Social Value & Intangibles Review

DON & ALEX TAPSCOTT
Blockchain Revolution

How Measuring
SOCIAL VALUE
Can Help a Company
Understand Their Purpose

CCEG BLOCKCHAIN LAB
for UN Sustainable Development Goals

INTERNET-OF-VALUE
Digitising Social Conscience
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Nick Petford

SVIR February 2017

Centre for Citizenship Enterprise and Governance

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If you are interested in submitting material to the CCEG Social Value & Intangibles Review, or in writing letters to the Editor, please contact Raisa Ambros: **raisa.ambros@cceg.org.uk**

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Social Value & Intangibles Review

contents

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contents

Guest EDITORIAL

The SDG Coin Token and the Blockchain

by **Philip McMaster (DaLong)** AHSc MBA
International Director, DACA (Distributed Autonomous Coalition Asia)
Third Sector Ambassador, Asia Blockchain Foundation

Values

It's on everyone's lips – values – personal values, family values, nationalistic values, the global rupture in the veneer of civility, the return of borders, bullies and discrimination. Echoes of the 1930's and its fascist solutions to resource allocation and management are being listened to and dangerously heard. Mob rule and evaporation of individual social responsibility (ISR) is in the cards, with values of trust and kindness replaced with selfishness and fear.

L.O.V.E. trumps HATE (and FEAR)

The world is clearly out of balance. People are out of balance. The metrics are totally lop-sided. We only value what we can measure, trade and accumulate economically. We give up our freedom to consumerism and centralized accounting and control. A whole world of social credit, caring and value remains unmeasured and undervalued.

The good news is a revolution of Social Values is emerging from the pages of this magazine and discussions around the world about what I call a non-monetary Lifestyle Of Voluntary Effort - L.O.V.E.

An Optimistic Truth

2017 will not only be the year the world takes notice of the United Nation's 17 Global Goals, it's also a year that the pursuit of those Sustainable Development Goals (the SDG's) will bring focus to an optimistic truth: the fact that there is only one planet, one human race and nothing more important in the world than working together to achieve peace, balance and harmony.

Neither nationalisms, self-interests or even the self-determination of the 195 sovereign yet interdependent United Nations should be taking us away from focus on our truly Global Goals.

Like the classic Pogo cartoon "I've seen the enemy and it's us" the purpose of my organisation and the SDG token is to save the world from ourselves.

What do people want?

The pursuit of economic goals and political values has certainly brought material wealth to some, but the levels of happiness around the world have improved little in spite of all the material gain, and the wealth-gap just gets wider.

Even large multinationals are noticing. Supportive of the SDG goals, well-known businessmen here in China, like Jack Ma, (who is also involved in Blockchain research into charity delivery systems) are realizing the importance of Health and Happiness. For this reason I run the LOHHAS *Lifestyle Of Health Happiness and Sustainability* programme. People still want money, yes, but what they really want is happiness.

Aim of the SDG token or coin

In China, the aim of the SDG token is to be a non-monetary unit of account, a token of appreciation and source of happiness. In the West they prefer SDG Coin, as the representation for token project funds. Semantics aside, token gestures which are worthless. Semantics aside, it's all the same thing.

Caring Currency

How do you feel when you smile and make someone happy? When you challenge yourself and manage to change and improve yourself? When you know you have done your best to stop being part of the problem and are now part of the solution? When you stop your lonely, limiting and addictive behaviours and begin to socialize again? Of course we feel good about ourselves and others and we feel happy.

When we are happy, we respect and appreciate others and the planet, we are not inclined to harm or damage people or things. The positive energy of the SDG token is powerful and contagious.

Online to Offline (O2O)

And the SDG token doesn't exist on its own or in a vacuum, it's part of a real-world, on the ground, Online to Offline (O2O) ecosystem. Starting with yourself, your family, neighbours, community, region, country and then measuring

your personal development and progress toward the Global Goals - you "work" to invest in society – Smiling, Changing, Unplugging. Crediting yourself with 'emotipoints' on the Blockchain for what you're actually doing to facilitate the Sustainable Development Goals - first at a personal level, and then outward by butterfly/ripple/network/pay-it-forward effect.

How this innovation will change the world

Although many have heard of Bitcoin, its underlying Blockchain technology is clearly the biggest-technology-revolution-you've-never-heard-of since the internet.

On the Blockchain we are creating a token of account, a token of appreciation, a transferable asset of reputation, a store and measure of social credit, a quantification of care and a focus on the global goals from a personal and local perspective.

Conscience

Last November 2016, the Centre for Citizenship, Enterprise and Governance held a conference at Clare Hall, Cambridge University which was themed *Internet-of-Value: The Digital Conscience*. The conference was attended by supporters of SDG reflecting the Internet of Values which records, transacts, and exchanges intangible values and currencies.

After roll-out, the SDG token will provide what I like to call "Citizens of Conscience" (and the mass market generally) a tangible (yet virtual) grasp of intangible values and a potential revolution in our individual social responsibility and associated opportunities.

Utilizing the immutable, decentralized Blockchain will also interfere with our denial, and build our tolerance, acceptance and trust. Not only peer-to-peer in the community, but also as the greatest self-trust mentor and truth guide ever created.

As International Director of the Distributed Autonomous Coalition Asia (DACA) and 3rd Sector Ambassador of the Asia Blockchain Foundation (ABF), I see that it still surprises many to learn that China is regarded by many as the epicenter of blockchain research and development with rapid growth and progress including fintech, insurance, and supply chain management. Even the provincial and central governments are experimenting with services and implementations. Exciting Blockchain developments are coming out of China.

I also believe everyone reading this is a philanthropist, and with solutions from philanthropists and the SDG family of coins like the Women's Coin – all on the SERATIO™ BLOCKCHAIN - we are in good company.

Now the rest of us can also make a difference solving the biggest challenge that humanity has ever faced – to leverage technology, investment and philanthropy with the SDG token and save our world.

Philip McMaster is known as DaLong (Big Dragon) in China. Co-founder of the World Sustainability Project and the Republic Of Conscience, since 2005 he has invested his efforts in understanding the crossroads and potential for balance between East and West and between Society, the global Environment and regional Economies by working with the Chinese University of Hong Kong, the Chinese Academy Of Sciences - Research Center for Eco Environmental Sciences. Currently he is the International Director for Tsinghua University based DACA (Distributed Autonomous Coalition Asia) and 3rd Sector Ambassador of the Asia Blockchain Foundation. As founder of the McMaster Institute for Sustainable Development in Commerce (2000), he also consults in media, CSR and promoted this in Paris and Marrakech during COP21 and COP22 (www.bisgit.org/roc)

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We love challenges, so go ahead, make our day, and ask us to measure something immeasurable

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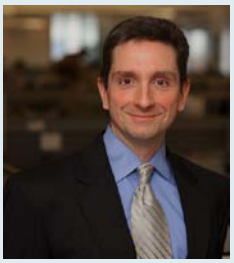
Welcome



Ron Quaranta

Chairman of the Board
The Wall Street Blockchain Alliance, USA

The team at CCEG are doing important global work investigating and highlighting the importance of social value, and showing how the measurement of social value can have a positive impact across multiple sectors around the world. In particular, this issue of the CCEG Social Value & Intangibles Review has a focus on the United Nations Sustainable Development Goals (SDG). For those of us interested in social value in the context of blockchain technology, this is front of mind.

Having been in financial markets for many years, and in the blockchain space since its inception, I can tell you that there is growing attention being given to the importance of social value, and how multiple industries are now working to 'do well by doing good'. The timing of this could not be any more ideal. With our computing power growing at ever increasing rates, and with technologies such as blockchain seeping into the fabric of multiple verticals including financial markets, healthcare, energy and more, we are truly looking at an exciting re-envisioning of how the world operates.

