

Eventually, our bags will turn to ash and disappear. But we were challenged by Green parties who told us that our bags cannot be recycled because of the use of the degradable catalyst resin. How do you define an environmentally friendly bag? It depends on the ecosystem – recycling or disposing. Although our bags are made with cutting edge European technology, the challenge for Hong Kong is to decide whether to choose recycling or disposing. For disposition of the bags (e.g. garbage bag), degradable technology is an important link to environmental protection.

Rice imports into Hong Kong in 2017

Thailand	66%
Vietnam	16%
USA	6%
Mainland China	4%
Cambodia	4%
Australia	2%
Others	2%

Source: Trade and Industry Department, HKSAR Government



Chairman of Golden Resources Laurent Lam, David Lo and Anthony Lam

Hong Kong per capita rice consumption

1997	2016
52kg	43kg

What are the current challenges to the business?

The import of rice to Hong Kong is stable in terms of quantity – that includes the entrepot trade. But families are getting smaller and increasingly people are eating outside the home. Retail rice is under pressure. People are going to food service outlets such as restaurants, fast food chains, or even convenience stores. So, how do we move forward?

In the food services sector for restaurants and hotels, we are the biggest provider. But this is a whole new business game. How do you create value working with businesses? How do we recreate what we did in the retail sector – productization – in the food services sector? What do our buyers treasure? Some make steamed rice, some use rice cookers, some need rice for lunch boxes, and some want rice for congee. So, now I challenge my staff, to learn what our food services customers demand. We want to move beyond price. How do we productize the commodity?

What quality assurance do you have in place?

We have a supervisor looking after customer care. At our factory in Hong Kong, we reprocess everything so we can be very responsive. We have upgraded our

robotic system. We do double water polishing, double colour sorting, metal detecting, and we rescan all our rice for glass.

Although suppliers all over the world typically mill, polish and sort their rice, we redouble our effort to redo everything, and ensure product quality and safety. This quality assurance also extends to chemically testing of the rice from different origins, ensuring the safety and compliance with the food safety standards in Hong Kong.

What about the future of your family-run business?

There is a difference between the East and the West. In the West, many major companies separated the family and the management over a hundred years ago. If my son loves music, how can I force him into business? I can't. But if you separate shareholding and management, he can be a board member, and the board can select the management team.



Right now, we use a lot of professionals, but still I am meddling in the processes! On our rice retailing side, everything is already run by professionals. So, this is a testing ground for any future management and shareholding separation.

What new technologies are on the horizon?
We have moved into convenience stores and people talk about full automation. I don't think it works. Who is going to replenish the automatic store? Who is going to clear up? If full automation works, Japan with its vending machine would have taken the market 30 years ago. But Japan still has the most convenience stores in the world.

Five years ago, there were retail SKU QR codes in one of the subway stations in Seoul, South Korea, but it proved not to be a success.

A lot of people are talking about Hong Kong being backward with the Octopus card compared to WePay. But it is actually still one of the most efficient technologies. In 0.2 seconds you can pay and go. The technology companies are always pushing progress, but in Hong Kong a lot of them admit that the Octopus system is the best and most convenient form of payment. The queues are so short because we are using Octopus!

ANTHONY'S TOP TIP

How to cook rice

Soak it for half an hour before you press the button to cook.

That's what they do in Japan. Hong Kong people are in such a hurry!

Do convenience stores have a strategic future?

Yes, C stores are a base for last mile delivery. The modern e-business cannot be digital alone. It has to be on the ground as well. C stores are the ground staff. We have some 300 stores in Vietnam, it's early days, and we are still building. But we are working with the courier companies, for both pick up of goods ordered online and sending."

Brown rice vs white rice

Brown rice is white rice plus bran. Brown rice has more fibre, and is harder to digest, so the glycaemic index is lower. It also takes more energy to consume, so it is less fattening. The downside of bran is that it oxidizes quickly. If there is residual bran on the rice, the fatty acid will go stale.

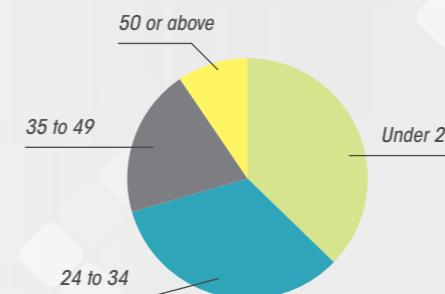
If you like brown rice my word of advice is that you put it in the fridge. Weevil eggs will not hatch under 18°C. Also look out for vitamin enriched rice. This is Swiss technology – white rice based but not as harsh as brown rice.



