

APRIL 2021

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INVESTMENT TIMES

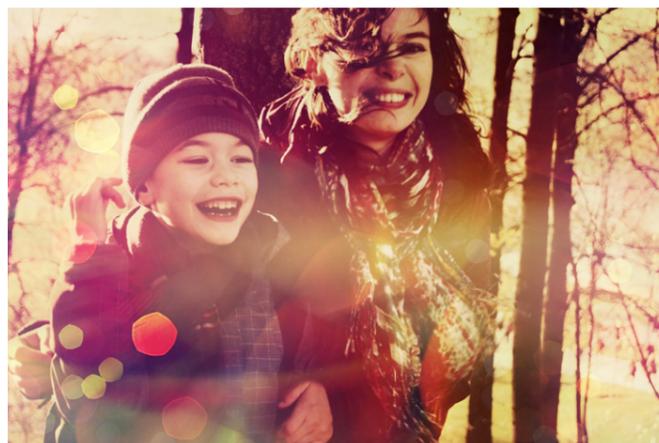
THE CRITICAL ROLE OF  
ENVIRONMENTAL SUSTAINABILITY  
AND THE MOBILE TECHNOLOGY  
**WITHIN 21ST CENTURY CITIES**

**ANTONIO CANTALAPIEDRA ASENSIO**

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**woonivers** 





While Every journey that we undertake inspires us to become someone better, some journeys become a legend and inspire others... and more importantly some journeys inspire our own for generations to come.

“I want to inspire people. I want someone to look at me and say “because of you I didn’t give up””.

***Publishing your journeys that inspire those to come, for generations that are going to come***

Corporate Investment Times

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*Rima M.*



2021 APRIL

# THE CRITICAL ROLE OF ENVIRONMENTAL SUSTAINABILITY AND THE MOBILE TECHNOLOGY WITHIN 21ST CENTURY CITIES

**Woonivers** 

**ANTONIO CANTALAPIEDRA ASENSIO**

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The World Health Organization states that the world's urban population is expected to double by 2050. Such an increase in population along with the arrival of the COVID-19 pandemic implies a detailed plan on environmental sustainability to achieve a better appraisal of resources while reducing pollution (more than 800k people die every year in Europe as a result of massive pollution according to the European Environment Agency - EEA).

Scientists are actually connecting the exponential growth of viruses and pathogens with environmental degradation).

Smart City technological initiatives are about working plans to enhance sustainable growth and improve the quality of life of the citizens. These new technological approaches designed to avoid emerging problems associated with urbanization require a visible involvement of stakeholders in order to succeed.

There are many official definitions of the Smart City. I really like the one from the Massachusetts Institute of Technology (2013): 'We take the particular perspective that cities are systems of systems, and that there are emerging opportunities to introduce digital nervous

systems, intelligent responsiveness, and optimization at every level of system integration'.

The European Commission defines the environment as "the combination of elements whose complex interrelationships make up the settings, the surroundings, environment and the conditions of life of the individual and of society, as they are or as they are felt" (Gilpin, 2003).

Moreover, the 2030 Agenda -and its 17 Sustainable Development Goals- constitutes the roadmap for global development in the coming years.

The World Bank or the United Nations Environment Program have had a leading role spreading massive reports on the environment dimension of a healthy economic development. Some of the factors influencing the relationship of urban areas and their economic development along with environmental dimension are explained below:

Technological gap:

Nowadays there is a technological gap between low income groups and the urban elite. This gap is actually reinforcing the disparity of wealth. Smart cities

Founder & CEO Woonivers (Fintech/Travel tech startup)  
- Private Investor – MBA Professor – Serial entrepreneur-  
Mobility Advisor

Degree in Communication & Public Relations from Universidad Complutense, MBA ICADE Business School, Master in Law & Political Science (Spanish Presidential Minister, CEPC), Degree in International Relations (Diplomatic School of Spain), AMP- Georgetown University (McDonough School of Business), GAMP - ESADE Business School, Master in Cibersecurity & Machine Learning(ICAI) – on process.

Has given classes and lectures of Marketing/Economics/Entrepreneurship/Mobility in prestigious universities as Endicott College (Boston), IE Business School (Entrepreneurial Lab), ESADE Business School (Barcelona), Harvard University (Boston), ICADE Business School, UCLM University, Antonio de Nebrija University (Madrid), UNED, GBS (Global Business School- Barcelona), UNIR University and EUDE Business School (Madrid) and so on.

He's also shareholder and Board member of the following startups:

Iomob (Blockchain Mobility)  
MadeinMöbile (Internet of Things)  
Capaball (Machine Learning for Education)  
Balandra Software (Artificial Intelligence)- Gartner cool Vendor  
Binfluencer (Machine Learning PR company)

Actually Founder of Woonivers - Travel Tech/Fintech company- VC backed with more than 2M euros seed round –Founded in 2018-Launch February 2019 – with subsidiaries in France, Portugal, UK, Belgium, Italy and HK.

Specialist in International Relations with special focus on e-commerce-ridesharing, carsharing and fintech; author of many releases as Los smartphones como "aceleradores" del proceso de reservas de viajes en China en el Libro Blanco del turismo chino en España: Conocimientos y experiencias (ISBN 978-84-9727-580-5) and "El libro del Comercio Electrónico", 2017.

Besides, he's been working for conglomerates as Blackberry (Southern Europe Field Marketing Director based in London) and GfK (London) and also as International Area Director as well for busuu.com (the e-learning languages start-up) based in London.

Antonio is well known lately in Southern Europe as CEO and part of the founding team of mytaxi app (currently Free Now) till July 2017. mytaxi is the first free Taxi App to order and pay via Smartphone. In September 2014, moovel GmbH, subsidiary of Daimler, acquired mytaxi to be part of Daimler AG – Mercedes Benz Group.



initiatives can provoke inclusion and participation by launching training plans on technology management for city inhabitants while avoiding polarization among the segments of population.

The lack of technological instruction is one of the main reasons of unemployment across European Union and other regions of the world. The access to information is clearly leading to unequal segmentation within societies.

As long as you are not able to get access to quality/essential information instantly on the move through smartphones/apps, you may be considered "poor". Public administrations should avoid this finally supporting mature technological changes proposed mainly by start-ups.

A crucial dimension of Smart Cities has to do with Smart People: People fed since childhood by e-skills that promote creativity, critical thinking and independence fostering innovation by all means.

Mobile internet has been enormously changing consumer behavior and the way non-digital businesses operate. These 'digital' requests and dispatches are bringing great optimization to how people use vehicles in the future. Integrating mobile payments in smartphones is actually speeding up bureaucratic processes within retailers (e-government, tax free operations, etc).

However, this disruptive journey will be hard and long without a clear support of political leaders paying respect to a critical dimension of Smart Cities, that is the Smart Governance which entails public, private and civil organisations so the city may work at its best as one organism fueled by infrastructures, software and data.

Smart Governance is about transparency and open government enabled by apps in terms of citizens' decision-making and e-public services.

Nowadays, technology companies attempting to break into the

retail market are facing setbacks when dealing with regulations inspired in a 20th century political environment. Smart Economy entails e-business processes and e-commerce to boost sustainable growth and productivity.

Smart cities proposal is crucial as long as it is supported by relevant targets in different sectors bringing together goals of a wide variety of stakeholders. Indeed, plan would be as follows: Increasing the smartness of a city enables the smartness of the citizens by boosting connectivity, morale, cooperation, knowledge sharing and, as a result of this, generating efficiency and effectiveness by the optimal use of technologies.

Pollutant emissions:

The basis of sustainable development lies on the fact, on one side, that natural resources are limited and subject to depletion (clean water, energy, etc) and, on the other side, that a growth of the economic activity can lead, if appropriate measures

are not taken, to serious environmental problems. It is a today's fact that 1 out of 4 people living on the planet is dying exclusively by pollutant emissions.

One of the dimensions that entail the concept of Smart Cities is the Smart Environment approach: this means renewable and clean energies managed by ICT (Information and Communication Technology) monitoring. The main objective is a clean environment with pollution and trash disposal under control.

Environmental deterioration has dramatic consequences for the quality of life of society. Pollution has altered the balance of the environment. It is notorious and undeniable that pollutant emissions are determined by some erratic energy consumption, which increases according to income and population size, though there are differences in terms of the economic structure, climate and energy policy adopted by different countries (WEF, 2009).

Since the beginning of the 21st century pollutant emissions are out of control within the major cities of the world. The challenge is how to use technology in order to achieve a drastic reduction (by using sustainable energies or by reducing environmentally dangerous waste) without having a huge impact on the prosperity of fiscal areas and societies.

Availability of resources:

Biodiversity is a guarantee of balance of the natural capital of cities and territories and also ensures most of the basic services essential to the survival of a



civilization. Considering the needs of the current massive growth of population, a certain scarcity of resources (land and water) is noticed at local level.

Forecasts indicate that half of the world population will face many tensions over access to water and many other basic resources in 2025, causing conflicts and regional wars (WWC, 2000).

A new fully digital social contract is today mandatory. A conscious usage of technology is key to move forward on this planet. There is no planet B.

In conclusion, we are not today debating on if there are computer specialists or techno thinkers now that are quite serious about thinking of getting rid of the people replacing them by machines or if some scientists are planning to download human brains into CPU's.

The point is that technology is very useful if it's used smartly but if it's used by people who are incompetent or people who is technologically illiterate then it's not effective at all and counterproductive.

A new fully digital contract (the Rossinian one is obsolete as ignores technological discovering) is a mandatory turning point for nowadays problems of 21st century societies.

That new contract should be composed by computer experts, scientists, lawyers, philosophers, entrepreneurs, company leaders and a wide variety of players coming from the civil society.

A mathematization of societies is irreversible if we agree on the goal of making a good appraisal of resources (assuming the actual cyclopean amount of population) paying respect to the environment.

Only mobile software cloud services and less hardware involved may cautiously but irreversibly cut down on red tape generating good urban density in cities around the world making them sustainable and breathable.



# REVAMPING ASIA THE SUPPLY CHAINS



**HSBC**  
Private Banking



**JAMES CHEO**  
CHIEF INVESTMENT OFFICER,  
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PRIVATE BANKING AND WEALTH MANAGEMENT  
SINGAPORE



Recovering from COVID-19 disruptions, Asian manufacturers are actively upgrading their supply chains and optimising production models in response to the changing dynamics in geopolitics, trade policies and production costs.

We find plenty of investment opportunities in the remodelling of Asia's supply chains in the course of the recovery from the pandemic disruptions. Asia's technology supply chain is pivotal to the world, given it is the largest production base of semiconductors with 80% of global installed wafer capacity located in the region.

Asia's exports have stayed very resilient throughout the global pandemic, as industry leaders in the region have gained market share from global competitors which suffered from the fallout of supply chain disruptions.



## JAMES CHEO

CHIEF INVESTMENT OFFICER,  
SOUTHEAST ASIA, HSBC  
PRIVATE BANKING AND WEALTH MANAGEMENT  
SINGAPORE



**HSBC**  
Private Banking

James Cheo is Chief Investment Officer, Southeast Asia for Private Banking and Wealth Management at HSBC. Mr. Cheo is a member of the Global Investment Committee for Private Banking and Wealth Management and also a member of the Regional Investment Committee in Asia. In his role, he spearheads the development of investment strategies across all asset classes for private banking and wealth management clients in Southeast Asia.

Prior to re joining HSBC Private Banking, James was Senior Investment Strategist at Bank of Singapore, responsible for asset allocation and thematic research. Before that, James assumed Investment Strategist roles at Barclays Wealth Asia. From 2004 to 2009, James served as Senior Economist at the Monetary Authority of Singapore, where he was part of the team that formulated policy actions for Singapore during the 2008 Global Financial Crisis.

With his knowledge and wealth of experience, his investment views are frequently sought after. He has established a strong media profile, with appearances on notable financial media including Bloomberg, CNBC, Channel News Asia, Channel 8 Mandarin News; and printed publications such as the Financial Times, Straits Times, Business Times.

James graduated with First Class Honours in Finance from Nanyang Technological University. He was awarded the Chartered Financial Analyst charter in 2007.

### Asia's web of supply chains

Asia's supply chains are interconnected networks that link producers for raw materials, intermediate output and final products. The web of supply chains is sometimes less straightforward than one might hope. For example, China dominates the production of components for storage devices. But at the same time, China is a net importer of hard disk drives manufactured in Thailand and Malaysia. Thailand also exports similar values of hard disk drives to the US as well as China.

Many factors determine where the hubs of the supply chains are located. Some of them are financial considerations, including labour costs, tariffs, value added and income taxes, logistics costs, and others. To illustrate, South Korean electronics manufacturers built capacities in Vietnam where labour cost is lower. There are also non-financial factors such as talent, risk of disruption of production (e.g. due to natural events like COVID-19 and Fukushima earthquake), rules of country

of origin and protectionism. For example, Chinese solar panel makers have shifted their productions to Malaysia to avoid EU quotas and US tariffs on products from China.