In my meetings around the world with corporate and governmental leaders regarding blockchain and distributed ledger technology, the discussion is increasingly about the societal impact of our technology. The possible benefits that can accrue to the global unbanked and underbanked leveraging technology for example, cannot be understated. As a matter of fact, societal impact is no longer simply a 'nice to have' that allows organizations to check the box of 'doing good'. It is now part and parcel of the very strategy being developed across multiple industries and a multitude of global organizations. This is a good thing. This, in my mind, represents an evolution in how business, government and transnational organizations operate. I am very hopeful for this future, a future of greater prosperity and benefit to an ever growing proportion of the world. I applaud the efforts of CCEG in working to make that future a reality.

Alberto Marino, GMS, International Holdings and Foundations Advisor

Business Specialist
Professor of Management and Marketing Master,
Bergamo University and previously Bocconi University

The themes and topics focused upon by this rising new journal are particularly interesting. I hope that CCEG's Social Value & Intangibles Review will continuously contribute to point out, and emphasize emerging and growing opportunities of new and real social value. For instance, those derived from anthropocene disruptions and from the series of modifications to attitudes and behaviours of firms and consumers. The latter increasingly perceived as and interacted with (not only in social oriented Marketing) as Individuals, Persons or Persumers. Or the fact that socially oriented brands are able to co-create with Individuals and Persons (and their social networks). There is also the increasing number of so called binomials B-P or P-B (Brand-Persumers or Persumer-Brands) that produce social value with large and sustainable mutual benefits. In addition, new social value and values are and will be related to all kinds of useful Communities and to every Civil Society.

A Tipping Point: Business, Social Value, and the SDGs

by **Martin D. Chrisney**
Director, IDAS Institute, KPMG International

In September, 2015, 193 countries signed a global compact to end poverty, hunger, inequality, and gender bias, among other aspirational goals. Collectively known as the Sustainable Development Goals (SDGs), the 17 goals and 169 outcomes are time bound, measurable targets for social and environmental outcomes to be reached by 2030. These are an important expression of global social values and may represent a global tipping point.

The SDGs build on the Millennium Development Goals (MDGs) which achieved their target of halving poverty. In that sense, we are already well past the starting line in the pursuit of the SDGs. The SDGs actively solicit the support of business leaders to catalyze the US $2.5 trillion in additional annual investment needed to reach the goals. While there are many profitable opportunities for investment in SDG-linked sectors, unleashing the creativity and innovation of the private sector will require aligning the profit motive of business with these global goals.

The business of social value creation

Today, CEOs are keenly aware of the demands from investors for financial returns and the claims of societal stakeholders for better social and environmental outcomes. Think of how (RED), co-founded by the singer Bono, has built a brand that gives social meaning to consumer purchases of clothing and electronics by engaging them in the fight against HIV/AIDS. In sensitive industries like mining and energy production, firms use stakeholder consultations, community engagement, and supply-chain certifications to create a social licence to operate by addressing social concerns upfront. A growing number of businesses prepare sustainability reports alongside their financial reporting, making it easier to scrutinize their corporate impact and encouraging a more proactive stance to address weaknesses.[1]

Pension funds and equity investors are also tapping the synergies between financial yield and social impact, and investors representing $60 trillion in funds under management have signed the UN's Principles of Responsible Investment. Even the non-profit world is intermingling

1.A 2013 study by the Global Reporting Initiative (GRI), KPMG and other partners found that there were 180 corporate responsibility reporting initiatives in 45 countries – nearly ¾ of which were mandatory. (see KPMG, UNEP, Global Reporting Initiative and Unit for Corporate Governance in Africa (2013). Carrots and Sticks: sustainability reporting policies worldwide.)

financial and non-financial returns as many foundations use program-related investments to pursue their charitable goals while seeking financial return. Governments are also innovating with partnerships that direct private investment to social purposes with Pay for Success models (like social impact bonds) for youth employment and foster care programs.[2]

Globalization and technology have been drivers for this change. Global challenges -- like climate change, income inequality, and refugees/immigration -- call for a collective responsibility that includes businesses to seek solutions. At the same time, social media and the internet bring greater transparency to all phases of production and consumption cycle. "Bad" actors and actions are more public, so firms are more visibly held to account. Finally, scrutiny by regulators and markets adds pressure to 'de-risk' investments by including carbon disclosures (Task Force for Climate Change and Financial Disclosure) and adopting new accounting standards that measure environmental and social risks (Sustainability Accounting Standards Board).

Moving away from a profit-centric world view

Markets cannot afford to take a short term, profit-centric view of business; instead they increasingly value social/environmental factors in order to gauge longer-term sustainability and profitability. There is a new vision of corporate societal value creation that takes into account the external effects of business activity and tries to value them.[3] This has led to attempts to standardize the measures of social value and to adopt generally accepted measurement principles. The efforts to measure social value rest on three basic elements.

The SDG mapping for Social Values

First, establish the objective or "value" to be achieved.

This can be tied to a social, environmental, or economic outcome like those of the SDGs: reducing poverty, improving children's and maternal health, or cleaning up the environment. By focusing on the outcomes, rather than inputs we are better able to take advantageof the business sector's ability to experiment and discover new solutions.

Second, identify the metrics for measuring the desired social outcome.

There is a wide range of measures and standards covering everything from supply chains (Fairtrade, organic certifications), to green construction and building codes (LEED), to defining social enterprises (B-lab), and standards for reporting on corporate sustainability (Global Sustainability Reporting Standards). These are the building blocks for assessing and communicating social value. In some cases, these offer detailed standards, like the Impact Reporting Investment Standards (IRIS), which provide metrics to quantify the results of investments or portfolios dedicated to impact investing.

Finally, monitor and evaluate the results.

Methods with varying degree of rigor and statistical certainty can be used to assess what works and what does not. Equally important, evaluations can capture the cost effectiveness of alternative approaches. In the market, techniques like KPMG's True Value and other tools help monetize the social impact of a given business unit or activity. Using these techniques firms can align their corporate strategy with the creation of greater social value. By trial and error, the results of these efforts signal which practices are successful and which are not.

2.Many governments have experimented with Social Impact Bonds or Pay for Performance programs that include upfront financing by the private sector for the delivery of social goods (increased youth employment, lower recidivism rates, or shorter stays in foster care and better placement)

3.See, for example, A New Vision of Value: Connecting Corporate and Societal Value Creation, KPMG 2014. (https://assets.kpmg.com/content/dam/kpmg/pdf/2014/10/a-new-vision-of-value-v1.pdf)

The Sustainable Development Goals as a numeraire

Many of the outcomes targeted by the SDGs present opportunities for business investment and the largest share of the trillions in spending is for infrastructure. However, unlocking the scale of innovation and investment needed requires better alignment between the business pursuit of profitability and these social goals. When firms can brand their products and services as embedding the social values of the SDGs, they will develop SDG-related products to expand their market share. The social license to operate will be enhanced if businesses can show their SDG alignment.

Finally, when enterprises can demonstrate to investors that their projects have measureable social impact, they will be able to tap new sources of funding.

One approach to achieving this alignment is to use the SDGs as a numeraire to value businesses, similar to the current use of credit ratings. Where creditworthiness measures the perceived willingness and ability of a business to repay debt, SDG-worthiness would gauge the degree to which a firm contributes to the 17 goals and 169 targets. For this to happen, we need to explore new approaches that tie businesses, products/services, and investments to SDG outcomes.

Firms can be evaluated on the degree to which they align their strategy to the SDGs, how well they monitor performance, and whether they evaluate the results of their efforts. In addition to third party evaluations, new tools like social platforms to value business activities or transactional models based on "smart contracts" and blockchain technologies can be used to track social value creation in real time. In the process, we can identify and scale up the use of best case business practices -- as has recently been done by UN Global Compact which, in partnership with KPMG, developed a series of industry matrices for the SDGs (see https://www.unglobalcompact.org/library/3111).