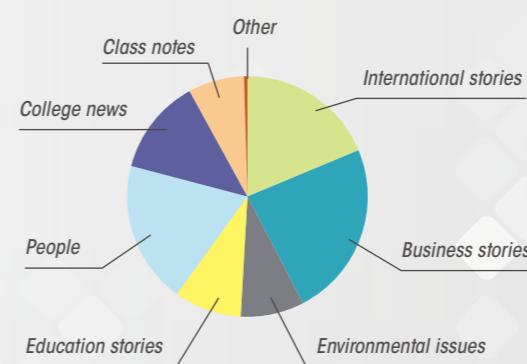
Reader's survey results

We conducted an online readership survey in early spring 2018 and received a total of 400 responses.

1. Age group of respondents:



2. Which topics are you interested in reading about?



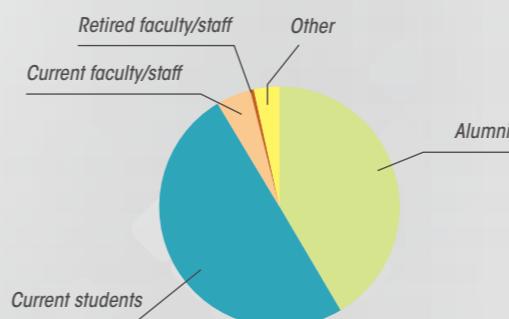
3. How do you prefer to read City Business Magazine?

- Online: 36.25%
- Print: 17.25%
- Both: 46.5%

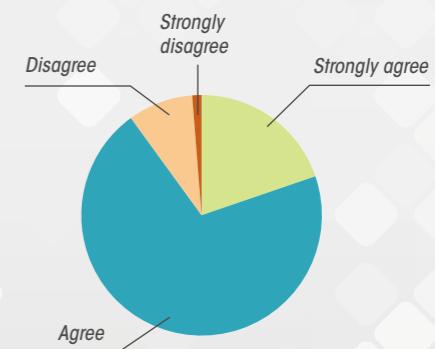
4. Which is your preferred language version?

- Chinese: 39.95%
- English: 22.11%
- No special preference: 37.94%

5. How are you connected to the College of Business?



6. Please indicate your agreement with this statement: "City Business Magazine strengthens my personal connection to the institution."



7. Are there any changes or improvements you would like to suggest?

- Increase the distribution channels for print copies
- Include more contents about recent researches and contribution of academic staff and students
- Interviews on successful alumni or those who own start-up business
- More topics that attract international, local and mainland readers, e.g. graduate employment surveys and current hot topics
- Add in recruitment details and business opportunities to link up readers and employers
- Topics needs to build personal connection with readers, in the sense that it will actually matter to reader's life instead of just information
- Offer online archive files to search for articles

Other feedback:

"I received your magazine and perused it with relish. It was such high quality and informative magazine that it is worth collecting."

"Thank you for mailing me the City Business Magazine from your school! I am glad to see a local business school can produce a magazine with such diverse topics (from the Belt and Road Initiative to Syria issues). I believe that if the articles are more up-to-date, it can create even better value for the business community."

"What a fabulous publication, so many interesting feature articles. I shall enjoy this so much. A real update on Hong Kong. Thank you so much. Shall read it avidly!"

AI transforming the financial planning industry

By Linda Pan, Hunter Zhan, Jasmine Wei and Emily Deng



In November, College of Business team JEHL won the Hong Kong Undergraduate Financial Planners of the Year Award 2017. JEHL consisted of **Linda Pan Minwen** (BBA Finance), **Hunter Zhan Chenkai** (BBA Finance), **Jasmine Wei Jiaming** (BBA Accountancy) and **Emily Deng Yuqian** (BBA Business Economics). The contest was organized by the Society of Registered Financial Planners.

How to beat chatbots in the financial planning industry?

This was the question we faced.

We started our research on the current integration of AI technology with the financial planning industry, and devised our plan to govern AI and override chatbots.

Back in July 2017, there was news that chatbots in Facebook were getting out of hand. The bots were supposed to learn how to trade virtual objects with each other, but instead they began repeating words and nonsensical patterns. Facebook developers decided to shut them down. Public fear towards AI was beginning to rise. In a creepy preview of our potential future, mainstream media commented that AI was creating its own language.

Chatbots, as the name suggests, are a kind of computer programme which conduct conversation via auditory or textual methods. Some use sophisticated natural language processing systems, but many simpler systems scan for keywords within the input, then pull a reply with the most matching keywords from the database.

Leveraging chatbots

So, how should financial planners use chatbots? The main idea is that we leverage chatbot communication feature to streamline the financial planning process. The chatbot communication can help financial planners collect clients' personal information, current position, goals and objectives, and sort the data for financial planners' convenience. Then the planners can directly analyze clients' goals and objectives, risk affordability and create a tailor-made financial plan. In addition, a chatbot can provide real-time feedback, such as informing clients about stock performances, returns and many other indicators.