Multiple driving factors for revamping Asia's supply chains

Partly due to limited business disruptions in the region despite COVID-19, Asia's market share in global trade increased recently. The market share of mainland China rose from around 14% of global trade during the pre-COVID-19 period to 15% currently. The share of Asia ex-Japan including mainland China climbed by almost 1ppt to just under 17%. Apart from pandemic related products (such as gloves, masks), demand for semiconductors also increased along with the increased consumption of work-from-home gadgets and consumer electronics products, and the growth in ecommerce. Asia is, by far, the largest producer of semiconductors in the world.

Most of global semiconductor capacity is and will remain in Asia

Protectionism and geopolitics are among the considerations for Asian producers to move their capacities to other Asian countries. In 2019 and YTD 2020, US has imported less from China, but bought more from other Asian countries such as Vietnam, Thailand and Malaysia.

Reforms in Asian countries will also shape supply chains in the region. In October 2020,

Indonesia passed the “omnibus” bill that amended 79 existing laws pertaining to labour, licensing, land, and taxation. The reform is a priority to make Indonesia more competitive for foreign direct investments as the country has suffered significantly from the pandemic.

In China, Beijing’s push for technology upgrade and localisation will mean some of the more labour intensive and less sophisticated production could be relocated to countries, including the Association of Southeast Asia Nations (ASEAN).

Regional trade deals will remodel Asia’s supply chains, in our view. Recently, we saw the signing of bilateral trade deals (e.g. between UK and Japan, between EU and Japan) and multilateral deals (e.g. Comprehensive and Progressive Agreement for Trans-Pacific Partnership, or CPTPP). The most recent one that could have a significant impact on Asia’s supply chain is The Regional Comprehensive Economic Partnership (RCEP).

RCEP to boost recovery

RCEP has come at an opportune time for Asia. The region was the earliest to be hit by COVID-19, and several of the developing countries in Asia appear struggling still to bring the pandemic under control. Regional value chains and transportation lines have been hit hard.

Economies in Asia thus welcome the new trade deal that offers the much-needed platform to bolster recovery after COVID-19. For one, RCEP’s value chain-enabling provisions are ideally configured to help restart interrupted value chains. The deal signifies a major step towards a regional economic integration, which is crucial in the post-COVID-19 economic recovery.

Scale of RCEP is significant

RCEP started, sort of, as a tidying-up exercise – bringing together under one overarching deal the various free trade agreements between the 10 member states of ASEAN and several other countries in the Asia Pacific, i.e. Australia, China, Japan, New Zealand and South Korea.

RCEP will eliminate tariffs and quotas on 65% of goods traded within the region. Other tariffs and restrictions

will be liberalised over the next 20 years, covering ultimately over 90% of trade within the bloc. Together, they account for around 30% of the world’s gross domestic product and population.

This marks the first time China enters into a non-bilateral free trade agreement of this scale. It comes at a time when many developed nations are less enthusiastic about joining global trade deals. For China and Japan -- Asia’s largest and second-largest economies -- RCEP is the first free trade agreement to connect them.

Importantly, the RCEP is modern. It builds on emerging trade realities such as ecommerce, potential of Micro, Small and Medium Enterprises, the interdependency of regional value chains, and the complexities of market competition and intellectual property rights.

RCEP as a value chain accelerator

From a value chain perspective, bilateral free trade agreements (FTAs) are a major problem. As they only lower barriers between two economies, they are of little assistance to complex value chains that incorporate many countries.

With RCEP, a major breakthrough is that it harmonises the disparate rules-of-origin provisions in the ASEAN’s various

FTAs. RCEP will provide a standard set of trade rules and procedures. In complex value chains, there are differing governmental regulations for each involved country. This imposes significant transaction costs on businesses, which need to manage compliance with several different sets of national trade regimes. By providing a single set of basic rules, RCEP will significantly lower costs, encouraging the development of deeper and more integrated value chain.

This will allow products to move across borders more efficiently and lower compliance costs for business. It will also be a powerful incentive for large corporations to locate as much of their supply chains as possible within the bloc.

Also important are investment rules, where members have agreed to liberalise investment on a ‘negative list’ basis – for example, all sectors are open unless explicitly specified. For many RCEP members, this is the first time

**According to Peterson Institute for international Economics, RCEP will raise global GDP in 2030 by an annual USD186bn. Already, the majority of RCEP economies send more than half of their exports to other members, and the proportion is likely to rise given the region’s growing share of the world economy.**



they have agreed to a negative list approach to foreign investment. As this is done by the entire RCEP bloc, it will make the region significantly more attractive for investments in cross-border value chains.

RCEP will reinvigorate Asia’s supply chain and provide market diversification opportunities for exporters and importers of intermediate inputs operating within the bloc. As a result, it will have a profound economic impact for Asia’s supply chain.

Rising tide lifts all RCEP boats

With an agreement in place, the next step requires national ratifications. After which RCEP will come into force likely by the middle of next year. It represents an important step towards broader regional integration and a platform for further trade liberalisation. Therefore, it will reinforce the revamp of Asia’s supply chain.

According to Peterson Institute for international Economics, RCEP will raise global GDP in 2030 by an annual USD186bn. Already, the majority of RCEP economies send more than half of their exports to other members, and the proportion is likely to rise given the region’s growing share of the world economy.

Investment opportunities

We see multiple factors that are reshaping long term trends in Asia’s supply chains, where many investment opportunities are set to arise.

Closer ties among China, Japan and South Korea – The Peterson Institute for International Economics study suggests that mainland China, Japan and South Korea should see the biggest increases in exports by 2030, especially exports across each other’s markets, as a result of RCEP. The bulk of the gains are expected to be found in advanced manufacturing, including electronics, machinery and vehicles given the complementary patterns of their supply chains.

North-Southeast Asia supply chain optimisation – Within the RCEP member countries, the common trade rules would allow an optimisation of the supply chains to take advantage of lower costs of production and diversification of production base. For example, mainland China may relocate some of the capacity in textile and apparels to certain ASEAN countries. Manufacturers in the region can also have access to the best and cheapest inputs among the countries under RCEP. Moreover, the unified rules of origin could also strengthen mainland China’s role as a key exporter of intermediate inputs to other RCEP member countries.

Turbo-charge Southeast Asia's digital economy – The RCEP with provisions for ecommerce and a more integrated supply chain will turbo-charge Southeast Asia's consumptions. According to a Google and Bain Study, the digital economy of Southeast Asia is expected to triple to USD300bn in the next five years. The implementation of RCEP will recharge this existing trend.

Technological upgrades for Southeast Asia – Among the benefits for ASEAN will be benefiting from China's strong lead in artificial intelligence (AI), cloud computing, drones and other technology, which the bloc needs to upgrade the viability and competitiveness of its existing value chain and supply chain.

Revamping Southeast Asia's supply chain – RCEP will bring about deeper integration of supply chains in Asia. RCEP will reinvigorate Asia's supply chain and provide market diversification opportunities for exporters and importers of intermediate inputs operating within the bloc. Southeast Asia has a chance to attract new investment in both labor-intensive and advanced manufacturing.

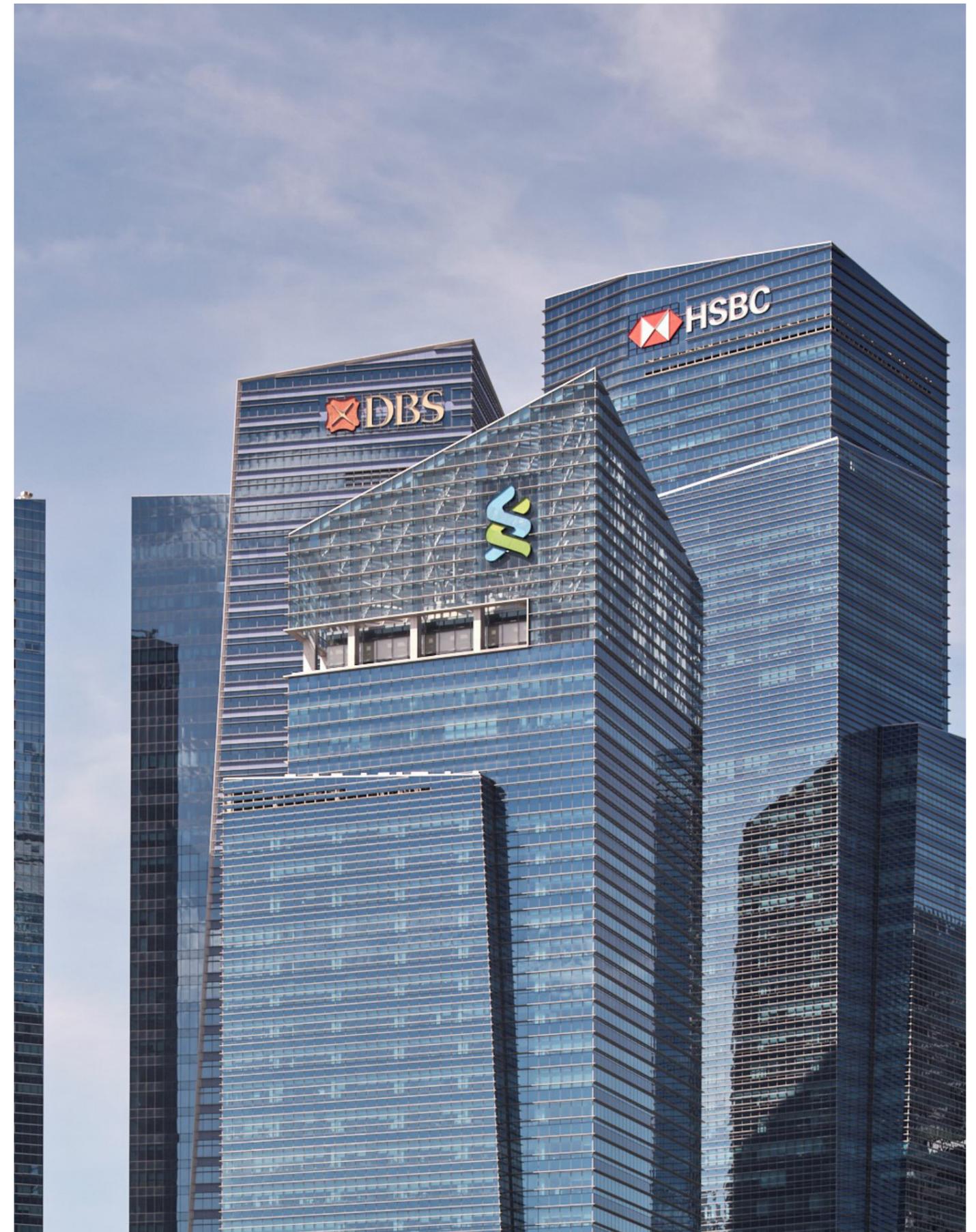
Several Southeast Asian countries have already taken steps in this direction. Thailand has announced policies

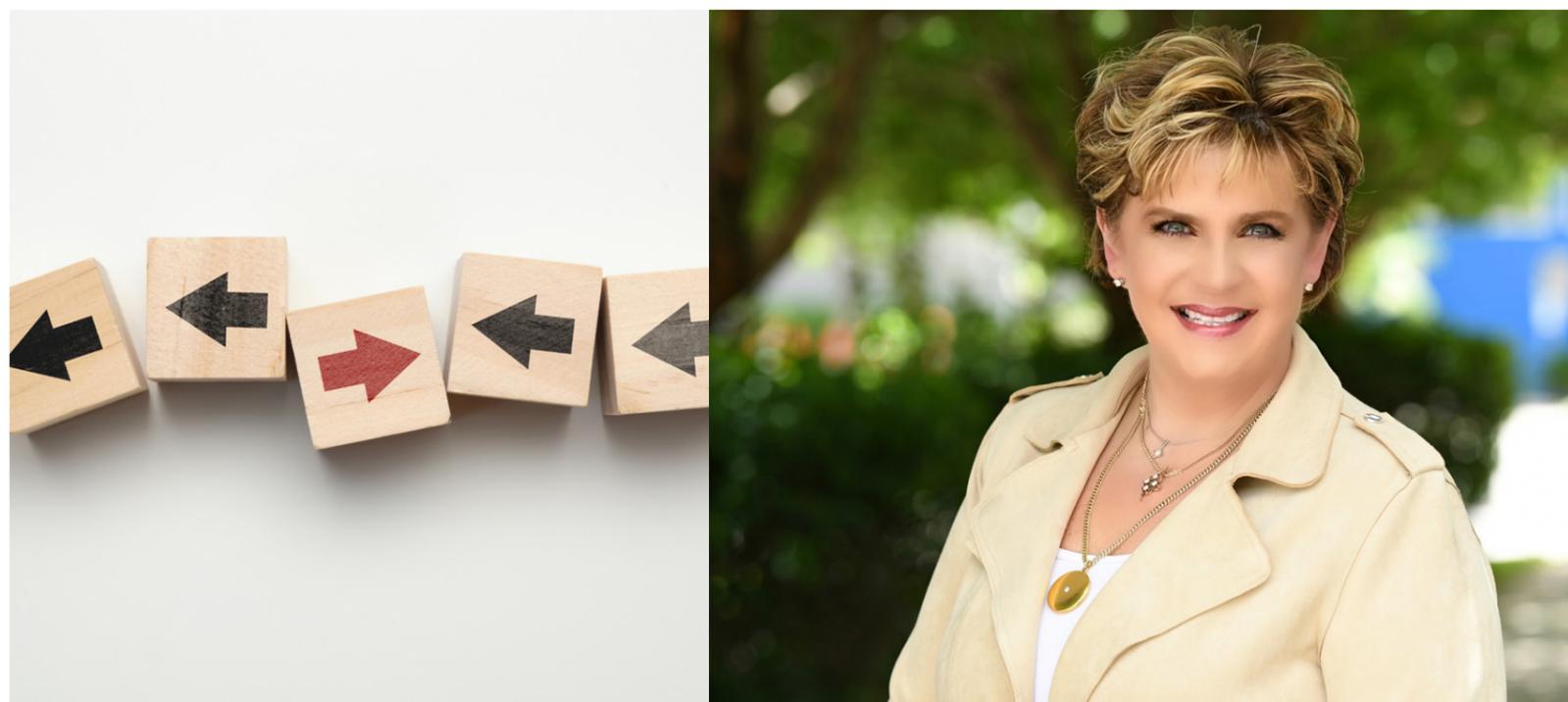
to establish the country as an electric vehicle hub in five years. Malaysia has built up 4.3 gigawatts of solar-cell-module manufacturing capacity, making it the third-largest maker outside of China.