The SDGs offer a unique opportunity to wed consumer preferences for social value to business delivery of SDG-compatible goods and services. Joining together the profit motive with the social values of the SDGs can create a dynamic, self-fulfilling process in which businesses seek SDG values because they can profitably expand market share, consumers make better-informed choices about the social consequences of their purchases, and investors can confidently measure sustainability alongside profitability when calculating long-term returns. This will be a tipping point.

United Nations SDG and Seratio Blockchain

Discovering Synergies for Strategic Development

Alfonso Govela, MIT & UIA, is passionately involved in Architecture, Cities and ICT.

Architect from Universidad Iberoamericana in Mexico City, and MIT M.Arch.A.S. in Applied Computer Science. He is a member of the National Academy of Architecture and the Colleges of Architects of Mexico and Madrid, Spain.

UN-Habitat and Metropolis Consultant in charge of DigitalCivix, a global initiative to empower citizenship in our digital era, through platforms of knowledge, ecosystems of interaction, and interfaces of governance.

Among them: City Builder Labs teach children and teenagers (19,000+) to build public space playing with Minecraft (Guinness World Record at Aldea Digital 2016). City Changer Labs engage youth (3,500+) to solve urban issues with mobile technology. City Maker Labs open digital fabrication for citizens of all ages to make better cities.

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United Nation Sustainable Development Goals, or SDG, are aspirational goals reached by global consensus. They show us a desired Promised Land but do not prescribe routes to reach that ideal state. The destination is clear, but the map, compass and means to reach it are not included.

Seratio Blockchain[1] with its potential to capture intangible non-financial value, translate, transact and report its social impact, can help us avoid wandering 40 years in a desert of effective interventions without efficient strategies.

SDG are an agenda of integration that rethinks fundamental development issues into a common landing ground[2]. Officially known as "Transforming our World: the 2030 Agenda for Sustainable Development[3]", they build upon the Millenium Development Goals of 2000, and represent a formidable collective construct. The SDGs represent our global conceptual advances in the ideals first presented in the Declaration of the United Nations Conference on the Human Environment, at Stockholm 1972[4].

The proposal is a set of measurable priorities that includes 17 Goals with 169 Targets, with sustainable development

1.Taghiyeva M., Mellish B., Ta'eed O., (October 2016). "Currency of Intangible Non-Financial Value", Seratio Blockchain Whitepaper 1.0 https://github.com/seratio/whitepaper

2.Caballero, P. (April 2016). "A Short History of the SDGs" deliver2030.org. Retrieved 2017-02-15 http://deliver2030.org/wp-content/uploads/2016/04/A-short-history-of-the-SDGs-Paula-Caballero.pdf

3."United Nations Official Document" Un.org Retrieved 2017-02-15 http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

4.Explore a map of "Historical Alignment of Sustainable Development Goals" and SDG Connections over 43 years at https://kumu.io/interconnecting/historical-alignment-of-sdgs#historical-alignment-of-sustainable-development-goals

and poverty eradication as the main focus, but integrated into a single set of international development objectives reached through a deliberative process among all 194 Member States of the UN, non-governmental stakeholders, civil society organizations, experts and scientific advisors.

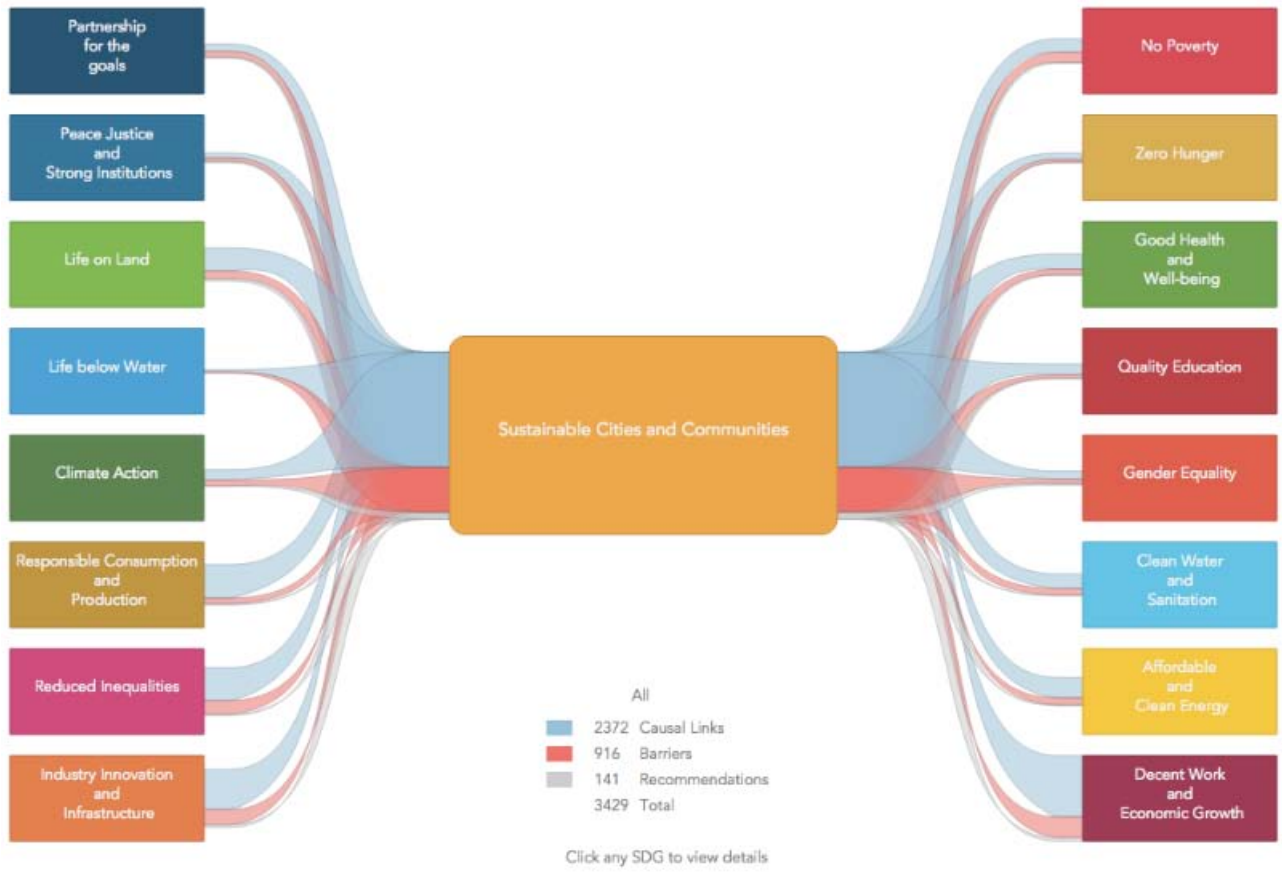
Surprisingly, for the scale and ambition of the operation, consensus on SDG was reached amazingly fast: 18 months from first discussions of the concept in 2011, to presentation of the document "The Future We Want" at Rio+20 in June 2012. Thirty months from the kick off of the Open Working Group for SDG definition in March 2013, to the final UN Resolution of September 2015.

Such speed is an example of brilliant diplomatic negotiation for an idea whose time was ripe, but also an astute use of expertise accumulated over a long period of international development. Based in this body of knowledge and distilled through a series of networked consultations, and collective agreements, it provides a metric with far-reaching implications, and a structured prism that can both shed light into concrete actions, as well as to refract social strategies into its constituent components.

As a result SDG became a conceptual living system, with an internal logic that can be mapped as a set of relations among target and goal components.

A year ago, at the beginning of 2016, UNITE IDEAS, a platform for collaboration between academia, civil society, and the United Nations[5] ran a "Natural Language Processing and Data Visualization Challenge" where contestants were invited to identify and extract, through automated text analysis of a collection of UN publications, all messages related to SDG 11 (Sustainable Cities and Communities) that interconnect to the other 16 SDG; adding a classification of directional links, from and to, SDG11 for each connection; and categorizing this set of relations into three kinds of links: causal, barriers and recommendations.