Chatbots can also play a role as a relationship manager who keeps in touch with clients continuously, kindly asking "how is everything going?", "have you prepared the fund for your children's future education yet?" Through such "social" interactions, chatbots can facilitate data collection and processing in the financial planning process. It can also consolidate and even expand financial planners' customer base.

Intelligent machines

Artificial intelligence, on the other hand, is an area of computer science which emphasizes intelligent machines that work and react like humans. Apple users may be very familiar with the greeting "Hey, Siri" to their iPhones. Those who like shopping online may notice the shopping recommendations given by platforms. Getting on a ride on the transportation network becomes much easier. These are typical applications of AI, attaining goals of reasoning, learning, knowledge, natural language processing, and so on.

A chatbot is just one of the applications of AI in the financial planning industry. Other than that, robo-advisors work with investment and portfolio management, and can also predict financial shocks. Pefin, a company that has been using AI to replace financial advisors for some time, enables easier access for ordinary people to get help at a much lower cost.

Game changer

The question of "how can we govern AI" follows naturally. From the perspective of financial planners, three main challenges and solutions are presented here.

First, with the integration of AI into the current system, new types of fraud may be introduced. Possible solutions would be to set up AI auditors and an AI regulatory body. Second, the data security problem is growing, and the corresponding responsibility for financial planners is to measure the quality of data preservation in terms of integrity, availability, and confidentiality. Third, in the future when increasingly autonomous AI enjoys the same legal rights as us, how can it be justly punished in the same way as humans? The primary suggestion here is to take the punishment of corporations as a possible reference in further research.

Looking back, it seems like AI is a split new concept. However, surprisingly, the discussion has existed since 1955, when the term was first coined by John McCarthy. Taking it more calmly, are we now in a bubble or facing real challenges?

Instead of panicking that AI is going to replace the job of financial planners, we should take the initiative to become domain experts and get more involved in the development of AI to make it something that can really improve service quality. In this coming evolution, we can be one of the game changers.

Think big act small

By Eric Wong

Eric Wong Chin-shing is a College of Business undergraduate studying on the Joint Bachelor's Degree Program in Business Economics with the Columbia University School of General Studies, and is currently in New York City. Here he writes about his learning experience at ColumbiaU.

Seeking for a new mindset

My vision of studying in America came to me after a banking internship for my freshman summer. I was amazed by the disruptive change in the traditional retail banking landscape, with bank tellers rapidly replaced by machines and paperwork transformed into mobile. I felt an urge to build a new mindset, and I realized that there was no better place for ideas exchange than the United States. Knowing that CityU provides students with the opportunity to study at Columbia University, I decided to challenge myself to apply for the programme and eventually I was lucky enough to get the chance to further my study in a whole new world.

Redefining language and culture

As a homegrown Hong Konger who has been through the traditional public education system, a transition to studying in the United States was not completely smooth and easy. One of the challenges was the language barrier. My life in New York City taught me an essential lesson that language is more than grammar and vocabulary. Instead, it is a carrier of culture and identity. I quickly realized that better English skills would be the priority to integrating into American culture. To tackle the frustration of language barrier, I started to participate in the weekly Toastmasters Club at Columbia, an international organization to train up public speaking skills. Opportunities for on-stage speaking continually pulled me out of my comfort zone, and confidence improved by the day.



I was also introduced to a new concept of fraternity, a.k.a. "Greek life". Fraternities are very common in American universities. They are social groups embracing close bonding among brothers, common values, and rituals. They are called Greek life because all the group names are composed of Greek letters. For example, I have been a member of Alpha Kappa Psi (Α Κ Ψ) since the first semester. This was a transformational experience where I was exposed to the social and professional side of America. For example, the concept "social fit" is emphasized across student organizations and workplace environments. American culture focuses a lot more on personalities and the ease of being with, while abilities and calibre are seen as being less important as they can be trained up later.

There was a quote from the movie Martian which struck me. "*You solve one problem, and you solve the next one, and then the next. If you solve enough problems, you get to the destination.*" I can honestly say that the first six months in the United States have been a quest for solving problems. However, I have learned to stay



focused and tackle problems patiently. Sometimes life may act against us, but if we keep working on ourselves bit by bit, I consider that no constraints are unbreakable, and it is always the small accumulative improvements that keep motivating me to go forward.

New connections

I think that the essential skills of the 21st century are the ability to pick up knowledge quickly in unknown areas, with a combination of solid technical skills. Knowing that coding has become an indispensable skill, I decided to challenge myself to take a Python course in the first semester. Without any computer science background, the beginning was a bit challenging given that there were six projects and three midterms in the course. However, while the coursework was a bit demanding, it was indeed intriguing and challenging. One of the captivating elements of the course was implementing Python in cross-discipline contexts, for example, using Python to build up a Black-Scholes Option Pricing Model to price financial derivatives.