Green Revolution to add a new dimension to Southeast Asia's supply chain revamp: Climate action remains critical for Southeast Asia over the next decade, and investments in green infrastructure and the transition to a lower-carbon future could spur significant supply chain revamp.

Southeast Asia has an opportunity to unlock economic growth by investing in green infrastructure as well as addressing basic infrastructure gaps. In fact, the building out green infrastructure such as renewable and energy efficiency technologies could accelerate economic growth and enhance its supply chain.

For example, the expanding the capacity of the power grid and increasing its resiliency to support increased electrification, retrofitting buildings, and developing and deploying technologies to decarbonize heavy industries.





# THE FUTURE DIFFERENTIATING THE BUSINESS MODEL

This past year of challenge has been a period where fortunes have been made and fortunes have been lost. The way business leaders and entrepreneurs met the challenge of COVID differentiated greatly with some preferring to sit back and wait for “normal” to return, while others pushed forward, infusing new and sometimes disruptive strategies.

And in this time, the most important lesson, for both good and bad, is that we can't go back to normal because 'normal' was our problem.

Business will never again operate in the manner it did in 2019. The COVID pandemic has shown us just how fractured and unprepared we were for any deviation from the status quo.

## LARISA B. MILLER

CEO, PHOENIX GLOBAL LLC / EXEC VICE PRESIDENT, STP CAPITAL  
AWARD-WINNING INTERNATIONAL KEYNOTE SPEAKER / EXEC  
DIRECTOR, GLOBAL CHAMBER OF BUSINESS LEADERS



Long periods of shutdown, disruptions in our supply chains, wide-spread economic duress, and the work-from-home model have been the grey raincloud following us for the last year.

Companies spent millions on connectivity and the supporting security infrastructures and are they highly unlikely to undo it all to bring employees back to a physical workspace once we receive the 'all clear'.

Productivity has stabilized and, in many cases, grown. Overheads are down, with companies realizing that they do not need global satellite offices or 14 floors of a high-rise in a costly urban center when we can all connect instantly via technology.

Consumer habits have changed, with people now tolerating the limited opportunity to shop in a physical marketplace or dine in a local restaurant or pub. We are adapting. We are improvising. We are transitioning. And most importantly, we are finding new and profitable ways forward.

The businesses who've chosen to swim against the competitive current, casting aside their legacy business models, are the ones who are leading the way into this pivotal era of innovation.

These business changemakers are the architects of a model of business that functions on the assumption that the way we do business today may be drastically

different than the way we do business tomorrow. And that is not metaphorically speaking either... literally the way we do business TOMORROW may be a complete upending of today's strategy. But how do we manage this?

How do we mitigate the damage caused by unexpected shutdowns and how do we find a way forward allowing us to do business in a way that no one else is so that we can have opportunities that no one else has?

#### The Value of Employees

As leaders, we often get so trapped in the cattle chutes of worry as to how to keep our business operations accelerating that we are blind to innovative strategies and solutions which can help to differentiate from our competitors.

Our thoughts become linear: how do we continue to generate revenue; how do we keep employees on the payroll; how do we meet our expenses each month; how do we continue to meet our manufacturing deadlines when our supply chains have been so disrupted?



We take these worries, and we shoulder them alone thinking we are shielding our employees from the lonely struggle that we face as entrepreneurs or business leaders. The honest answer, however, is that others sense our internal struggles and our silent anxiety often causes great concern for those surrounding us – particularly employees, who then assume the worst (I am going to lose my job, the company is going to close, etc.).

The answer to this conundrum of how to pivot is often much simpler and more obvious than we, as business leaders and decision makers, often recognize.

An immediate strategy is to share our operational or strategy challenges with your employees, showing that you value them as assets to your company and valued stakeholders of the brand. Not being burdened by the linear thinking often associated with the crisis of leadership, employees are in a perfect position to be able to hack apart a challenge and suggest out-of-the-box solutions.

They understand the mission, vision and operational

model, but they are also the ones who generally experience the front-line challenges – the who hear the complaints and/or praises of customers.

Employees know what works and what doesn't work since they are the ones charged with implementing these methodologies and strategies on a daily basis.

When a plan doesn't work, they experience the residual effects. When a technology is complicated or ineffectual, they know it firsthand and often reimagine the solution amongst each other.

As leaders, how often do we take the time to truly listen to our employees? We think we know best because we have the education, experience, connections, responsibility, but in actuality, it is our employees in the operational capacity who truly see the lapses and often, have the best solutions.

If we operate as a team, understanding that effective teambuilding is spawned from the example of leadership, our businesses will be resilient and prepared for the unexpected pivots. We are stronger together.



Customer Value

The most effective opportunities for recovery are those which include the client/customer in the company's value proposition. If a company highlights their commitment to sustainability or giving back, we allow the customer to be a part of a 'give back' culture.

Businesses now must prioritize the creation of compelling reasons for the customer to choose them over a competitor. While you may do things exactly the same your competitor, by highlighting aspects which shine a spotlight on your company's value, benefit or your company's commitment to the triple bottom line of people, planet and profit – although I argue that philanthropy needs to be included in this equation, you establish your business as a vanguard of the future.

ESG Strategies

On a much bigger, less grassroots level, the ability for businesses to manage the hurdles and land mines of disruption can also be enhanced through a solid framework of sustainability.

Businesses globally, from SMEs to multi-nationals, must

recognize their responsibility to the future resiliency of our environment and society. Integrating policies of environmental, social and corporate governance (ESG) into their models, helping to contribute measurably to a global net-zero mandate, will ensure that they are progressing toward a vibrant future, able to navigate and easily transition during times of disruption.

Businesses which become entrenched in their success will find themselves going the way of Kodak, Blockbuster and Compaq.

Adopting the UN Sustainable Development Goals will give companies the framework for their operational, supply chain, manufacturing and service performance.

Customers and stakeholders will begin to expect companies to do annual ESG reporting, assessing impact and measuring key sustainability issues. It has been proven that businesses which operate under an ESG model consistently outperform competitors, increasing investability and realizing greater customer loyalty.

If you are an investor, would you rather invest in a company with a rigid legacy business model which

has not evolved for several generations, or would you rather prioritize investment in a company with their eye on the future, measuring their impact and innovating methodologies in order to be able to clear the unexpected hurdles which cross our path, often with little warning?

If a company is prepared with a 5-, 10- and 25-year plan, innovating processes, mitigating their footprint, and demonstrating sustainable stewardship, they present a compelling option for investment.

change a lot.

We have the examples to follow, we have the framework from which to develop, and we have the power to decide each and every step we take.

As business leaders, we can make a difference, but we have to decide what difference we will make. During the next global pandemic, economic crisis,



During times of great transformation, it is up to us to decide how we will adjust our course. We can no longer be married only to the proverbial bottom line, instead, we must keep a mind to humanity.

Humanity is a series of contrasts. Failure vs. success. Hate vs. love. Degradation vs. growth. Damage vs. healing. Each and every business has the power to determine on which side of the fence they will fall. If we can change a little, we can

or other societal stressor, will you be one of those fortunes made, or fortunes lost.

To be successful in the face of challenge, as a business leader, you have the responsibility to differentiate your business model, allowing you to shape your future rather than allowing the future to shape you.

<http://www.phoenixglobal.co/>

# EXPLAINED

# DARK DATA



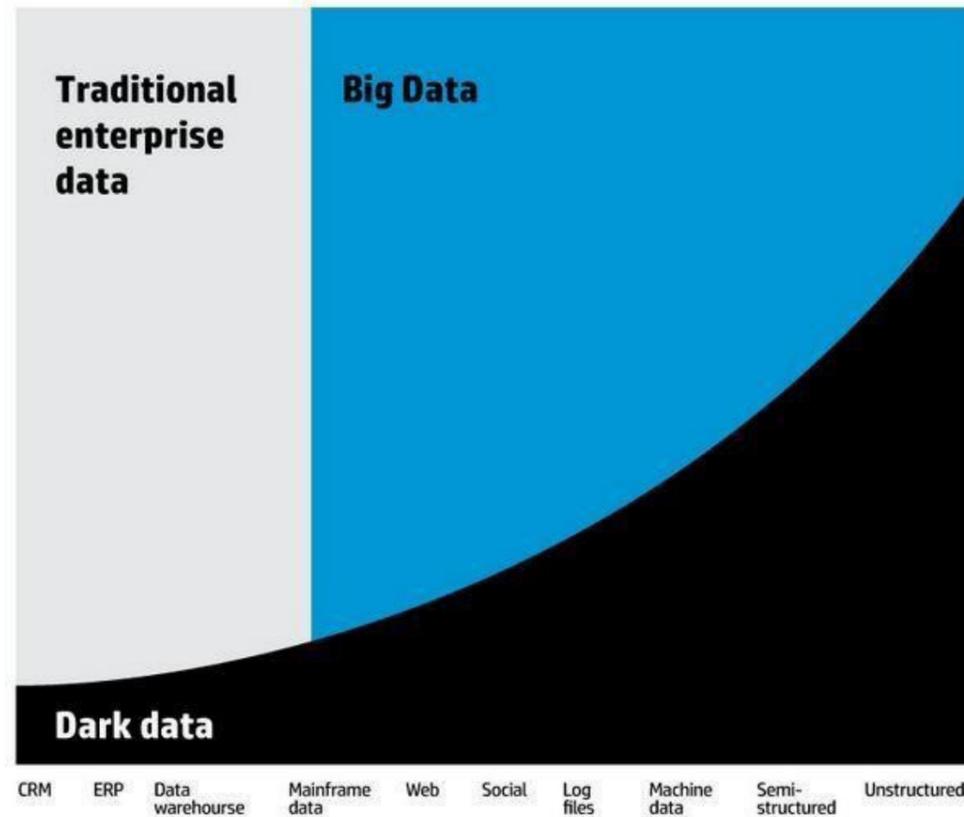
Dark data defines as the information assets organizations collect, process and store during regular business activities, but generally fail to use for other purposes (for example, analytics, business relationships and direct monetizing). Similar to dark matter in physics, dark data often comprises most organizations' universe of information assets. Thus, organizations often retain dark data for compliance purposes only. Storing and securing data typically incurs more expense (and sometimes greater risk) than value.

Dark data is a type of unstructured, untagged and untapped data that is found in data repositories and has not been analyzed or processed. It is similar to big data which is large and complex unstructured data (images posted on Facebook, email, text messages, GPS signals from mobile phones, tweets, Tick Tok videos, Snaps, Instagram pictures, and other social media updates, etc.) that cannot be processed by traditional database tools, but dark data differs in how it is mostly neglected by business and IT administrators in terms of its value.

Dark data is also known as dusty data.

**PROF. AHMED BANAFI**  
 THE NO.1 TECH VOICE TO FOLLOW & INFLUENCER ON  
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 EXPERT: IOT-BLOCKCHAIN-CYBERSECURITY

## Mining dark data



**A wealth of information lies below the surface of traditional enterprise data—but getting to it requires cutting-edge analytics.**

Source: HP/Syncsort

Dark data is data that is found in log files and data archives stored within large enterprise class data storage locations. It includes all data objects and types that have yet to be analyzed for any business or competitive intelligence or aid in business decision making. Typically, dark data is complex to analyze and stored in locations where analysis is difficult. The overall process can be costly. It also can include data objects that have not been seized by the enterprise or data that are external to the organization, such as data stored by partners or customers.