The Winner, Abdulqadir Rashik, developed an open code interactive data visualization tool called "Links to Sustainable Cities[6]" that shows a map of flows for relations between urban development (SDG 11), and all the other 16 SDG. Such automated tool provides a compass to visualize the results of conceptual interactions between components of urban policy in the context of other agreed economic, social and environmental targets. "Poverty hampers urban development", "cities are drivers of economic growth", "it is recommended that Governments consider subsidizing health facilities for densely populated areas", are examples of text extraction of UN policy recommendations with direction and classification of links. It is educational to go to the link of this tool, interact with it, and read the fragments of extracted messages, or snips of text equivalent to concrete actions.



Source: https://unite.un.org/ideas/closed/851, Author Abdulqadir Rashik.

5.https://unite.un.org/ideas/about

6.Rashik, A. "Links to Sustainable Cities" (A Conceptual Map for SDG 11 / 16 SDG). 1st. Place in "#LinksSDGs – Natural Language Processing and Data Visualization Challenge". UNITE IDEAS, a United Nations Platform for collaboration. February 2016. Retrieved 2017-02-07 https://unite.un.org/ideas/closed/851

Abdulqadir Rashik demonstrates that it is possible to complete a SDG Map for all inter-relations between the 17 goals and 169 targets. The combinatorial set of snips of policy components, linked by directional causes, barriers and recommendations shall form a conceptual territory of possible policies for sustainable development, or a "SDG Genome", to use a genetic analogy, where action-oriented interventions can show their strong impact, with a compelling message, easy to understand, measurable, widely applicable, responsive to the voice of the people, and consensus-based[7].

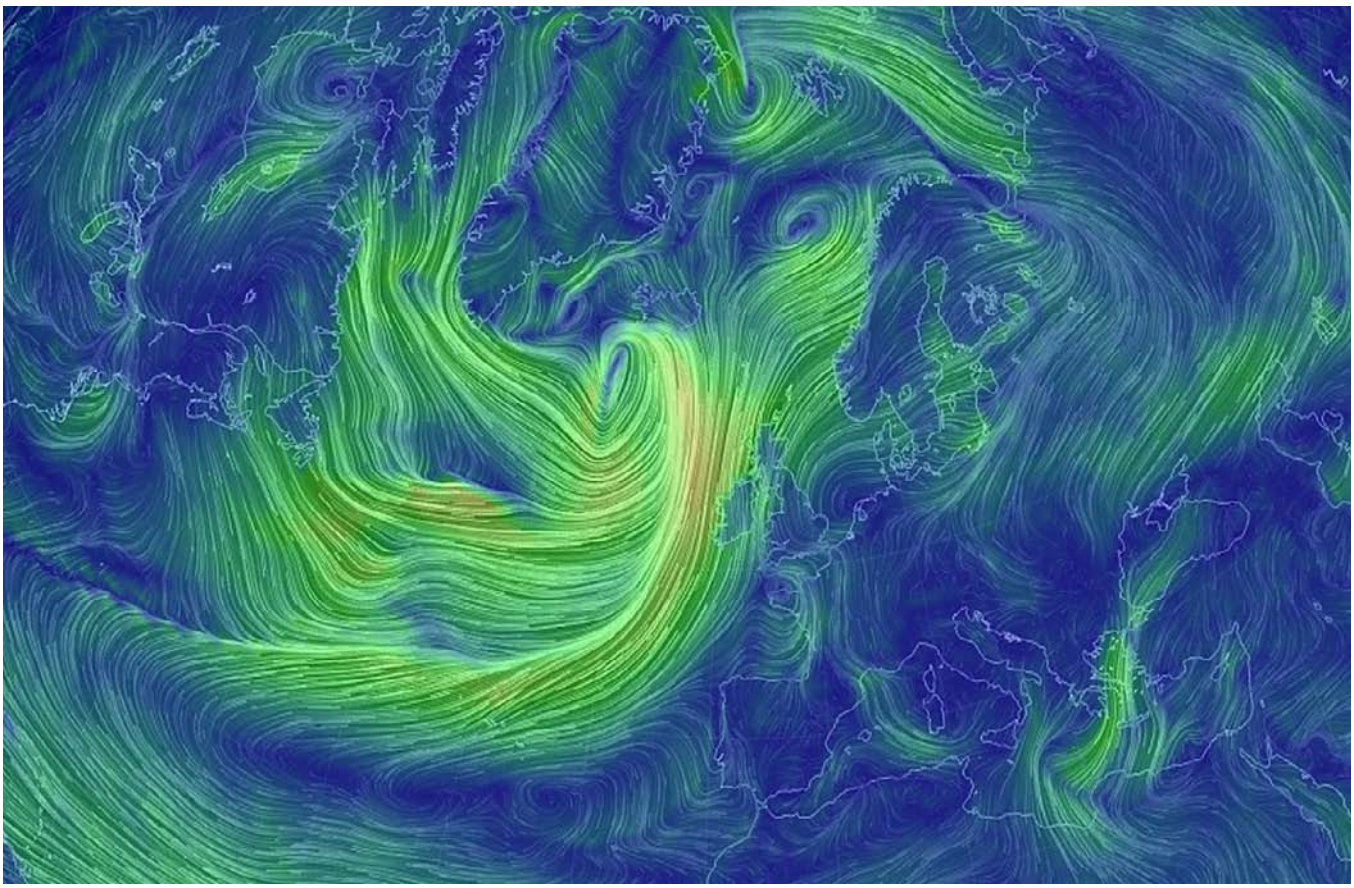
Seratio Blockchain White Paper 1.0 shows how its Internet-of-Value can capture Total Value, hard tangible financial and soft non-financial value, to transact value based on personal values[8]. It can proceed then, as shown in its White Paper 2.0, to empower communities through Blockchain technology modeling and forecasting based on the values of such groups[9]. While White Paper 3.0 shows how scalability and sustainability can be promoted with a digital valuecurrency in a circular impact economy, interpreted through frameworks that can include SDG[10].

If we integrate Social Earnings Ratio and Blockchain technology to "SDG Genome" we can, in a decentralized manner, trace and compare new collections of individual transactions throughout their aggregated differential SE ratios at different times in their social processes, across diverse locations in spaces both geographical and conceptual, and within frameworks of multiple value systems.

Seratio Blockchain can thus help trace the efficiency of social policies through evaluation of their collective depth of intervention, as well as the velocity and acceleration of value creation, in *trajectories* of individual transactions that represent the synergy of collections of interrelated vectors.

We can introduce the dimension of *Time for Histories of Impact*, and we can measure capability of trajectories to support advocacy, capacity building, policy-making, standards, and assistance for all those interested in significant structural change.

We shall have then a compass, a cartography of theterritory, and a map of the flows of actions that might provide the wind to set sail for a sustainable and developed new world.



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7.United Nations Official Document, "A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development". The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda. Retrieved 2017-02-15 http://www.post2015hlp.org/wp-content/uploads/2013/05/UN-Report.pdf

8. Taghiyeva M., Mellish B., Ta'eed O, (October 2016). Op. Cit.

9. Taghiyeva M., Aujogue K., Beer H., Mellish B., Ta'eed O. (December 2016) "Seratio Blockchain: Values Based Impact Interventions". Seratio Blockchain White Paper 2.0 https://github.com/seratio/whitepaper

10.Taghiyeva M., Abdu S., Mellish B., Ta'eed O. (February 2017) "Impacting with Value: Capture-Translate-Transact-Report. Proof-of-Impact Transaction Platform. Seratio Blockchain White Paper 3.0 https://github.com/seratio/whitepaper

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SUSTAINABLE DEVELOPMENT GOALS

Washington DC and Beijing Launch of CCEG Blockchain UN Lab for Sustainable Development Goals


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Social Credit - Caring Currency = the non-monetary "Social Currency"
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Measuring and Transacting Social Impact and Value: Introducing CCEG Blockchain UN Lab and Sustainable Development Goals

by **Dr Rebecca Fakoussa**
Senior Lecturer, University of Northampton

CCEG Blockchain UN Lab makes enterprise level tools and capability available to a broader audience by measuring impact, translating impact, transacting impact and reporting impact. This idea and its meaning are discussed in this article based on their third Whitepaper *Proof-of-Impact Transactions* (github.com/seratio/whitepaper).