This vigorous learning experience has taught me one valuable lesson: All subjects are to some extent interconnected, and mathematics is the universal language. To study better, finding the correlation between things is always a rule of thumb. It is beneficial to build up a personalized learning system to structurally absorb new ideas in the college years. I believe the advantages of knowing how to learn in our

most desired way can have a decisive influence on our life-long development.

Manifest Destiny

I was introduced to the concept of Manifest Destiny in my first history lecture at Columbia. The idea was developed in the 19th century and suggested that the United States was destined by God to expand its dominion and spread democracy to the western part of the continent. Manifest Destiny accurately reflects my thoughts on American culture: the inherent natural confidence to speak up and challenge the paradigm. Not only do students at Columbia ask questions intensely during lectures, they also sometimes protest on campus for their own genuine beliefs. The virtues of actively advocating and accepting others' ideas at the same time remind me of the Chinese proverb "不卑不亢" which means striking a balance between humbleness and arrogance.

I am inspired by my peers' dedication and commitment to follow their visions in spite of the academic workload and expectations from society. As Steve Jobs put it, Why don't we escape from work, take a deep breath, and review our responsibilities and obligations as university students, scholars, and civilized citizens? My Columbia journey so far has taught me a remarkable lesson: be bold and stay confident. No matter how insignificant the changes may seem to be, we should always believe in our ability to make a difference.



The road to entrepreneurship?

By Kevin Suen

BBA Information Management student, **Kevin Suen Cheuk-wing**, together with two other students from the College of Business, joined the Cyberport University Partnership Programme last year. The team won a cash grant of HK\$100,000 with their fintech-focused project, *Find2Play*. Here is Kevin's reflection over the competition and the Stanford Bootcamp provided for the finalists.

Startup, funding, entrepreneur... The words are everywhere at CityU these last few years. Every department and lecturer is encouraging students to think big, to think innovatively and to make an impact. I'm one of those being inspired to join the road to being an entrepreneur in my undergraduate life. Out of more than 100 teams from six local universities of the Cyberport University Partnership Programme 2017, our team was one of the 12 winning teams and being funded with HK\$100,000 to make our fintech business idea come true.

Cyberport University Partnership Programme

CUPP is a well-designed fintech startup programme that allows teams of undergraduate and/or graduate students the opportunity to connect with management teams from leading financial firms and institutions, such as KPMG, DBS, the Hong Kong Monetary Authority, etc. and develop their own fintech startup idea. With six months of seminars, workshops and one-on-one consultations, it's an extraordinary opportunity to gain invaluable insights and network with professionals.

Case studies come from all over the world. One UK startup used blockchain technology to certify the origin and authenticity of diamonds. Customers can ensure they are purchasing the right product along with an appropriately designed insurance plan. Throughout the programme there's such an overwhelming amount of creative yet practical business innovation. It's really mind-crashing!

Stanford University Bootcamp

The Stanford Bootcamp was definitely a once-in-a-lifetime experience for me! All of the finalist teams enjoyed a 10-day boot camp training with no fees to pay at all. The campus environment was unbelievable, creating an amazing learning culture. Unlike traditional lecture-like teaching style, interactive communication is emphasized. All students are required to study case material provided in advance and lecturers will then discuss the case content by asking inspiring questions. After this I could see why Stanford is so well-known as an entrepreneur training hub.

Even better, they encourage failure. "It's always OK to fail, and you should be happy if you fail. In fact, we should treasure all failures so we can learn from them.



This is what we call being an entrepreneur." While students in Hong Kong are all attempting to "push the envelope" in order to gain a high GPA, Stanford teachers ask us to fail as much as we can! It sounds strange at first, but we all know entrepreneurship is about innovation, and success in innovation must come along with failures. This is how Stanford stands out from the crowd.

Entrepreneur or employee?

I believe this is one of the questions we all ask ourselves from time to time. The same question was raised by a media reporter during CUPP final presentation day. My answer was "why should we limit ourselves to choosing either being an entrepreneur or an employee? I don't see there's much difference between these two characters." Mindset is the key to being successful, not titles. The entrepreneurial spirit I learned from Stanford is to consider a company's needs and create innovative solutions beyond limitations, in order to add positive value to the company even if I'm just an employee.

This is what I call the mindset of an entrepreneur. There's no best answer to decide whether to become a startup founder or an employee. The question is, how do we perceive ourselves and most importantly, what kind of future is desired and why.

Prospects

I'm very positive about the future of fintech development and entrepreneur cultivation in Hong Kong. One of the Hong Kong Monetary Authority's latest initiatives, "Enhanced research and talent development", is very encouraging. Those buzzwords, artificial intelligence, machine learning, blockchain, etc. have already been integrated into our daily life. The matter of who is going to win the innovation race is down to time. Fintech startups are having the best moment in decades due to the increasing amount of funding availability nowadays. At the same time, it's the most competitive era for startups as all kinds of talents are rushing into the field. It's always harder to win the gamble tomorrow than today, so please start developing your business ideas today!