Up to 90 percent of big data is dark data.

With the growing accumulation of structured, unstructured and semi-structured data in organizations -- increasingly through the adoption of big data applications -- dark data has come specially to denote operational data that is left unanalyzed. Such data is seen as an economic opportunity for companies if they can take advantage of it to drive new revenues or reduce internal costs. Some examples of data that is often left dark include server log files that can give

clues to website visitor behavior, customer call detail records that can indicate consumer sentiment and mobile geo-location data that can reveal traffic patterns to aid in business planning.

Dark data may also be used to describe data that can no longer be accessed because it has been stored on devices that have become obsolete.

### Types of Dark Data

1. Data that is not currently being collected.
2. Data that is being collected, but that is difficult to access at the right time and place.
3. Data that is collected and available, but that has not yet been productized, or fully applied.
4. Dark data, unlike dark matter

which is a form of matter thought to account for approximately 85% of the matter and composed of particles that do not absorb, reflect, or emit light, so they cannot be detected by observing electromagnetic radiation, dark data can be brought to light and so can its potential ROI.

And what's more, a simple way of thinking about what to do with the data -- through a cost-benefit analysis -- can remove the complexity surrounding the previously mysterious dark data.

### Value of Dark Data

The primary challenge presented by dark data is not just storing it, but determining its real value, if any at all. In fact, much dark data remains unilluminated because organizations simply don't know what it contains. Destroying it might be too risky, but analyzing it can be costly. And it's hard to justify that expense if the potential value of the data is unknown. To determine if their dark data is even worth further analysis, organizations need a means of quickly and

cost effectively sorting, structuring, and visualizing it. Important fact in getting a handle on dark data is to understand that it isn't a one-time event.

The first step to understand the value of dark data is identifying what information is included in your dark data, where it resides, and its current status in terms of accuracy, age, and so on. Getting to this state will require you to:

- Analyze the data to understand the basics, such as how much you have, where it resides, and how many types (structured, unstructured, semi-structured) are present.
- Categorize the data to begin understanding how much of what types you have, and the general nature of information included in those types, such as format, age, etc.
- Classify your information according to what will happen to it next. Will it be archived? Destroyed? Studied further? Once those decisions have been made, you can send your data groups to their various homes to isolate the information that you want to explore further.

Once you've identified the relative context for your data groups, now you can focus on the data you think might provide insights. You'll also have a clearer picture of the full data landscape relative to your organization so that you can set information governance policies that will alleviate the burden of dark data, while also putting it to work.

### Future of Dark Data

Startups going after dark data problems are usually not playing in existing markets with customers self-aware of their problems. They are creating new markets by surfacing new kinds of data and creating unimagined applications with that data. But when they succeed, they become big companies, ironically, with big data problems.

The question many people are asking is: What should be done with dark data? Some say data should never be thrown away, as storage is so cheap, and that data may have a purpose in the future.





**DR NARISA CHAUVIDUL-AW**  
 CEO/ FOUNDER OF KOGOPAY GROUP | SMILE MONEY  
 WOMEN IN TECH GLOBAL AWARD- START UP 2019

Digital wallets and mobile payment methods have transformed the banking world in recent years. Yet this has often excluded people on the fringes of society. I believe that this is neither ethical nor makes good business sense.

Born in Thailand and now living in the United Kingdom, I have met so many people who just need a start in life. Whether they've recently arrived in a new country and do not have a long-term address, or they're a small trader starting a business selling a few pieces of sewing.

These people are known as 'the unbanked' and I want to help them.

# PAYMENT WITH A HEART



My solution to this challenge is to examine the payments eco-system to create a friendlier way to send and receive money. I want to combine business with my passion to help people and this is why we devised an instant payment system for individuals and small businesses to make secure, international transfers between Europe and Asia.

Currently, it's expensive to convert money into another currency and this affects foreign workers, students, overseas travellers and those with family abroad. We've turned the conventional currency exchange process inside-out to provide low currency conversion rates so that customers save more of the money that they're sending internationally.

We want KogoPAY to be a much-loved brand which supports people as they travel around the globe.

For small traders, KogoPAY will open a new world of opportunity. Customers can easily pay vendors by finding them in the KogoPAY app and instantly transferring payment.

There's no need for a bank account as funds can be easily added to the app - and the vendor no longer needs a card machine. Added to this, we are also developing a QR code payment solution where customers can scan a code in a shop or on a market stall. This will make payment even quicker and involves no physical contact.

Mobile payments are set to grow by 900 per cent in the next six years, with most of this growth in Asia. My hope is that KogoPAY's QR payments will eventually be accepted in every territory, even places that do not accept card payments.

I can see the potential, not just for business but community projects like charity events, where payment can be made instantly without the need for expensive card machines.

The European aspect of this is very interesting. Whilst China, Thailand and many countries in Asia are accustomed to using QR code payment, this method is hardly used in Europe at all.

People in Europe are used to contactless card payment, so they don't see the need - but QR codes are cheaper to operate and easier to set up.

We are excited about these opportunities and the progress that KogoPAY has made so far. I am honoured that within the last year I have been recognised by the business community with the Women in Tech Award,

The Mayor of London's London & Partners mentoring



programme, the HSBC mentoring programme and the London & Partners Female Founder Virtual Mission to Silicon Valley. We have had a successful crowdfunding raise on Crowdcube, a major Series

A investment and several strategic partnerships with payment companies across Asia. Now our European administrative office in Lithuania is on track to support the imminent launch of the KogoPAY app.

In many ways it has been a challenging year. The pandemic forced us to adjust our business plan to focus less on international travellers, but these were



**DR NARISA CHAUIDUL-AW**  
 CEO/ FOUNDER OF KOGOPAY GROUP | SMILE MONEY  
 WOMEN IN TECH GLOBAL AWARD- START UP 2019

Originally from Thailand, Dr Chauvidul-Aw studied for her compliance and information systems PhD at the London School of Economics, going on to start ThaiSmile, a website and magazine about Thailand.

She is an expert in all types of payment and began a commercial currency exchange business several years ago.

She later gained Financial Conduct Authority and Small Payment Institution licences and her company, KogoPAY, is now also preparing to run its operations from Lithuania.

always only ever one element of our target market. Likewise, developing payment technology from scratch is not always easy.

I'm pleased to confirm that our resilience is down to a strong team and diverse geography both terms of our customers and investors.

So what now for KogoPAY? Well, in the midst of challenging international circumstances, my priority is to finish developing the KogoPAY app.

We are in the last stages of testing and we will initially launch our app to a small group of KogoPAY supporters. From there, we will roll out our service in Thailand, the

UK and Lithuania.

My long-term vision includes lots of exciting developments which will continue to build on our idea of serving everyone who needs to send and receive money.

I have been fortunate through my associations with Silicon Valley to make some great contacts and to be exposed to plenty of new ideas.

Whilst we are committed to our success, nevertheless KogoPAY has a keen focus on the homeless and those in need. One of the challenges of helping people to become more independent are the compliance checks

which require a passport or citizen ID.

Like every other electronic bank, KogoPAY has a responsible and well managed compliance operation.

However, I really believe that we need to find a way to help stateless individuals and will be working to achieve this as best I can.

We are looking at ways to work with others to make this a reality.

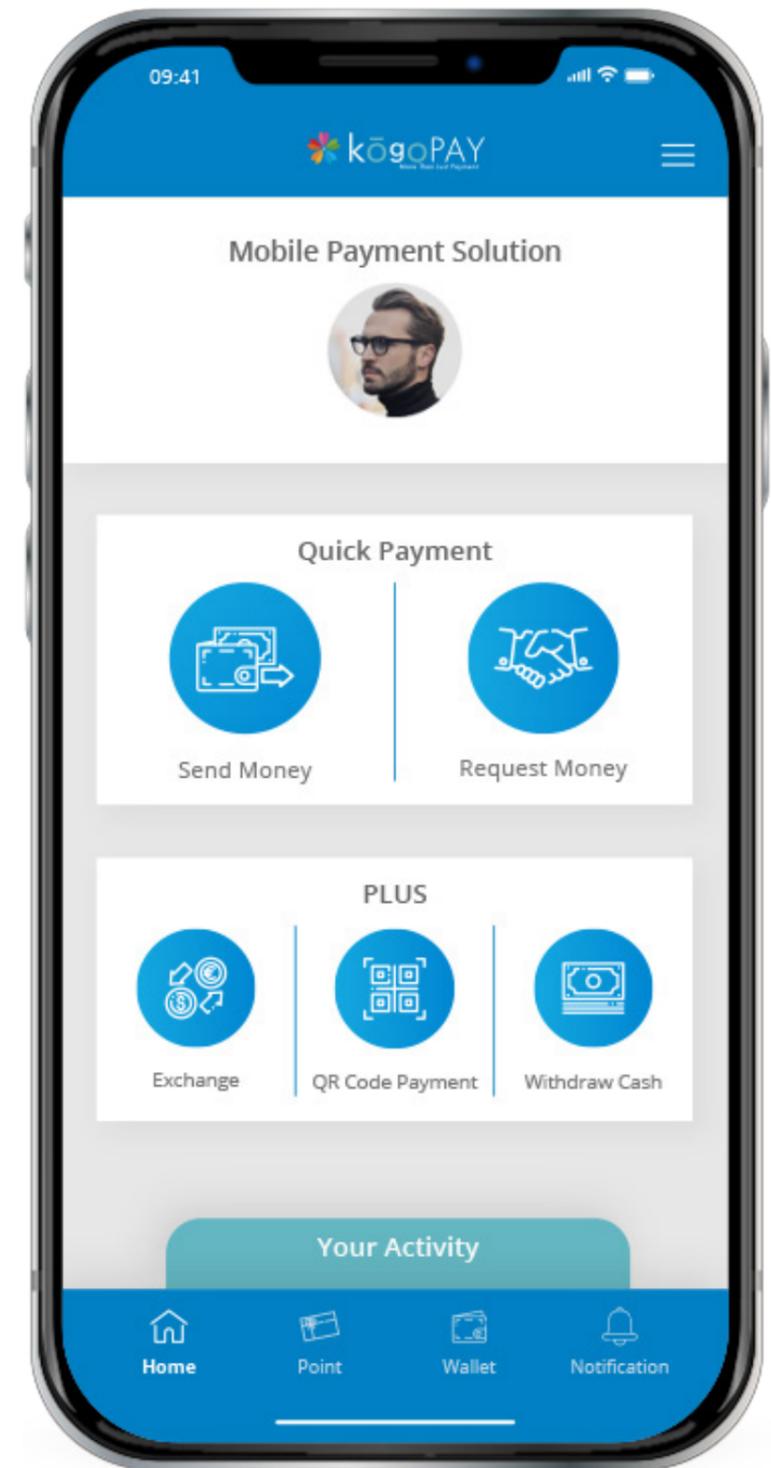
One of the advantages of KogoPAY is that people will be able to donate to good causes without needing to root in their bags for cash. KogoPAY's QR code payment is ideal as it just requires a scannable code on the collector.

Scanning a QR code enables socially distanced payment to take place quickly and efficiently.

In addition to making charity donations easier, KogoPAY will enable people to pay in advance for food and drink for the homeless, otherwise known as 'Pay it Forward'. Homeless people who see the KogoPAY logo outside a cafe could come in and ask for food or drink which someone had already paid for.

KogoPAY keeps me busy 24/7. The combination of developing our payment app, raising investment and creating good partnerships around the world isn't conducive to a long night's sleep.

It's so exciting though! It will not be long until we have a loyal and growing customer base in Asia and Europe, and we'll be able to help the homeless too.



**kōgoPAY**  
More Than Just Payment



**DR. HYND BOUHIA**  
CEO OF STRATEGICA

# WOMEN IN TECHNOLOGY

## EMPOWERING WOMEN TO TAKE ON THE DIGITAL WORLD!

President & CEO - Professor & Author of African Girl, African Woman - Economic Intelligence & Sustainable Finance; Leadership & Women Empowerment - Harvard Alumni & former World Bank YP- Forbes 100 most powerful women

The world has completely changed these past year becoming all digital and relying primarily on technology, artificial intelligence and networking. The sanitary crisis exacerbates the situation making e-commerce and digital transactions the main survival recipe for companies and businesses.

This trend will probably carry on as new economic perspectives are shaping up and bringing big hopes to business owners, entrepreneurs and corporates. The question is how could women play a part in that new trend? How can we ensure more women in technology and in the digital world? How can we prepare and empower women to launch their own digital business and embrace technology?

It all starts at the education phase and all the trainings that complement it, in addition to confidence building and nourishing the capacity to lead. Thus, preparing women and empowering them through the right programs and also through access to inspiring women role models, will get them ready to embrace technology and navigate through this fourth industrial revolution.