If, 20 years ago, anyone had predicted that in 2017 you would be able to turn on a smart phone and see as well as hear your friends, family or colleagues in any part of the world by simply swiping your hand-held device – you might have considered it impossible. Yet, now at a time of rapid technological change, the next revolution is already happening.

One of the organisations leading the way is the Centre for Citizenship, Enterprise and Governance (CCEG). This prominent international Think Tank focusses on the Movement of Value and is a not-for-profit organization, that is a spin-out from a UK university.

Since its conceptual beginning in 2011, CCEG has been trying to measure the impact value (social value and supply chain transparency) across the scale by being able to offer a connection between good local and good world. They successfully demonstrated the path from the individual, to the collective and its impact linking to ever larger scales. Using this, they have successfully influenced laws internationally, such as Corporate Social Responsibility, Procurement to name a few.

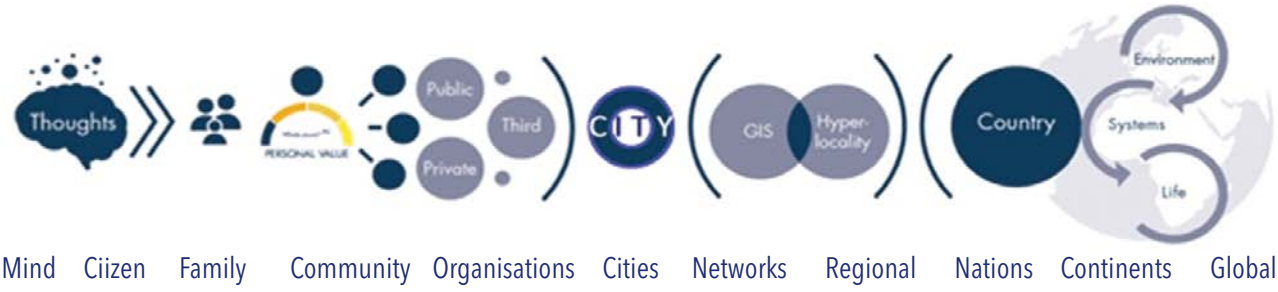
Now, CCEG has continued to develop at exciting speed. They have built a complex theoretical framework to build on the idea of capturing value to transacting value.

CCEG Blockchain UN Lab further developed this idea by measuring impact, translating impact, transacting impact and reporting impact to a broader audience. Using a Social Earnings Ratio® and Blockchain, they are able to measure beyond the individual key performance indicators that a standard intervention would expect, and deliver the full value impact of a program. This means both the targeted goals and each of the Sustainable Development Goals (SDG) can be measured, evaluated and traded.

Is it really that hard to measure 'value'?

The systematic issues in the social value and impact sphere have been due to the lack of consensus concerning how to measure, what to measure and on which scale – this has led to many measures being created which overall appeared slow or resource-intense and were rarely sustainable leading to arguably ineffective measures which were hard to compare.

CCEG looked at the movement of value influencing parameters, and how they are measured and defined a currency of intangible non-financial value. Having a value for intangible measures, CCEG proposed that this can now be used similarly to the system for tangible financial value. Using a combination of two rapidly increasing industries; Social Innovation and Fintech Innovation, they have innovated to understand how economic resources achieve non-financial goals. Developments in Blockchain Technology which is revolutionary in the transmission of value (currently



primarily financial) and Fast Data Impact Technology, means that CCEG has suggested a way to not only transact non-financial value, but also to create a scalable, robust social impact measure.

Based on this thought process, CCEG has evolved quickly to design a platform to measure, capture and transact impact. Using this platform, it has created a way to value sets, both as intervention inputs but also as impact outputs.

Integrate

- Integrate the impact of multiple providers from all sectors using different intervention resources, comparing 'apples and oranges' objectively and consistently eg. health, education, employment....

Capture

- Provide a fast and transparent instrument to capture and link non-financial outcomes with financial programme investment, and to be able to transact both kinds of value attached to each investment brand eg. Unilever cash investment linked to Health & Wellbeing outcome

Report

- Report and articulate the combined impact in any desired format, framework and metric to be meaningful in different reference templates, and provide this as a return of social investment framework to inform future projects eg. Sustainable Development Goals

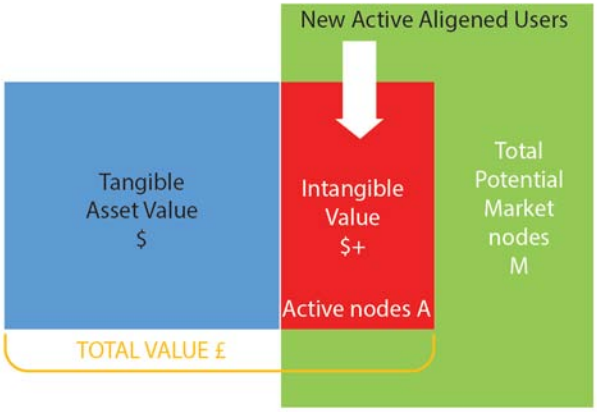
Trade

- Branded impact coins circulate in a target community with all with the same SDG aims, leaving a Circular Economy legacy for the provider, guaranteed exchange not only into normal FIAT currencies but also with all those conveying the same values as the brand and the impact.

How did CCEG get there?

In recent times, impact (and therefore measuring impact) has become increasingly important for individuals and corporations, from NGO's to governmental polices and beyond. Everyone is trying to prove their impact. However, this requires a thorough multi-disciplinary understanding of impact. The fact is that impact is inherently complex. It's multi-variant in input influences, and multi-variant in output perception.

To measure these changes and intangible values, and thus creating values aligning to Total Value, CCEG produced their 1st white paper to show their thought process and prove their ability to capture Total Value. CCEG explored the relationship between the intangible and tangible values and established the capability to effectively and speedily record both values within transactions by using the Social Earnings Ratio® and Blockchain; this they called the Seratio® Blockchain. They suggest that they have demonstrated the direct relationship between recognized indices (such as corporate capitalization or product brand) and being aligned to your target audience or community.



CCEG are now applying this on a global scale by being able to measure all of the United Nations Sustainable Development Goals (SDG) within the values framework.

Housed within the CCEG Blockchain UN Lab, the platform includes an open-source Blockchain platform which has the capability to compare values accurately across a range of measures, while retaining existing mechanisms and systems.

This means that on a global scale, without changes to an organisation's own systems, a full and complete measurement of value across all Sustainable Development Goals can be provided. Not only can these scalable agreed measures be compared internationally at high speed, they can be presented in a common language and used to improve impact.

So why is measurement important?

If you can measure it, you can monitor it, and change it; the converse is also true. Traditional measures of performance and outcomes are only a few of the impacts that are actually achieved. Being unable to capture total results, led to inaccurate or uncertain measures which frustrated and sometimes even entirely missed the desired outcome. Now, thanks to increasing technological advancement and CCEG's complex theoretical framework, the Social Earnings Ratio® , the ability exists to measure not only the total value but to share findings in an understandable, user-friendly way that allows transactions to be contingent on those impacts.

Where does the UN and Sustainable Development Goals fit in?

The United Nations have achieved Global Consensus for the Sustainable Development Goals (SDG) with all 193 Member States signed up. The 17 goals – to be achieved by 2030 - each have sub layers, targets, and the support of governments, NGOs, corporations and individuals who are working to achieve them. Therefore, reporting and progress assessment is already proving difficult but arguably more elusive are the actions and instruments to achieve them.

The CCEG Blockchain UN Lab provides a new and effective way to deliver, capture, measure and translate value across all data sets, bringing them all into one efficient framework, a consistent system that can scale across all markets.