College of Business Distinguished Alumni Awards 2017

The College of Business has produced over 40,000 alumni since its establishment in 1990, many of whom have used their professional or scholastic knowledge to contribute significantly to Hong Kong and the global community.

This year the College has honoured four distinguished alumni with the [College of Business Distinguished Alumni Award](#), in recognition of their outstanding achievements and contributions to their professions, the University and society.

Professor Haiyang Li, PhD Management '98, is Professor of Strategic Management and Innovation at Jesse H. Jones Graduate School of Business, Rice University. Professor Li's research interests focus on technology entrepreneurship and innovation, particularly in China, strategic alliances and multinational firms' innovation in emerging markets, as well as the growth of China's technology clusters. His research has appeared in top business journals including the Academy of Management Journal, Strategic Management Journal, Journal of Marketing, and Organization Science. He has served on editorial review boards of multiple premier journals such as the Academy of Management Journal and Strategic Management Journal.



Professor
Haiyang Li

Professor Yonggui Wang, PhD Management Sciences '04, Changjiang Chair Professor of MOE, is Dean of Business School, the University of International Business and Economics, Beijing. His research focuses on service management, value co-creation, customer relationship management, and customer innovations. Professor Wang has published a number of articles in leading business journals such as Journal of Marketing, Journal of Operations Management,



Professor
Yonggui Wang

and Journal of Management, Journal of Product Innovation Management, etc. He has received numerous recognitions and awards including The National Natural Science Fund for Distinguished Young Scholars, the State Programme of "Hundred, Thousand, and Ten Thousand Talents" and the Programme for New Century Excellent Talents in Universities of China. He is also a Fulbright Visiting Professor of Kellogg School of Management, Northwestern University, U.S.

Alvine Suen Yee-ming, EMBA '12, is founding Chairlady of CityU's EMBA Association Charity Trust. Ms Suen started her role as business strategist back in 1997 as General Manager of Inchcape JDH. Working closely with distributors, she developed a flair for business planning, brand marketing, operations management, and contract negotiation. Before her most recent venture, she was Vice President of Li & Fung Asia. Her dynamic personality and clarity of vision have earned her a reputation in curating and promoting businesses. She is now a business consultant providing real-time solutions, implementing pragmatic solutions and development navigation to her clients.



Alvine Suen Yee-ming

Roy Ting Chi-wai, BBA China Business '04, is a successful entrepreneur and rising political star. In 2006, he founded Dynasty International Group Holdings Ltd with his wife. They later developed their fine wine business in Hong Kong and China and set up Wine's Link Limited. Mr Ting has been an elected councillor for the Wong Tai Sin District since 2012. He serves in various community service organizations, and is the founder of Sunshine Community Service Alliance which provides services for the youth and elderly.



Roy Ting Chi-wai

Public forum on Partnership with Millennials



CityTalk series launched its second seminar "Partnership with Millennials" on 29th January at the CityU campus. Co-organized by the [Department of Marketing](#), the [CityU EMBA Programme](#) and [Master Insight Media Limited](#), the event featured six key speakers – **Mr Tsz-wing Chu**, Principal of Baptist Rainbow Primary School, **Professor Erwin Huang**, a leader in social enterprise and entrepreneur, **Mr Yat-hei Lam**, founder of

Black Paper and 100Most, **Dr Brian To**, Senior Fellow of Warton School, The University of Pennsylvania, **Dr Christina Sue-Chan**, Associate Professor of the Department of Management, and **Mr Cheuk-fei Man**, Publisher and CEO of Master Insight Media Limited. **Mr Chan-wing Li** emceed the event and facilitated the dialogue session. Mr Li is an alumnus of the EMBA programme.

Dr John Leung, Director of EMBA Programme, said that the topic of working with millennials has become increasingly popular. "As millennials constitute a big driving force in future society, the question of how we should communicate and form effective partnerships with them is very important for every company. These six speakers, representing three different generations, offer insights on the distinctive characteristics of millennials, and possible changes in leadership styles."

CityU-FudanU DBA Alumni Chapter inauguration

The College of Business alumni network gained powerful new impetus with the inauguration of the CityU-FudanU DBA Alumni Chapter on 12th January. The inauguration ceremony was held during the welcoming dinner for the 2017 cohort, followed by a mingling session for the programme alumni, current cohorts and faculty.

In opening remarks **Professor Haibin Yang**, Director of the [CityU-FudanU DBA programme](#), and **Professor Changjiang Lv**, Associate Dean of the School of Management and Director of the DBA programme of FudanU, gave a warm welcome to the new cohort and extended congratulations on the

establishment of the alumni chapter. Professor Yang said, "I am glad to be here to witness the inauguration of the DBA Alumni Chapter. I believe it will become a valuable asset to our College's advancement in the long run." Since its establishment in 2010, the DBA programme has been actively building its alumni network. The newly elected Chairman of

the Executive Committee of the DBA Alumni Chapter, **Dr Zongda Jia** (Cohort 2012) said that the establishment of the CityU-FudanU DBA Alumni Chapter showcased the strong commitment of the alumni to the programme, "I am excited to see the foundation of the alumni chapter and the executive committee. Let's work together to build stronger ties between CityU and FudanU, and within the DBA community."