#### Getting more girls to STEM

Throughout the world, the girl is agile, smart and resilient. She kindles a fire fueled by reality and hope. Her beauty radiates from a quiet source deep within. From an early age she grows versatile in many skills. Her character is complex. She contains multitudes. She has the capacity to embrace several roles at once. Numbers have confirmed that in school when she has the chance to enroll, she often excels at learning—at a pace faster than boy.

#### But what happened after that?

Both girls and boys need ongoing support if they are to blossom and reach their full potential. That help and ongoing education must transcend the family home, and it must set up fundamentals so that today's girls matures into tomorrow's women entrepreneur, able to carry the technological transition and contribute to the socio-economic development.

Unfortunately, there is persistence of female illiteracy in some regions of the world, keeping the total of girls out of school around tens of millions. Governments and international organization, along with privately launched initiatives are striving to improving school conditions and stimulating girls access to school.

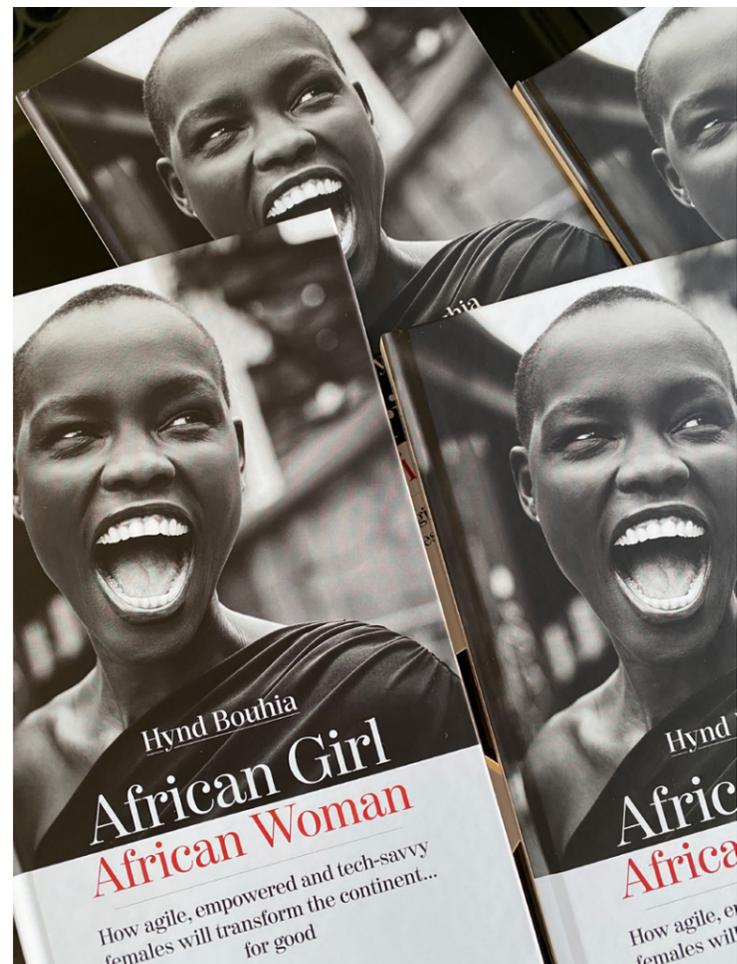
By prioritizing education as a universal human right the UN SDG s opened a new chapter in the fight for gender equality. Girls and women can no longer be

denied access to the same level of public knowledge and learning activities and educational resources and decision making as boys and men.

The challenge is to get more girls to choose scientific paths and to get introduced early on to computer science and technology. Nevertheless, computer science remains largely a man's world, with few girls steered in that direction, or earn programming credentials.

This said, by staying enrolled through university, especially in STEM fields, the African girl has a positive impact felt throughout the larger community. Her personal and private strength binds the social fabric, enhances public integrity, builds technological capacity and yields economic gains for the entire continent's economic development.

Today's girls any where in the world feels as connected as any African boy. In the past her search for a role model may have been confined to house or village. Now she can reach out and meet and talk to anyone on earth. Internet access and social networks and digital platforms such as Instagram, Twitter, LinkedIn, or Facebook mean she can follow leaders across diverse fields and countless activities. She can now see



anything is possible.

This is why it had become even more urgent for schools to equip the girl with the skills that she needs to carry on within the technology sphere and to be as agile in the digital world as in any other domain.

That is why disparities are widening. While private schools provide all the tools and skills necessary with digital education, online schooling during the sanitary crisis. Few public schools are so privileged. Most can't even afford to dream of iPad tablets, since they scramble just to secure modern textbooks, electricity, running water and teachers.

National and charitable programs seek to level the playing field, distributing computers and helping teachers learn how to operate them. Civil society can further close the digital divide, by loading tablets with math, science and reading apps and programs, like Wikipedia, which work even in remote regions without Internet access.

So the challenges remain in ensuring that all girls are prepared technically to embrace all the opportunities

of the digital era.

#### Preparing women to be entrepreneurs

The rise of Wi-Fi, 3G networks, smart phones, and village internet cafes has leveled the playing field. The connected rural woman is today as modern as the urban female anywhere on earth. Through access to information and technology, she understands how the world is developing and how women play an important and increasingly central role in shaping its direction. However, women are faced with psychological barriers, but also educational setbacks, family opposition, institutional discrimination, and financial constraints. They all combine to prevent her from progressing at her own naturally chosen pace.

Several statistical analyses have evaluated the many ways women add value to, generate knowledge in, and create new products or processes for the vital field of science. But despite ongoing pressure to boost their presence, women still represent a small minority of researchers. Today, we're starting to get a better understanding not only of why, where, and how their numbers remain so low – but also how much is lost with their absence from field or laboratory.

It has been even more urgent to not only improve her situation in terms of skills and knowledge, but to also ensure that she can contribute fully to the development of her community and to economic growth. For that several programs, networks and initiatives have been launched to support women in technology, encourage girls to code and to choose STEM, and to find inspiration and passion in the digital world.

#### Female role model in Technology

Advanced technology is leading the world into the Fourth Industrial Revolution, and blurring or fusing the lines between where human labor ends and machine work begins. Women have yet to learn how to navigate this technology. Internal and external barriers prevent her from playing an equal role in its innovation, application and development.

Yet the very nature of her barriers has changed. In the past, she had often been denied her right to knowledge: books, teachers, schools. She now has access to all the tools, disciplines, and academic institutions she needs. She can and does graduate from an Ivy League University and build meaningful career that adds value to society.

Yet she's still treated differently from men, and often held back in less obvious ways. It may appear a woman

**Dr. Hynd Bouhia has cumulated more than 20 years of professional experience in high-level leadership positions. She was nominated by Forbes among the 100 most influential women and most influential Arab women in Business (2015), and honored as a member of the Johns Hopkins Society of Scholars (2018).**

**With a Harvard PhD, an Engineering degree from Centrale Paris, Hynd started her career at the World Bank in Washington before joining Morocco's Prime Minister and Casablanca Stock Exchange as the Managing Director. She structured several investment funds before launching the consulting firm Strategica, and just published the inspirational and women empowerment book *Africa Girl, African Woman*.**

leads more large tech companies, or that her place in tech entrepreneurship is improving. But it's painfully slow. At the current pace, she will not achieve gender parity before 2090.

Although each educational phase helps women achieve equity. Excelling at school math class help girls pursue university STEM degrees and graduate into better jobs. The sheer force of increased numbers of women in the pipeline matters greatly. Add to this the force of globalization allowing women to gravitate toward companies or institutions or even countries that value a female scientist's skills, training, and education, and provide more opportunities to fulfill her ambitions than others.

Woman is attracted to the digital transition from an early age. She has shown the intellectual hunger and capacity to compete. She has excelled alongside men in startup business incubators. She has proven she can manage venture capital funds to invest in tech entrepreneurs and their startups. She sees how advanced technology- if structured fairly and inclusively - brings about a digital transition that may improve the performance not just in her own goals but in those of her community, city, field of interest and country.

There are several women leaders and role models who have been successful in the technology sphere and who managed to rise through the corporate ladders and beyond the glass ceiling. These women leaders in tech are the inspiring role models that women are looking for.

Silicon Valley, where the tech boom started, announces

the Year of the Women on a perennial basis.

This makes some sense; women have, after all, made progress in technology and in entrepreneurship. In the US, 12.3 million entrepreneurs are now women. Yet they face such persistently discriminatory, and sometimes openly sexist barriers - hiring, promotion, access to venture capital - that Silicon Valley is, to this day, still regarded as a nearly exclusive boy's club.

Those brave and determined women who do crash this fraternity and succeed are even more remarkable, and worthy of becoming a star for all young women. Three of these women are often taken as examples including Marissa Mayer, a Stanford tech whiz and early Google employee, and appointed CEO of Yahoo at 35; Susan Wojcicki, had the instinct to rent her garage out to Larry Page and Sergey Brin as they worked out a search algorithm, and eventually founded a small company called Google.

Watching the growth of another startup, called YouTube, she persuaded Google to acquire it for \$1.65 billion. Appointed its CEO, Wojcicki became an influential tech industry pioneer both externally and within, increasing the number of Google's female employees to 30%. Finally, Virginia "Ginni" Rometty, graduated in electrical engineering at Northwestern University in 1979, joined International Business Machines (IBM) as a system engineer two years later, and rose up through positions as director of sales, marketing and strategy, and since 2012 has led the corporation as CEO.

In addition, not only are female entrepreneurs launching more tech startup companies -- a 68% of



increase in since 1997 - women today have now three times more opportunities to get funded.

Although, perhaps that's not saying much. In the last decade, the 5% of startups led by women still raised only 2% of all investments, and those were a fraction of similar stage capital raised by male-run ventures. To overcome the discrimination, some women invite men to co-found their startups. That brings its own problems, as men tend to hire men, isolating the lone female.

All these positive changes are meant to encourage more women to feel comfortable sphere and to grab some of the impressive finances that changes hands and multiplying at record rates in tech and the digital

### **Becoming tomorrow's leader**

**Finally, the digital world is reinventing itself in every region to fit the need of its young and booming population. Each country and city harnesses and adapts technology in unique ways.**

**This is why it is important to prepare girls for a technological transition early on through STEM disciplines and raising awareness.**

**They can develop the right tools at the right time for her to shape her behavior, build her confidence, and help her develop the necessary attitude to become tomorrow's leader.**



I WANT TO INSPIRE  
ONEDAY I WANT HER TO  
LOOK AT ME AND SAY  
“BECAUSE OF YOU,  
I DID’NT GIVE UP

**INSPIRE GENERATIONS**  
**CORPORATE INVESTMENT TIMES**



# THE FUTURE OF ENERGY BEGINS IN BANGLADESH

**DR. SEBASTIAN GROH**  
MANAGING DIRECTOR AT SOLSHARE LTD.

**solshare**®

Create a network. Share electricity.  
Brighten the future

A transition technology has the purpose to pave the way for the "old" to become the "new". Hence, once legacy technologies and incumbent business models stop producing the desired results, a transition mode is put into action. In energy technology, however, things are moving at a much faster pace.

As macabre as it may sound, with every new disaster peeling away layer by layer the inefficiencies of our current system, the stronger the push for a form of regenerative capitalism (Fullerton, 2015), the stronger the push for real impact investment.

The Paris agreement is the global consensus on how this decarbonization process will shape up going forward. The question is the speed and the mode. Investors should realize that right now the danger of energy lock-in effects is critical.

MY recommendation is not to bet on transition technologies combined with old business models but to leapfrog instead.

As the world continues to decouple carbon emissions and economic growth, the old paradigm of centralization, where electric power is produced far away from where it is used, will also change.

And with this a democratization of energy generation

and consumption, where prosumers will be the key actors disrupting conventional business and delivery models and empowered through digitization which allows automated payment settlement of electricity trades.

An interesting piece from the Harvard Business Review titled The 3 Stages of a Country Embracing Renewable Energy, divided this transition path into three phases at a country level (Burger & Weinmann 2017):

**The global energy transformation has become irreversible, legacy technologies and incumbent business model are struggling today more than ever. But will transition technologies rule the market or technology disruption?**

**The question largely depends on who is going to drive the transformation – community initiative, entrepreneurial disruption, or traditional supplier adaptation? Leveraging the breath-taking success of Bangladesh's solar home system program, SOLshare, an energy start-up in Bangladesh has already embraced renewable energy by going full circle on the energy transformation.**

**Here's what the rest of the world can learn.**

- Phase 1: A country focuses mainly on promoting renewable energy sources, possibly with secondary objectives of establishing a domestic manufacturing base.

- Phase 2: The shares of renewables in the energy mix reaches a level where grid operators have to intervene more frequently to keep the grid in balance. The landscape of utility companies is undergoing significant transformations.

- Phase 3: The electricity supply industry sees first-hand how their sector is transformed from being a public infrastructure towards a truly private one where solutions are customized for each producer



and consumer.

So in essence, no country is in phase 3 yet. However, I would dare to argue that SOLshare's rural customers in the remote areas of Bangladesh have already gone full circle, embracing the 5 D's (Decentralization, Decarbonization, Disruption, Democratization & Digitization) and actually find themselves in phase

Under the leadership of the Government of Bangladesh, the Infrastructure Development Company Ltd. (IDCOL),

close to 30 million people today produce their own electricity via solar home systems (SHS), completely decentralized.