One of the key Blockchain artefacts is the idea of a digital 'coin', a cryptocurrency.

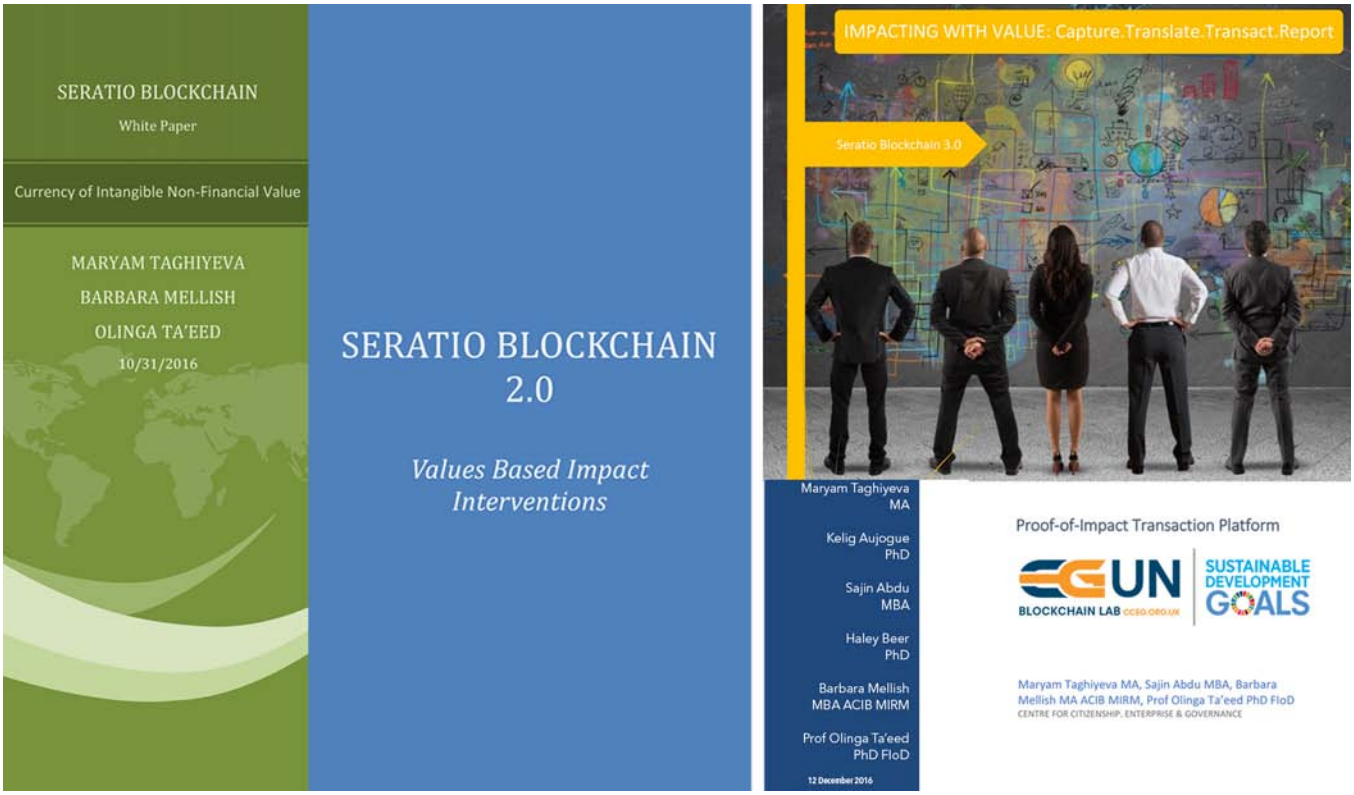
Few people understand impact, but everyone uses currency. The CCEG Blockchain UN Lab has introduced the family of SDG Coins – all with their own denominations (brands) but containing the same coherent value set. This allows for a further innovation of Branded Impact, which overcomes the challenging question of how corporates, institutions, governments, regions and communities can all engage in one SDG intervention.

What is an Assured Coin?

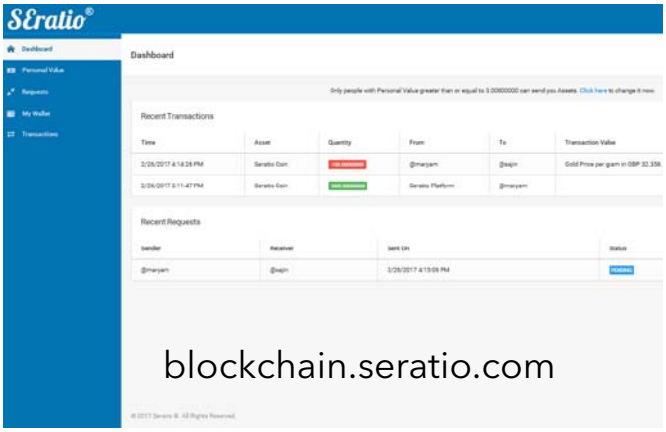
In order to make transactions, CCEG Blockchain UN Lab offers an 'assured coin' which integrates a Total Impact measurement tool and the Assured Coin Guarantee.

This means, the coin gives a full and complete audit trail of spend and impact and ensures full transparency of investment profile. This critical audit trail will also eliminate lost funds and investment monies deliberately/accidently diverted to non-targeted developments and geographies, which internationally can often occur internationally.

But CCEG has gone one step further and proposes a completely new unique capability. They suggest that they can track the ongoing use of funds beyond the first round of spend/investment. This means subsequent rounds



of transactions can also be tracked through all levels to determine the ongoing impact and value measurement creating a circular economy. This critical audit trail will also eliminate lost funds and investment monies deliberately/ accidently diverted to non-targeted developments and geographies, which can often occur internationally.



Further, full control of the spend of investment funds can be exercised by using smart contracts. The Assured Coin Guarantee is also unique in the crypto currency markets, but sets standards and guarantees to increase consumer confidence while being accepted globally. These coins, issued under the Seratio Assured Card brand, benefit from a Guarantee of value, a built-in value measurement, promised settlement terms and have a set of 'Good Values' explicitly and implicitly built in. This is a critical point for CCEG as while the number of cryptocurrencies are continuously increasing, the ability to spend them due to the uncertainty and guarantee of settlement or fluctuations in value make them difficult to use. While Bitcoin is revolutionary in many ways, to date, the concept of Assured Coin will add the incorporation of a value guarantee.

Coins that not only transact hard tangible (financial) value, but also track and measure impact; the only coin to have inherent values as its core.

Currently the Social Earnings Ratio® is the world's fastest adopted value measure[1]. The Social Earnings Ratio® is used as a translation tool to standardise and simplify other methodologies while measuring to give consistent accurate comparisons within the framework. The flow of value within the communities, the economic, social and values impact at transactional level have a multiplier effect to create Total Impact. This means, what is hard to capture, measure and compare, has become standardised.

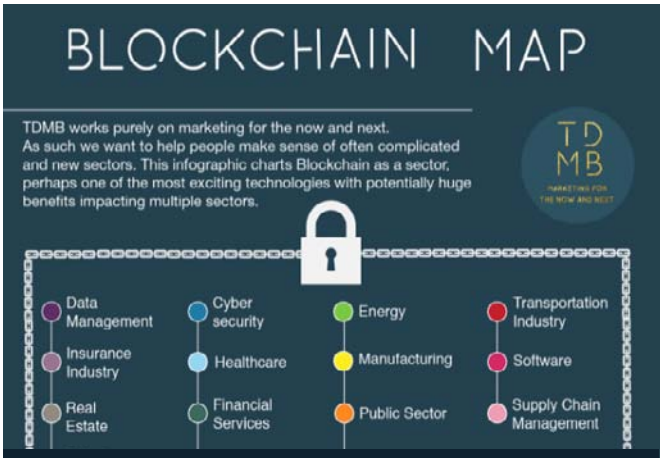
CCEG have thereby managed to create a Circular Economy. Creating a common 'currency' of intangible benefits where the SDG coin could be used between suppliers and employees who share any of the SDG values. This is why the SDG Coin, due to its global appeal, has the ability to gather momentum. You are not only buying what you want, you are 'buying into' the values you want to promote. This can be articulated in many ways, a governance layer inherent in Blockchain to create a 'vote', through to the automatic issuance of a microshare [2].