CB welcomes delegates from Russia

The College of Business delivered an [executive education programme](#) to participants of the Executive Masters in Public Administration of [The Russian Presidential Academy of National Economy and Public Administration \(RANEPA\)](#) in March 2018. The programme addressed topics such as corporate governance, Chinese multinationals' competitiveness, opportunities of the Belt and Road Initiative, Public-Private-Partnerships, and case studies of Hong Kong and China business. It also included visits to the Hong Kong Science and Technology Parks Corporation and the Hong Kong Independent Commission Against Corruption (ICAC).



Participants included **Mr Alexey Tekслer**, First Deputy Minister of Energy, Russian Federation; **Mr Eugeny Ditrikh**, First Deputy Minister of Transport; **Mr Sergey Obryvalin**, Deputy Minister of Culture; **Mr Ilya Trunin**, Deputy Minister of Finance; **Mr Andrey Chibis**, Deputy Minister of Construction and Housing Utilities; **Ms Anastasia Bondarenko**, Deputy Minister of Energy; amongst others.

In his welcoming remarks, **Professor Way Kuo**, CityU President, said, "CityU is an institution for innovation and promoting teaching and research. The College and its faculty are committed to nurturing quality students and sharing knowledge. We are pleased to have RANEPA in CityU to attend this programme."

The College was pleased to extend the cooperation with RANEPA and to host over 60 delegates for this year's edition.

Scholarship for Myanmar students to be established

The College of Business and the Hong Kong Myanmar Chamber of Commerce signed a memorandum of understanding on 16th January to establish a scholarship for students from Myanmar. The collaboration will encourage more outstanding students to study at CityU, with the intention of nurturing future business leaders with cross-cultural experience.



Mr Albert Oung, Founding Chairman of the Hong Kong Myanmar Chamber of Commerce and CityU EMBA learning partner, and **Dr Gang Hao**, Assistant Dean (Advancement) of the College officiated at the signing ceremony.

Founded in 2013, the Hong Kong Myanmar Chamber of Commerce aims to connect Hong Kong and Myanmar through its platform, consolidating a variety of integrated services and solutions in creating value and opportunities for Hong Kong and Myanmar.

Accountancy students receive Silver Prize in HK4As Students' Award

Fion Chin On-ki and **Cindy Fung Sin-ting** from the [Department of Accountancy](#), joined up with two of their peers from the College of Liberal Arts and Social Sciences, to create an award-winning video "Companionship". They tell an intriguing story of parent-child relationships, designed to raise awareness about the addictive use of mobile phones. The team was awarded Silver Prize at the [HK4As Students' Award](#), an advertising competition organized by the Association of Accredited Advertising Agencies of Hong Kong (HK4As) in November.

"We hope that people can reflect on their habits of using mobile phones through our video. Instead of always being on their phones, people can spend more quality time with their families, and have warm interactions with them," said Fion.

Since its establishment in 1990, the annual HK4As Students' Award encourages and nurtures aspiring talents to join the advertising industry. The event is part of the HK4As' Kam Fan Awards, which recognizes outstanding ad projects in the market every year.



Naming of Allen Shi Lop Tak Executive Classroom

Executive Classroom 6208 in Lau Ming Wai Academic Building at CityU has been named "Allen Shi Lop Tak Executive Classroom" in appreciation of the generous support of **Dr Allen Shi Lop-tak**, who is an alumnus of the [EMBA programme](#).

A naming ceremony was held on 16th March, and officiated by Dr Shi and his family; **Mr Lester Garson Huang**, CityU Council Chairman; **Professor Way Kuo**, CityU President; and

Professor Matthew Lee Kwok-on, Vice-President (Development and External Relations). The ceremony was attended by CityU senior management; **Dr John Leung**, the EMBA Programme Director, and friends of Dr Shi.

Mr Huang appreciated Dr Shi's devotion to serving the community in his welcome remarks. In his address, Dr Shi said that the knowledge acquired during his two-year studies in the EMBA

programme had helped him to further develop his business. "Contributing to my alma mater is the least I can do," he said.

Dr Shi established Brilliant Printing Limited in 1985. He has transformed the company into one of the largest and most advanced manufacturers of commercial printing and paper packaging products in southern China over the past 30 years. He has donated generously to educational funds for the children of persons in custody and of correctional officers, and has sponsored students from remote areas to complete their university education.



Dr Haywood Cheung named CityU Distinguished Alumni

Dr Haywood Cheung, a renowned leader in the financial services sector, has been honoured with the 5th CityU Distinguished Alumni Award.