Recent studies show that on average their electricity supply quality is superior to that of the national grid.

The future of energy will be fueled by the 5D's: Decentralization, Decarbonization, Disruption, Democratization & Digitization! In line with these beliefs, SOLshare has embarked onto a pioneering journey having installed the world's first solar peer-



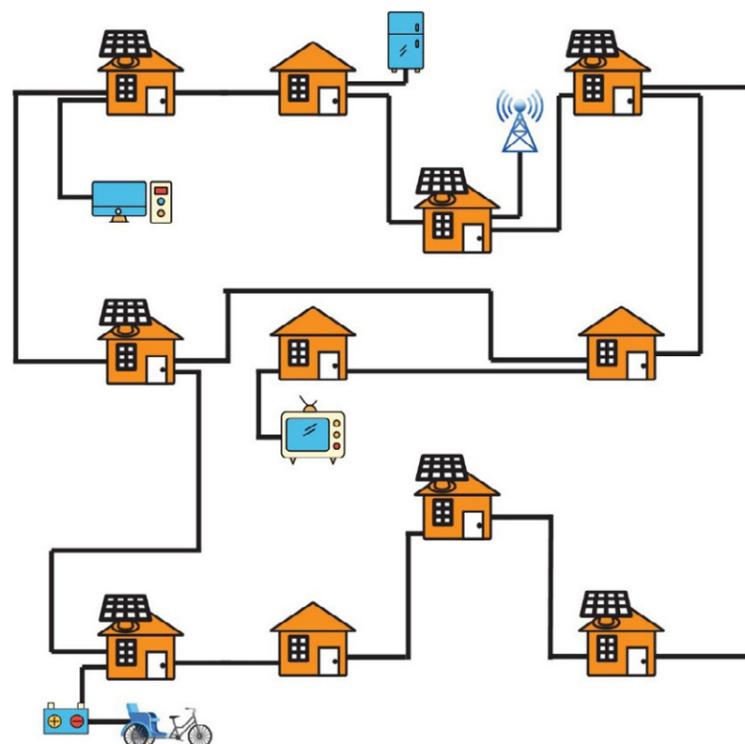


to-peer (P2P) energy exchange platform in a remote area of Bangladesh in 2015.

This solar energy exchange network of rural households and small businesses with rooftop solar home systems enables a more efficient distribution of electricity across the rural communities.

This innovative model (commonly referred to as the 'prosumer' model), allows certain households to become both a producer and a consumer of electricity generated by their SHS installations.

In summary, one household can sell excess power into the microgrid network, where neighboring



households or businesses can buy it in small increments using mobile credits.

If these groups of interconnected, peer-to-peer microgrids were to connect with Bangladesh's national electricity grid, it would pave the way for a new global standard for electricity distribution. To date, SOLshare's peer-to-peer energy exchange platform, runs 30 grids (28 throughout Bangladesh and 2 in Assam, India).

By interconnecting up to six million households with solar home systems across Bangladesh, with the millions of households who lack access to electricity, SOLshare can create a series of interconnected microgrids that generate more than 300MW (~1.5%



of Bangladesh's total installed power capacity as of today) and more importantly 3,000 MWh of battery storage.

With this model, SOLshare is propelling the systemic change of how people use and move electrons. It has the potential to change the face of utilities globally in the future, and it already leapfrogs rural communities today.

If the global public understood the benefits of solar energy, the implications of energy efficiency and true prosumerism, the way our customers do in rural areas, a huge momentum could be gained and with this a leapfrogging in phases.

In the meantime, SOLshare will do its part to scale up its operations targeting to reach 2.5M people by the end of 2023.

Join us in creating networks, sharing electricity and brightening the future.



**solshare** 

Create a network. Share electricity. Brighten the future



# IS HIGHER ED MISSING OUT THE PROMISE OF MACHINE LEARNING



**DR. RAUL VILLAMARIN RODRIGUEZ**  
DEAN, SCHOOL OF BUSINESS, WOXSEN UNIVERSITY  
QUANTUM AI | EUROPEAN COMMISSION |



Machine learning and big data have afforded tremendous improvements to almost every field, including higher education. For example:

- The University of Aberystwyth in the UK has already developed—over a decade ago, in fact—the necessary robotic infrastructure to carry out scientific research on its own: developing hypotheses, conducting experiments, and analyzing required datasets. This represents a significant development in the experimental and research arena in order to ensure the accuracy of results and allow the human employees to focus on a more critical function
- The publisher Elsevier is using AI to analyze literature reviews, measure plagiarism, and identify forged numerical or statistical features and details. This will ensure that unethical behavior is flagged before any publication goes live. Similarly, higher education institutions could benefit from such practices by implementing AI-induced mechanisms that would prevent malpractices in the assessment process, resulting in higher quality results.
- Intelligent chatbots based on natural language programming (NLP) are being already used by universities across the globe. The Technical University of Berlin (TUB), for example, has developed a chatbot system that can guide students around campus and help them choose their courses. Administrators at the Spain's University of

Murcia were surprised to learn that its chatbot system answered 91% of 38,708 questions accurately. The chatbot enabled the university to operate outside of working hours and had a positive psychological impact on students—they became more motivated to use the chatbot over time, knowing there would be a tool to communicate directly with the university administration on an ongoing basis.

- Virtual assistants play a key role at many universities. Carnegie Mellon University, through its Open Learning Initiative (OLI), has developed AI-induced cognitive tutors to engage students. This had positive results in students' overall performance and dedication levels. Similarly, at Georgia Institute of Technology, a virtual teaching assistant (TA), using IBM's Watson Platform, was implemented in order to provide responses to about 40,000 questions during the course 'Knowledge-Based Artificial Intelligence'. This ensured the prevention of low student retention rates and positive class engagement.

#### What AI Can Bring to Higher Ed

Some of the benefits of utilizing emerging technologies such as machine learning in the higher education sector include, for example, a considerable improvement in the learning experience and the capacity to analyze the managerial structure on the campus at all possible levels, leading to an optimal organization of tasks. Additionally, it allows the reception of opinions and inputs of computer software. Consider the following use cases.

#### A New Way to Plan Programs

Do you remember the number of variables involved in planning one single academic program? The number of options you have at your disposal? The ever-growing number of combinations of courses, lecture rooms, or students to be allocated? How long does it take a human being to reach that endgame decision?

If we consider curriculum development, AI's speed, accuracy, and consistency can ensure that an adequate subject selection and distribution will be established based on pre-set parameters by the educator or

administrator. This would enhance the institution's dynamic adaptation to the growing number of students and new programs.

#### Bias-Free Admissions Management

Machine learning utilizes the incommensurable power of big data to expand the number of options and scenarios of any complex planning in an institution, such as admissions management.

Let's take the example of Kira Talent, a Canada-based start-up that sells a cloud-based admissions planning platform. The company was able to shortlist up to nine different types of human bias during the student admission process, such as race, religion, and gender.

However, the most critical and determining bias originates in the reviewer's psychological exhaustion and the ever-growing variety of interviewers. This creates an inconsistency in the human-driven interview process which can be prevented by using AI. Alongside this, AI could also help to increase the accuracy of background checks, avoiding admission scandals as the ones occurred in recent times.

Comparably, Taylor University in Indiana uses Salesforce AI-driven software that includes Protected Fields, which is a feature that displays pop-up alerts in order to avoid biases such as surnames that might indicate the place of origin, race, or even religion.

#### Large-Scale Learning Analysis

Dr. Katharina Hauck, Reader in Health Economics at Imperial College London, discussed at the 2017 World

Economic Forum in Davos, the future of AI, and how it is beginning to enhance large-scale analysis, for example, in the health industry.

Using variable selection models, it is possible to test the importance of each factor with respect to the rest in scenarios where there may be more than 100,000 sub-models, allowing us to reduce estimates from weeks to a few days. This discipline could play a key role in the area of learning analysis, not only in curriculum quality but in the creation of more adaptive learning systems.

The long-term benefits of implementing learning analytics in higher education can be:

- Improving student retention. For example, at the University of New England, the student attrition was reduced to 12% and the students displayed a growing sense of belonging to the class and learning community in general.
- Supporting informed decision making. In this case, at the University of Adelaide, educators were able to enhance the design of collaborative activities is based on the data collected. Additionally, learning analysis can provide inputs about the most suitable teaching assistants to be assigned to a particular group of students, as it is applied at the University of Edinburgh.
- Scenario Planning and Improved Decision Making

Machine learning automation permits higher education administrators to scout tentative future scenarios by simulating alternative realities at a low cost and without



the risks involved in real-life trial and error. With the support of human cognitive abilities, intelligent systems can help to review an extensive amount of data in order to discover patterns.

Additionally, it can show the long-term effects of short-term decisions. Consequently, machine learning can help to point out unexpected consequences of a resolution and even locate value niches with a high accuracy rate.

For example, AI is used to track student performance as it occurs at Georgia State and Arizona State where this technology is being used to predict scores and assure that deserving students reach their full potential and prevent those who are underperforming from dropping out.

Universities will need to cope at the pace of technological development which will require the creation of new

jobs, departments, and degree courses.

In this way, higher education executives can consider the various scenarios available in preventing moral, ethical, or cultural disturbances from taking place.

**Implementing the Technology: Recommendations**  
Higher education institutions normally make use of Enterprise Resource Planning systems, or ERP, which manage the flow of information.

However, these systems fail to automate the creation of solutions. Hence, several players have come to the conclusion that an ERP is no longer adequate to handle the vast load of data generated while originating dynamic proposals to automate the academic arena.

This is where machine learning algorithms have a relevant role to play using what is termed as "intelligent decision-making systems" that allow us to

eliminate the disadvantages originated from ERP and other traditional tools, such as lack of historical data reference and dynamic functioning.

AI will be able to effectively manage simulations and predictions in areas such as decentralization of campus management, general planning, student profiling, and collaborative work.

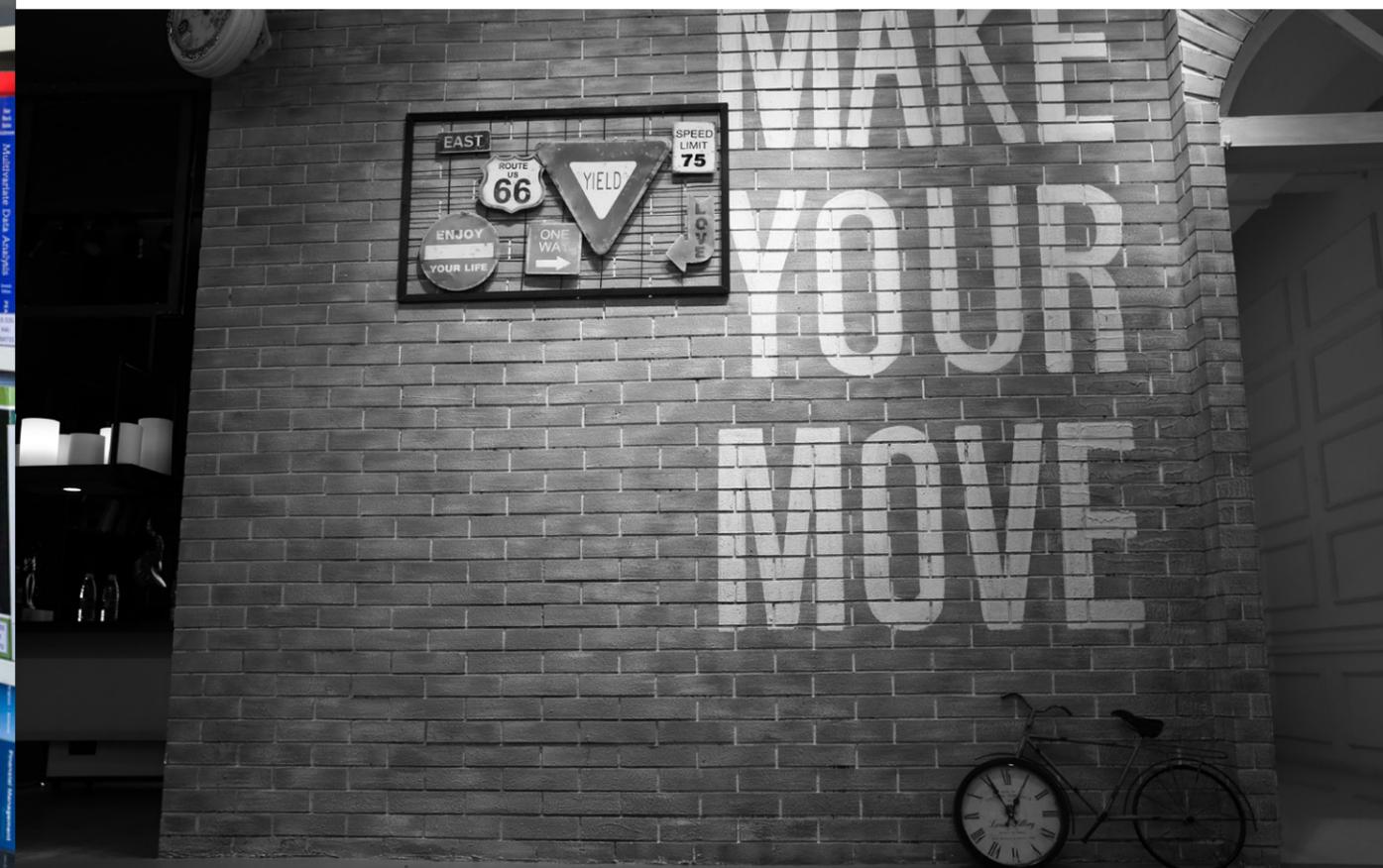
The best way toward a full-fledged implementation is to provide an adjustment time frame period crossing the required stages upon this technological revolution:

- **Implementation:** the institution must define its own technological requirements depending on the work methodology, structure, program distribution, and financial investment required.
- **Rejection:** confusion and distress will take place as it is required to address the fact that these new technologies will take away several job roles and create unemployment at a certain rate.