Conclusion

In conclusion, many value transaction instruments in existence, however impact investment struggles with its inability to link financial investment with the economic and social values of the communities, the interventions and their impact. In short, it integrates tangible financial and intangible non-financial interventions by ensuring financial benefit is contingent on the social impact.

CCEG has managed to create a fast calculating, user-friendly impact measure, which can measure tangible and intangible values.

Creating a system that can be used alongside an organisation's existing processes without disruption to current processes. Creating a complex framework, which considers multidisciplinary approaches using revolutionary technology and ending with an internationally accessible circular economy. The Sustainable Development Goals (SDG) Coin, means the opportunities are endless. Organisations, now have a key advantage of having a common 'currency' of intangible benefits, maintaining their own brands but which can be used for anyone in the SDG Coin network. On a global scale, you buy what you want, with what you want, and spend wherever you want – as long as they share your values and will accept the coin. This is why the SDG Coin has the ability to gather momentum internationally. So, the next time you swipe right on your phone, and reflect that 20 years ago this was not possible, consider where we might be 20 years into the future when social impact can be measured and traded. Intangible values have been given a tangible and transactional value, on a global, easy to access and use scale, is the next revolution.



Seratio in Blockchain 100 – top 3 full service organisation

1. Lubov D C, The Vatican Has Long Promoted Intangible Values; Can They Be Measured?, Zenit,(2015)

2. Longley A., Suggestions for the Empirical and Theoretic Study of Equity Dispersion (1998)

What does Social Value mean to you?

Sandy Kilpatrick

Songwriter
Scotland | Portugal

As a songwriter, my sense of social value is driven by the sense of elevation and hope that my songs can create in people and by how I can be of use to my fellow human beings. I do this by finding inspiration in nature and delivering my findings to the listener. Songs have a tremendous social value in that they can awaken us spiritually or politically, or simply make us dance, and they also have the power to unite people across race, age, colour or religion. In this respect, we should be reminded how important the planet is to us, and how important we all are to each other.

Sudhir Kumar Sinha

Sudhir Kumar Sinha
CEO & Chief Coach
Centre for Sustainability and Responsibility Inc.,
India

'Social Value' is the by-product of rich traditions, culture, and socio-economic progress of a pluralistic society. Principally, social values enable citizens and institutions of all types to safeguard fundamental rights and equality, preserve and strengthen democracy, ensure religious and racial harmony and set out customary laws for good governance.

Social value, therefore, plays a significant but implicit role in the governance of public and private entities, and facilitates them to strengthen and maximize inherent virtues and qualitative indicators of development such as happiness, wellbeing, inclusion and empowerment.

Social value is also about preserving a balance between development and the environment.

Paola Torres Castañeda

Individual Responsibility,
University communication teacher,
S.L.P., México

There is a strategy of social value that I show in the classroom to students. It is teaching them to be responsible with their environment, with their life and with the people who make them better every day. I have learned from them that the best way to contribute to the community is by demonstrating that sustainability is not a fashionable issue; but rather it is about attending to the needs that as a community concern us.

Xueying (Laurel) Zhang

Solicitor and the Head of China at Sherrards Solicitors LLP, UK

I think the meaning of social value is that people act in their best capacity to provide value to society, adding their skills, knowledge to contribute to society in their profession, in return, they receive other's respect and trust, which fulfil their self-achievement as a useful individual to society.

What does Social Value mean to you?

Marcello Morchio

Manager in Telecom corporate
Co-founder of the non-profit organization www.talentour.org,
Italy

Corporate social value is an important concept. Yet, while its adoption across corporations gets wider, its true value is diluted by the feeling of a gap between words and actions. The more money is spent on communicating, the bigger the gap gets. On the opposite side, social value at the personal and local level generates stronger trust. From volunteers in a catastrophe, to small gestures of goodwill in communities, the impact on people's lives is clear.

I think projects connecting social value and financial value are the key to closing these gaps. For instance, from corporations to small non-profit organizations a blockchain approach to social value could extend the network of trust.

Martina Macpherson

Head of Sustainability Indices
S&P Dow Jones Indices,
UK

At S&P DJI, we see a continued shift toward a more "mixed economy," in which the dividing line between private and public activities to "make the world a better place" becomes increasingly blurred. This shift goes hand in hand with an increasing focus on the Sustainable Development Goals (2015), the debate around "business with purpose," and the emergence of a new type of investor that is increasingly concerned with extra-financial outcomes and long term value creation. This includes social value - beyond financial returns.

See also our paper on 'Evaluating Sustainable Investment Trends' (2017):

http://us.spindices.com/documents/research/research-evaluating-sustainable-investment-trends.pdf

Aimen Ktari

CSR Expert at "RSE Vision"
Tunisia / North Africa / West Africa
(https://tn.linkedin.com/in/aimenktari)

Social value is a term that refers to the importance of human capital development to improving a company's economic performance. This is closely linked to the concept of corporate social responsibility (CSR). Today, companies are increasingly aware of the importance of valuing human capital for its true value.

The benefits are numerous: better communication at all levels, better productivity, better quality and the ability to attract the best candidates in the labor market.

Aakanksha Tiwari Purohit

CSR Professional,
India

The definition of Social Value is quite confusing and uncertain. Taking the words alone, Social Value - it is the value or worth in society. It may be termed as net benefit to society generated by an organisation's or institution's actions. The actions can be any kind of communal activities, financial activities, non-financial activities or any other fruitful activities beneficial for society at large. It may also be the social capital of a society.

Social Value is maximizing the impact of public expenditure. It comprises Happiness, Health, Wellbeing, Inclusion and Empowerment. A society is enriched by social value when its members have a healthy environment, high social capital and responsible citizens.

Do Accountants Need Driving Glasses?

Nick Shepherd is the owner of EduVision Inc. a consulting, training and development company. He is also a Council member of The Maturity Institute and leads their work on Integrated Reporting. Nick can be reached at nick.shepherd@maturityinstitute.com

It is not unusual to need glasses to correct one's vision, addressing short-sightedness or long-sightedness or a combination. The eyes of the accountant have long been a trusted source of opinion, sought to interpret numbers and business situations, and to provide input aimed at making effective business decisions. "Let's get the accountants to look over the numbers" is a well-known business phrase.

Even more valuable is the advice of an experienced accountant – one who has developed the wisdom over time to interpret what the numbers really mean and to ask questions that gain an insight into what is behind the numbers. This wisdom comes from the intellectual capacity that has been accumulated over many years and different situations. It is in effect the accumulated databank against which new information is constantly evaluated and validated and from which conclusions and recommendations develop.

Commerce accountants continue to hold important roles where their impact and influence can determine both strategic and operational decisions that drive both short-term and long-term organizational success. The assumption is made that accountants understand what the numbers mean; but what if numbers no longer tell the full story? Is there a danger that we may think we know what the numbers mean but in reality our "eyesight" is starting to fail us? That the images that were once clear are now becoming blurred?

Traditionally an organization's value has been reflected by its balance sheet – the statement of "assets, liabilities and net worth" at a specific point in time. Thirty years ago there was a reasonably high correlation between the value that the market place put on an organization and what its accounting records reflected. Using the S&P 500 at that time, on average about 80%, or $4 out of $5 of value was captured by the accounts. Today that number is reversed – on average $4 out of $5 is not reflected in the accounts.

As a result financial statements are missing a substantial portion of an organization's value.