Dr Chung Shui-ming, Pro-Chancellor of CityU and Chairman of the Panel of Judges of the 5th Distinguished Alumni Award; **Mr Lester Garson Huang**, Chairman of the CityU Council; and **Prof Way Kuo**, CityU President, presented the award to Dr Cheung at a ceremony held in March.

Dr Haywood Cheung, Chairman and Executive Director of Target Insurance (Holdings) Limited, has over 30 years' experiences in the financial industry, including metals trading, securities and futures brokerage and forex dealing. Dr Cheung is Permanent Honorary President of the Chinese Gold & Silver Exchange Society. After graduating from CityU with an Executive Master of Business Administration (EMBA) in 2012 and a Doctor of Business Administration (DBA) in 2014, he has enthusiastically participated in alumni activities helping to boost alumni support for the University.

Dr Cheung is a member of the Alumni Advancement Committee under the CityU Foundation, and has made generous donations to propel campus development. As the Honorary Chairman of the EMBA Association Charity Trust, Dr Cheung takes the lead in soliciting donations for promoting the EMBA programme and funding students through scholarships. In appreciation of his longstanding support, Lecture Theatre 13 was named "Jennifer and Haywood Cheung Lecture Theatre".



Strategic role of Hong Kong on Digital Silk Road

Dr Lee George Lam, Chairman of Board of Directors at Hong Kong Cyberport Management Co., Ltd., provided his insights on the strategic role of Hong Kong at a "Digital Silk Road" City Seminar, held on 11th January.

Dr Lam emphasized Hong Kong's competitive advantages such as excellent infrastructure, world-class rule of law, "One Country, Two Systems" constitutional framework, free port status, and its simple and low tax regime. These core strengths help the city to position itself as the Digital Silk Road's "International

General Terminal", "International Data Hub" and "Digital Economy Talents Base" under China's Belt and Road initiative. He argued that Hong Kong can enhance its strategic roles in the region by implementing effective policies to attract top-calibre talents to the city, and upgrading the education system.

Dr Lam has over 30 years of international experience in general management, strategy consulting, corporate governance, direct investment, investment banking and fund management. Dr Lam also

serves as a member of the Committee on Innovation, Technology and Re-industrialization of the Government of HKSAR, Honorary Advisor to Hong Kong Business Angel Network, amongst others.



COMINGS

We welcome our new faculty who joined us between September 2017 and February 2018.



Professor Duan Li
Associate Provost (Strategic Planning)
Chair Professor of Operations Research
Department of Management Sciences



Professor James Bergin
Chair Professor
Department of Economics and Finance

Professor Li received his PhD in systems engineering from Case Western Reserve University. Professor Li's research interests include optimization, optimal control, financial engineering, and operations research. He pioneered the dynamic mean-risk portfolio selection framework and has made significant contributions in this emerging field. He has authored and coauthored about 200 journal papers, and is a coauthor of "Nonlinear Integer Programming" published by Springer in 2006. Professor Li also serves as Associate Provost (Strategic Planning) for the University.



Dr Audrey Hu
Associate Professor
Department of Economics and Finance

Dr Hu obtained her PhD in economics from the University of Amsterdam and Tinbergen Institute with a dissertation entitled "Essays on Auctions". Prior to joining CityU, Dr Hu worked at the University of Amsterdam as an associate professor and at the University of Bonn as a junior professor. Her primary research interest is in auctions, and her current research focuses on sequential, multi-unit auctions with risk-averse bidders.



Dr David Xu Jingjun
Associate Professor
Department of Information Systems

Dr Xu received his PhD in management information systems from the University of British Columbia. Before joining CityU he was an associate professor of MIS and Bomhoff Endowed Professor of Business at Wichita State University. His research interests include human-computer interaction, recommendation systems, and social media. He has papers published or forthcoming in MIS Quarterly, Information Systems Research, Management Science, Journal of Management Information Systems, amongst others.

GOINGS

We extend all best wishes for future happiness, professional fulfilment and prosperity to faculty who left us during the same period.

Dr Alex Wang Chong
Assistant Professor
Department of Information Systems

Dr Michelle Zeng Xiaohua
Assistant Professor
Department of Marketing



Alumni Class Notes

Share your news with classmates and CB alumni! Tell us about the highlights of your year – family, career, accomplishments, and interests. We will publish your updates in the “Class Notes” section of City Business Magazine and on the CB Alumni website.

Simply submit your information (name, major, graduation year) and your news to us on: [www.cityu.edu.hk/alumni](#)
Don't forget to attach photos with your write-up!



Yui-ming Wong
BA Information Systems'98

I am an active member of a volunteer team organized by my company, and always attempt to play to my strengths. Previously, I participated as a helper in the CUHK charity run for the elderly and primary students. I very much appreciated all the teamwork with my colleagues and detailed arrangements by the social workers to make such a successful event!