Data privacy will also be an active concern as data requirements will increase with the development of technology and the need for a constant flow of real-time dynamic data where data ownership might become an obsolete

concept. Similarly, the staff will be undergoing a fundamental upskilling process when it comes to new teaching methodologies with the utilization of various tools and, consequently, reluctance toward adaption will be present.

- **Adjustment:** upon the regular use of this technology, the staff and students will understand the need for implementation and will show interest in understanding the mechanisms involved and long-term impact in the institutional productivity.
- **Acceptance:** also known as the Technology Acceptance Model (TAM), which explains the acceptance of new technologies by users based on three key elements: the technological usefulness, easiness to operate, and attitudinal approach.
- **Continuous Development:** after accepting the need and interactivity of this technology, users will feel the need to take part in future advances that these systems can bring about, acknowledging the durable benefits provided.



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# THE NEXT WAVE PRECISION MEDICINE

## BIO

**JOANNE M. HACKETT**

INNOVATOR | ADVISOR | STRATEGIST | SCIENTIST  
MENTOR | DIGITAL HEALTH | PRECISION MEDICINE  
LONDON, ENGLAND, UNITED KINGDOM



Leveraging the nervous system offers huge potential for healthcare. Our nervous system is like our body's internet and it carries an enormous amount of information. Most of the communication between the brain and the organs of the body is sent via the nervous system. We now have the technology to begin translating and even correcting these communications..

The opportunities this presents for developing precision medicine are immense. Scientists have long known that faulty signals in the nervous system play a key role in driving chronic diseases such as diabetes and hypertension. Many of the most effective drugs for treating such diseases are based on molecules that have been found to have an effect on the nervous system. The knowledge of how to decode and encode neural data will open up a new branch of treatments for some of humanity's most pressing conditions.

Genentech, now part of Roche, demonstrated the ability of biotechnology companies to raise capital on the public markets to fund the discovery, development, manufacturing and commercialisation of medicines, including the creation of synthetic insulin using recombinant DNA technology. Cambridge Antibody Technology became one of biotech's biggest success stories after discovering the Humira antibody for the treatment of arthritis and Crohn's disease, and was later acquired by AstraZeneca. Both companies developed new techniques which resulted in significant innovations in treatment.

Neural interfaces are a powerful new technology that could have the same impact. This is why I was excited earlier this year to join the board of BIOS Health, an agile, fast paced and ambitious entrepreneurial biotech, which is unlocking the potential of the nervous system by using AI-powered neural interfaces that can

For example, despite the fact that cardiovascular diseases are the number one cause of death worldwide, pharmaceutical companies are hitting a wall in developing new treatments, with over 10,000 compounds tested for each drug brought to market. The last significant innovation in the treatment of late stage cardiac disease was the discovery of the beta blocker in the 1960s.

Chronic disease is such a pressing issue facing our global population that there is a recognised need for a completely different approach. In other words, we need ways to develop treatments that are more effective, cost less to deliver and do this more quickly if we are to tackle the burden of chronic diseases and provide greater quality of life for millions of people. Building interfaces between technology and the human body is one of the most important fields in helping us move beyond incremental changes to our approach to health.

Unlocking the potential of the nervous system

At BIOS we're building the technology that enables the creation of neural treatments. BIOS has pioneered a method to automatically extract the neural signals regulating physiological biomarkers using an AI-enabled neural interface – creating a new way of investigating conditions that will accelerate the discovery of neural biomarkers. This is the first time we have been able to understand the “language” of the nerves as the basis for delivering treatment and provides the capability to understand and communicate with the nerves and organs directly.

BIOS's AI technology picks the signal from the biological noise consistently across multiple subjects throughout



various time points. Biomarkers for neural and bodily function are normally discovered through other means such as blood tests or fMRI scans, whereas BIOS has discovered biomarkers through machine learning analysis of raw neural recordings. This is a game changer because being able to use machine learning to find biomarkers of organ function in neural data and be precise about which nerve activity relates to a specific condition will mean effective neural treatments can be developed to replace drugs.

BIOS is therefore positioned to provide the neural



Biotech fuelling innovation in medicine

We have already seen acceleration in medical treatments as we build our understanding of other areas of human biology, such as immunology and genetics. Mapping the human genome gave rise to next generation sequencing techniques that spurred a step change in the field of genomics, as researchers moved from studying individual genes which caused disease to understanding the genome as a whole in developing treatments.

Genome-based research is now in use clinically to develop better diagnostics and treatments, as well as decision-making tools for clinicians and patients. In the future, it is likely that patients' individual healthcare plans will be personalised to their own genetics.

Biotech companies have often been in a position to make breakthroughs that lead to new classes of treatment as scientific understanding progresses.

automatically read and write neural signals to treat chronic disease.

The need for innovative treatments for chronic disease

Chronic diseases account for almost 90% of all deaths and nearly \$2 trillion in healthcare spend per year in Europe and the US alone. The COVID-19 pandemic has brought this issue even further into the spotlight. As healthcare systems across the world battle its impact, the disease has highlighted the need for better treatments for the millions of people around the world who suffer from chronic conditions which make them vulnerable.

Yet the return on investment in pharmaceuticals to tackle these conditions is decreasing, costing billions more every year to bring a fewer number of drugs to market. In fact, the cost of developing a new drug doubles every 9 years.





code on which a new generation of treatments can be built, that can enable millions of people suffering from chronic diseases to improve their quality of life.

At BIOS we believe that by decoding and encoding the signals from the brain to the body, we can create a new healthcare paradigm that will turn bioelectronics from a niche market into a globally dominant segment of the medical industry.

Our vision is that patients will have their chronic conditions managed via the nervous system directly by AI, giving personalised and accurate treatments – and making the burden of pills and doctor visits a second resort rather than a daily reality. For example, that means instead of a pacemaker setting a constant and unchanging heart rate, we could empower it to set a heart rate that takes exact account of the patient's activity, every second of the day, whether they are

sleeping or exercising.

By building a standard operating system for neural data, devices can deliver multiple therapies. All that's required is a change of code. That means multiple conditions could be treated using the same device. Building a standard operating system has the potential to impact billions of lives by empowering every neuroscientist to be a developer of therapies.

This would deliver the next wave of precision medicine with a single interface delivering multiple, personalised digital therapies via algorithms. Through my work with BIOS, I'm looking forward to being part of a step change in medicine and helping neural interface treatments achieve their full potential in the fight against chronic disease.

## DR JOANNE M. HACKETT

INNOVATOR | ADVISOR | STRATEGIST | SCIENTIST | MENTOR DIGITAL HEALTH |  
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A clinical academic, entrepreneur, investor, and a strategic, creative visionair with global experience spanning successful start-ups to Fortune 500 companies. Aside from her curious passion for life and positivity, Joanne is known for building innovation, driving personalised medicine and leading through fast paced, complex changing ecosystems and integrations.

Joanne's goal is to contribute in bringing the world novel, cost effective and simple health care solutions, and she is particularly keen on building the case for prevention, open science and citizen genomics. She has extensive global experience across academic, business and clinical institutions, and enjoys sharing her experiences with the Boards she sits on as well as companies she provides strategic advice to. Dr. Hackett is the Head of Genomic and Precision Medicine at IQVIA and previously was the Chief Commercial Officer at Genomics England, where she was responsible for building and commercialising the Trusted Research Environment.

Joanne has been publicly recognised for her relentless pursuit of revolutionising healthcare and has recently been named one of the top six Influential Leaders in Healthcare by CIO Look, the Accenture Life Science Leader of the year 2019, Freshfields Top 100 Most Influential Women 2019, One HealthTech 2018 Top 70 Women in the NHS, Pharmaceutical Market Europe's 2018 30 women leaders in UK healthcare and BioBeat 2017 Top 50 Women in Biotech Award. Joanne believes in human courage and perseverance against the odds, and demonstrates that positive change, whether in a company or in one's personal life, can be carved out from even the greatest of trials. As a believer of 'health = wealth', Joanne is an internationally known yoga instructor.

# WHAT IS THE RIGHT FOOD FOR THE BRAIN? WITH CREAM CAKE TO NOBEL PRIZE!



**DR. MILAN KRAJNC, PHD**

**Psychotherapist,**

an expert in solving the challenges that arise from the interaction of different personality types within a company or organisation. I am trained for personal advising, psychology, marketing, negotiation and lobbying at organisations of any size and scope, from local to national levels.

I often hear that geniuses have different brains, but when we look at them under a microscope, we see that all brains are the same. The secret lies somewhere else entirely! Depending on how information flows through the brain and how the processes are regulated between the different parts of the brain or, depending on how clean the communication channels are. To connect information faster

The "cleaner" the communication channel, the faster we can create combinations, creative solutions ... Of course, education and role models in early childhood, when all these processes take shape, have a great influence.

But today we want to talk about fuel, because in order for information to travel, it needs a lot of the energy it gets from the blood, and the fresh oxygen it gets from sports. And that fuel, in the right quality and in the right proportion, is exactly what sets us apart.

The brain can store and remember 100 times more data than a computer. We use them to think, formulate ideas, remember

and learn new things. Since there is no pain sensation in the brain, neurologists can operate on the brain while fully conscious without feeling pain.

The brain consists of the cerebellum, the cerebellum and the brain stem. The most important part is the cerebrum, which is divided into two hemispheres or hemispheres.

The left hemisphere is responsible for controlling the right half of the body, while the right hemisphere is

responsible for the left half. Some people have a better developed left hemisphere, they have been shown to be more successful in mathematical and logical areas.

However, activities involving art and perception require a more developed right hemisphere. The cerebellum is responsible for the coordinated functioning of the muscles and senses, and all messages are relayed to the cerebellum.



Even when we sleep, they are active. At night they drive the heart, maintain breathing and many other bodily functions. They also process data and sort out anything new we have learned that day.

Our body is capable of various physical feats for which we need to exercise regularly. Similarly, our brain needs regular mental exercises to cope with mental stress.

So, regular exercises to strengthen memory and attention are extremely important to train our memory. This can also prevent or avoid the premature onset of dementia. This makes fuel (food)

for the brain all the more important:

- Carbohydrates

The ideal fuel for our brain is glucose or dextrose. Glucose is absorbed into our bodies through carbohydrates. When we absorb it, we must be careful to maintain a stable blood glucose level.

Too much glucose (hyperglycemia) leads to impaired mental abilities and can also lead to diabetes type II in

# Library of Milan Krajnc

Academician prof. dr. MILAN KRAJNC, psychotherapist

the long run. However, if the amount of glucose in the blood drops too much (hypoglycaemia), this can impair the ability to concentrate.

It is therefore extremely important that we try to avoid simple sugars such as refined white sugar, sweets or fruit juices as much as possible. On the other hand, it is necessary to choose complex carbohydrates, such as foods enriched with starch and fiber. So don't forget to add whole grain products, legumes, oats, buckwheat, millet and millet beans to your shopping cart.

- Protein

Another important macronutrient that our brain needs is protein. They are considered the building blocks of muscles, most tissues, nerves and internal organs.

This is also true of the heart and brain, where they play a major role in the quality of transmission of nerve stimuli. Meat, fish, milk and dairy products, legumes and eggs are a rich source of protein, so don't leave them out of your diet.

- Fats

Fats are generally considered a bad food, but that's not always the case. If we look at them a little closer, we find that they also contain healthy fats that are extremely important for the proper functioning of the human body and brain.

We are talking about unsaturated fatty acids, among which omega-3 fatty acids are the most important, since our body cannot produce them by itself. They are an integral part of nerve cells, give flexibility to the sheath and have a positive effect on the quality of

information transmission. In general, they influence our well-being and contribute to the maintenance of healthy blood vessels, which is essential for the normal flow of blood and nutrients in the body. Omega-3 fatty acids enter our bodies when we choose fish such as tuna, herring, salmon or sardines and flaxseeds. We take in unsaturated fatty acids with olive oil, walnuts





or forgetfulness are the most common consequences of vitamin and mineral deficiencies, so they should not be ignored.

#### - Fluid

Finally, a little more about fluids. The brain is 75% water, so hydration is extremely important for them as well. The recommended intake is 2-3 liters of water per day, depending on daily activities. Water plays a very important role in transferring nutrients to the brain, on the other hand, dehydration affects short-term memory and other mental abilities.

The brain is a complex system made up of a large number of brain cells (there are 100 billion neurons, ten times as many glial cells) that, like other parts of the body, require energy to function. Surprisingly, the brain makes up only 2 percent of the body's weight and consumes 20 percent of the fuel we excrete through food and drink.

However, the various substances we take into the body affect not only how the body functions, but also how the brain functions: memory, learning, concentration, alertness, decision-making, and many other important mental abilities. However, proper nutrition is not only important for the adult brain, but also very important for the brain of children and embryos. Brain development begins about seventeen days after conception with the formation of a neural plate from the ectoderm.

Therefore, at a very early stage of brain development, it is important that the embryo is not undersupplied with nutrients. The

same is true for the brains of children and later adults, because 100 billion neurons need to be active all the time.

Returning now to my scientific work, dynamiology, which reveals the proper order in which a thing succeeds, it is like the story of diamond and graphite.

Where both are made of carbon, but the order is important and their value depends on it. It is the same with food, it is not only what is in the food that is important, but what order and connection the ingredients are in.

So if we add up the previous information, a "pill" could become a genius of something sweet.

Sugar fuels our brains. And if you take it into your body in moderation and in a healthy form, the worry

that it could be harmful to your health is completely unnecessary.

The formula for real food (to promote creativity and successful thinking) for the brain would be:

Fat [38%] + Carbohydrates [17%] + Protein [19%] + Salt [6%] + Fluid [20%].

Experts from Yale University and the University Northern California confirmed this claim with research. Subjects were administered intravenous glucose concentrations and simultaneously shown various images of high calorie foods, low calorie foods, and images related to other subjects.

During the course of the study, the subjects were constantly monitored for changes in blood glucose levels and their brain activity was measured using the method of functional magnetic resonance imaging.

The hypothalamus, the area in the brain that connects the nervous and endocrine systems, detects a drop in blood glucose levels below average. Areas in the hypothalamus associated with reward are activated, which in turn causes an increased desire for food.

When presented with images of high-calorie foods, a sharp increase in brain activity is observed in overweight subjects, in the area that regulates food cravings. It can be concluded that overweight people have a lower

ability to control food cravings than people of normal weight.

**It is recommended to eat healthy food regularly to maintain a constant blood sugar level. In this way, we prevent over consumption of high calorie foods and maintain vitality.**

Now, if we combine all these tips about the needs of the brain and the optimal diet for successful thinking, and I looked at my eating habits (since I am classified by some as a "genius"), I found that the formula for success in my diet includes Cream cake. And for my body weight (188 cm tall and 94 kg), eating 2 Cream cake a day is ideal, and that's exactly how I've been eating for several years.

The prerequisite is, of course, that the Cream cake are made by hand from completely natural materials, and the laws of biodynamics must also be observed. This is exactly what I have found only in the most beautiful place in Europe, in Bled, where the Conditus company produces the Cream cake according to the traditional method!



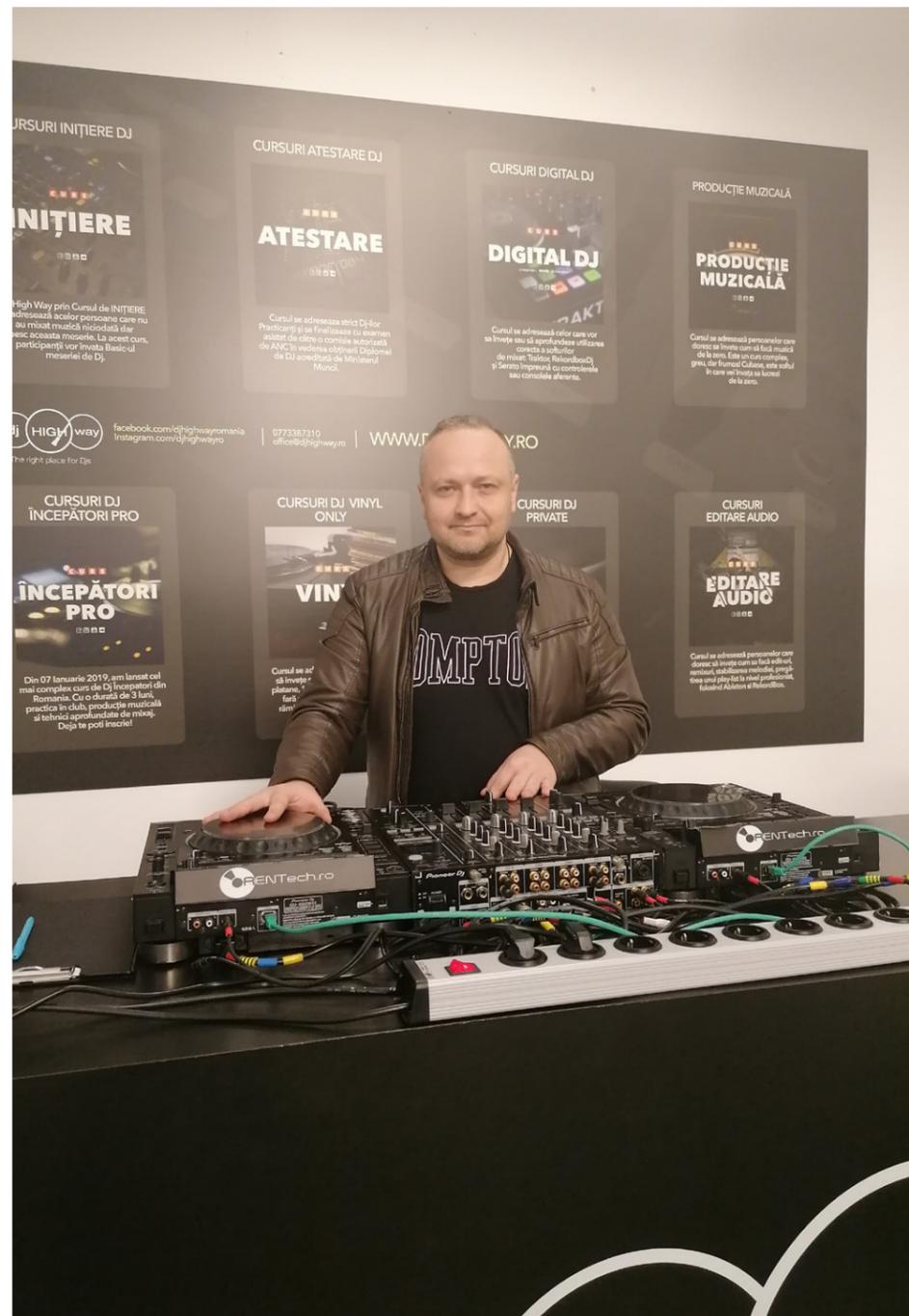
or avocado, for example. And one more tip for food preparation: Never heat unsaturated fats, because that makes them unhealthy.

#### - Vitamins and minerals

The brain also cannot function effectively without vitamins and minerals. The brain gets its nourishment from the blood, which contains various nutrients. Therefore, it is very important that you consume foods that promote the transport of oxygen and blood to the brain. With this in mind, consuming foods that are rich in iron is extremely important.

Oxygen binds to iron atoms, which in this n the act travels to our cells, including nerve cells in the brain. If there is too little iron, oxygen cannot bind to it, so oxygen deficiency is inevitable. The richest source of iron is red meat, such as beef. Foods rich in vitamin C are very important for the absorption of iron into the blood. Of the minerals, we must not forget potassium, sodium and calcium. Fatigue, difficulty concentrating

# COULD THE WORLD BECOME THE LARGEST DAO?



A decentralized autonomous organization, in other words a DAO which is also called sometimes a decentralized autonomous corporation (DAC) is an organization represented by rules encoded as a computer program that is transparent, controlled by the organization members and not influenced by a central government.

One of the things I am passionate about is to see how the technology is giving back the power to the little guy. The crypto market needed 10 years to reach a cap of 1 trillion dollars, and three months later reached 2 trillion dollars with BTC becoming more valuable than the America's most powerful four banks combined. We are already marching into uncharted territories with cryptos at all time high, new projects being born on a daily basis at a pace faster than anything we could think as possible only few years back.

First, we had the banks which were the omnipotent powers when it comes to money and we see the huge shift with decentralized finance which allows anybody from anywhere to become not just a consumer but an active player in the new financial ecosystem which is built around us.

The tech evolutions, the algorithms & the smart contract are creating the premises for such organizations to work very well without a central governance authority.

## ADRIAN NICULESCU™

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## Traditional Organizations VS. DAOs

In traditional companies, all employees of a company have employment contracts that regulate their relationship with the organization and with each other.

Their rights and obligations are regulated by legal contracts and enforced by a legal system which is subject to the underlying governing law of the country they reside in. If anything goes wrong, or someone does not stick to their end of the bargain, the legal contract

they entered into any formal legal contracts. Instead, they are steered by incentives tied to the network tokens, and fully transparent rules that are written into the piece of software, which is enforced by machine consensus.

There are no bilateral agreements. There is only one governing law – the protocol or smart contract – regulating the behaviour of all network participants.

As opposed to traditional companies that are

participants. The exact majority rules are defined in the consensus protocol or the smart contract, and will vary from use case to use case. In some countries, like Austria for example, there are trends in the legal literature to see DAOs as a civil law partnership.

A DAO can be formalized by a smart contract. Use cases range from simple to complex. The complexity depends on the number of stakeholders, as well as the number and complexity of processes within that organization that will be governed by the smart contract.

Such decentralized organizations can use the legal system for some protection of physical property, but such usage is secondary to the preemptive security mechanisms powered by smart contracts. A complex stack of technologies, steered by consensus protocols, has to be put in place in order to create a functioning autonomous infrastructure. Their native protocol tokens enable distributed Internet tribes to emerge.

DAOs are open-source, thus transparent and, in theory, incorruptible. All transactions of the organization are recorded and maintained on a blockchain. Interests of the members of the organization are – if designed correctly – aligned by the incentive rules tied to the native token.

Proposals take the primary way for making decisions within a DAO, which are voted for by majority consensus of involved network actors. As such, DAOs can be seen as distributed organisms, or distributed Internet tribes, that live on the Internet and exist autonomously, but also heavily rely on specialist individuals or smaller organisations to perform certain tasks that cannot be replaced with automation.

We will likely see many more DAOs, with a wide range of purposes, evolve on top of the technology that Bitcoin once pioneered. In combination with the “Internet of Things,” smart property governance can also be integrated into the blockchain directly, potentially allowing decentralized organizations to control vehicles, safety deposit boxes and buildings.

**If people still need passports, and in some cases visas, DAOs don't need anything else outside a laptop, phone, tablet and a good internet connection.**

**Of course, there is needed the initial design of the organization, the rules to be created, the software code to be written and deployed. We are seeing an increased number of DAOs being deployed everywhere in the world, in multiple verticals so the question arising is if the world could become the largest DAO. What do you think?**



will define who can be sued for what in a court of law.

DAOs, on the other hand, involve a set of people interacting with each other according to a self-enforcing open-source protocol. Keeping the network safe and performing other network tasks is rewarded with the native network tokens.

Blockchains and smart contracts hereby reduce transaction costs of management at higher levels of transparency, aligning the interests of all stakeholders by the consensus rules tied to the native token.

Individual behaviour is incentivized with a token to collectively contribute to a common goal. Members of a DAO are not bound together by a legal entity, nor have

structured in a top-down manner, with many layers of management and bureaucratic coordination, DAOs provide an operating system for people and institutions that do not know nor trust each other, who might live in different geographical areas, speak different languages, and therefore be subject to different jurisdictions.

Instead of legal contracts managing the relations of the people, all agreements are in the form of open-source code that is self-enforced by majority consensus of all network actors. DAOs do not have a hierarchical structure, except for the code.

Once deployed, this entity is independent of its creator and cannot be censored by one single entity, but instead by a predefined majority of the organization's

Depending on the purpose and governance rules of the organization, these use cases can have a resemblance to companies or nation-states. The more centralized governance rules are, the more it resembles a traditional company. In a more decentralized setup, the governance rules might resemble nation-states, automatically steering behaviour with tokenized incentives and disincentives.

In such cases, the token governance rules incentivize and steer a network of actors without centralized intermediaries, thereby replacing the need for top-down organizations managed by a group of people, with self-enforcing code.



I WANT TO INSPIRE

ONEDAY I WANT HER TO  
LOOK AT ME AND SAY

“BECAUSE OF YOU,  
I DID’NT GIVE UP”



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