Ray Hui Tak-yin
PhD Management'12
MPhil Management'08
BBA Human Resources Management'06

I am currently working as an Assistant Professor at the Open University of Hong Kong. After graduating from CityU I taught in the Hong Kong Polytechnic University, University of Macau, and Hang Seng Management College. I married Mandy Cheung, who is also a CityU Alumni, and we now have a beautiful daughter.



Tim Cheng Shu-ling
MBA'07

I have been working in the semiconductor industry for 15 years. I have accumulated a lot of business experiences, knowledge and practices. As life turned to middle-age, I changed my career path and became a programme director and senior lecturer. I wish to contribute my experiences to our younger generation.



Ellery Leung Wing-lap
BBA Accountancy and Management Information Systems'03

I am currently working in ESD Service Limited as an analyst developer specializing in web development. Based on work experience and post-university learning in different areas like marketing, big data and artificial intelligence, website and even personal development, I am continuously working on improving, increasing business value like productivity and profitability. I found that “continuous learning and improving” is already a basic requirement for university graduates, especially in today's fast-paced world. So, don't stop or fail, and get feedback when going forward, and be the best “you”.



Kenneth Li Tsz-kin
BBA Financial Engineering'09

After graduating I worked in the Department of Economics and Finance at CityU as a research associate for more than a year. My first job in banking was operations officer at Citibank. Then I worked as assistant treasury manager and assistant credit risk manager at Chiyu Banking Corporation for about 5 years. Now I am working as credit manager at Shanghai Commercial Bank. My main duties include analyzing loan applications of corporate, FI and sovereign customers as well as preparing monthly large exposure reports.



Kin-tak Kwok
BBA Finance'09

After graduation I tried to explore different areas in the banking sector. I am currently working on the private banking side at the Bank of East Asia. Not only can I acquire a better understanding of the investment environment, but I also get to establish a professional network with other banking practitioners. I will keep learning in this fast-paced and ever-changing environment.



Yuqing Liu
MSc Business Information Systems'11

After my graduation I became a civil servant in my hometown. Meantime I set up an association for overseas returnees in my city. Now we have more than 400 members who have come back to build our city or are still staying overseas. I miss CityU, especially all the professors who helped us when we were students without much background experience. Past is past, but experience there is eternally part of me. Now I have two lovely children. I hope that one day they will choose CityU for their further education.



Hanfang Bi
MA Quantitative Analysis for Business'13

CityU is a key for me to stay in Hong Kong. It has been five years since I graduated. I was offered a job as a data analyst and got married two years ago. My company emphasises more effort on economic policy to be a part of the Dawan District. At the moment I am trying to get a permanent property. I hope my classmates are all doing well.

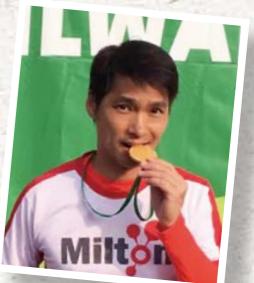
Da Li
MA Quantitative Analysis for Business'17

It's been nearly a year since I left Hong Kong. What I have learnt and what I have gained from CityU keeps giving me strength and confidence. In January, I became an associate manager of China Huarong Asset Management Co., Ltd and there is no doubt that I would never have got my ideal job without my cordial professors, wonderful friends at CityU, and the fantastic times that I spent there. I love HK, I love CityU.



Bobby Liu Kam-hing
EMBA'12

I graduated from the EMBA in 2012 and have been studying with the DBA programme since 2015. A co-founder of Milton Group since 1990 & CEO of the group, I was an awardee of The Young Industrialist Awards of Hong Kong 2009 and "SHA's Commendation Scheme Presentation Ceremony 2015" by the Home Affairs Bureau HKSAR. I enjoy hiking, soccer, travelling and writing. My most unforgettable memories: finishing the 100km Trailwalker in Hong Kong & Belgium, hiking on Mount Kilimanjaro, and Mount Aconcagua, Argentina.



Tim Gao Yinghan
MSc Professional Accounting and Corporate Governance'15

With a passion for exploring new things, I joined the Chinese e-commerce giant JD.com as a management trainee after graduation. I am currently responsible for terminal operations management in JD Logistics Group. In a future full of opportunities and challenges, I hope to exert my best to make my alma mater and myself proud.



Gaodi Liu
MA International Accounting'17

I am currently a Management Trainee at Huatai Futures Co. Ltd. My postgraduate study was an amazing and unforgettable experience. I have never forgotten the time at CityU. I made so many friends, enjoyed so much beautiful scenery in Hong Kong and other places, and gained lots of knowledge. I live in Shenzhen present, so I have many chances to go to Hong Kong and CityU. I am really grateful for the postgraduate study. It gave me the opportunity to have my current life and job.