Owners, investors, board members, management and even regulators receive limited information about what constitutes the difference in value. This problem is often highlighted during a merger or acquisition when the marketplace values an organization at a much higher level than the accounting information reflects. For instance, where there are buyers willing to pay a price in excess of the accounting value.

Accountants have a solution for this and it's called the creation of "goodwill" – the difference between the two values. But what is this difference really made up of? $4 out of $5 often represents the investment that an organisation has made to build a holistic "system" capable of designing and delivering products and services to its customers but for which there is no accounting record. Worse still, when these expenditures were made they were considered one-time expenses that were written off, lowering profits or even creating losses and depleting the owner's equity. It is often these depleted earnings that investment analysts use to base their projected future prospects on because financial or accounting records are their major source of information.

The recent quarterly results of Netflix are a great example. The company's actual results were double what analysts had projected: their earnings were up 71% year-over-year on sales that were up 32%. Some important drivers of enhanced profitability and growth came from intangible assets – those not included in the accounts as assets. As an example, Netflix has growing brand value coming from in-house developed shows that are attracting more clients, and impacting on local brand and growth through providing customized services and content in local languages.

Without insight into and an understanding of these organizational intangibles it is almost impossible for outsiders such as investment advisors to determine and evaluate organizational risk which ultimately will impact future results. Typically financial information is a lagging indicator whereas intangible performance is more "real time." As an example, poor marketplace performance will eventually show up as declining revenues – but by the time this occurs it's too late – the damage is done, customers have left and the brand has been depleted. Combine this with executive compensation approaches that are weighted towards short-term earnings and together these two factors can be a prescription for high risk and unanticipated results.

What then is the solution? Is accounting information no longer valid – or worse, is it misleading? To suggest that is too big a leap. However, relying on financial information alone should no longer be allowed as the principal guide

to organizational value, or as an adequate barometer of organizational health.

Financial information must be supported and supplemented by non-financial information that helps provide an insight into what is driving organizational performance and ultimately what gives the corporate entity "value."

Investors need a combination of both lagging, real-time and leading indicators that are laced together so as to better understand cause and effect.

First, there must be a greater understanding of the intangibles that drive creation of value: what they are, whether they are included in financial records and how they interact and impact overall organizational performance. The evolving work of organizations like the International Integrated Reporting Council (IIRC) and its framework for reporting multiple forms of value, Integrated Reporting (IR), should help. IIRC has developed six categories of organizational capital that drive the creation of organizational value. While one category, financial capital, is obviously the core of accounting, only some aspects of the other capitals are already captured in traditional accounting records.

Manufactured capital is only partly captured. Human capital is poorly captured, and in most cases treated by accounting

as a cost rather than an investment. Intellectual capital is poorly captured other than in some categories of intellectual property. Social and relationship capital is poorly captured, although some aspects of these can be shown when externally purchased – e.g., the value of a purchased brand or a customer list. Finally, natural capital is largely ignored.

The challenge is that many organizations still fail to understand and manage all six organizational capitals as an integrated system.

Current reporting gives little insight into decisions made to forego increased financial capital (profits) in exchange for the growth of other "capitals" like social capital (investing time and resources in the community), relationship capital (creating financial settlements with dissatisfied customers in order to protect the brand) or human capital (costs associated with the ongoing continual development of people). In reality, the decisions made to sustain one capital by moving resources from one to another should enhance overall organizational value and sustainability over time.

The challenge is that many organizations still fail to understand and manage all six organizational capitals as an integrated system.

Once there is an understanding of the intangibles that make up the $4 out of $5 then the question arises – how do you monitor the creation, sustainability, enhancement and depletion of these intangibles or "capitals?" The work of organizations like Seratio in identifying and measuring social value is one of many unique initiatives aimed at filling this information gap.

There are also existing approaches such as brand valuation that can help provide indicators around intangibles. The International Standards Organization issued ISO 10668:2010 as a framework for the effective creation of a monetary value for a brand. Indicators that assess human engagement within an organization can be shown to suggest a positive approach to human capital. In addition, the effectiveness of organizational leadership in sustaining a positive culture can be indicated through the results of 360° leadership assessments.

Internal audit results for compliance in areas such as process management, using frameworks such as ISO 9001 and environmental management such as ISO 14001 can also contribute to assessing the health of manufactured capital and natural capital. Audits against standards such as SA 8000 or more recently ISO 26000 can be used to indicate an organization's culture and investment in building relationships with suppliers and third parties. These approaches are individually likely to provide holistic answers, and most will be subjective rather than objective. But, together they will begin to build a framework of metrics that reflects organizations on a "whole system" basis.

Professionals of any background who provide input and contribute to decision making have what may be called a "sacred trust" to ensure their input is independent and objective. All professionals need to step back and reflect to make sure any evaluations and suggestions made as part of decision-making input is "in context." The evolving work around integrated reporting and the management and understanding of intangibles is a critical part of this, especially for accountants who need to make sure their vision is clear.

Islam coin or Carers coin

You buy what you want

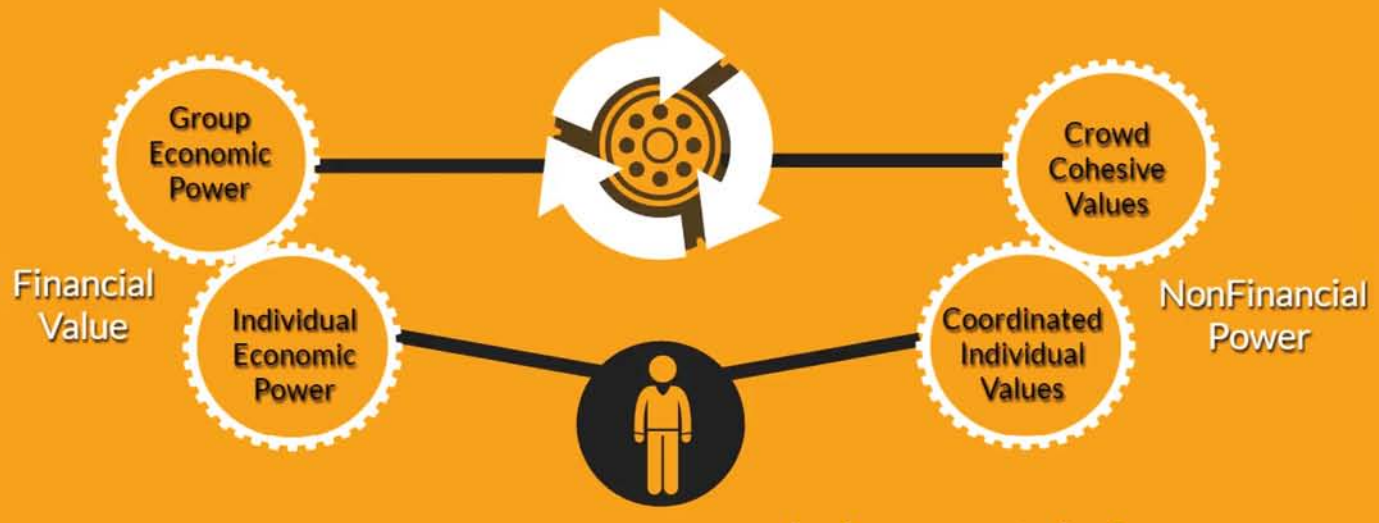
UN BLOCKCHAIN LAB CCEG.ORG.UK

SUSTAINABLE DEVELOPMENT GOALS

See our work at : youtube.com/TheCCEG

What is the Solution?

Empower the individual by building economic power as a way of group influence



currency enables this

Does Your Business Really Have a Purpose?

How Measuring Social Value Can Help a Company Understand Their Purpose

by **Rick Benfield**
CEO, thirdbridge

How does purpose relate to social value?

Purpose has become the latest buzzword in the toolbox of marketing departments worldwide. Let's take purpose to mean a company's reasons for existing. Understanding and communicating purpose should create an emotional connection with a company's customers that will, it's hoped, create the elusive stickiness of loyalty. If a company's purpose has real meaning, it can even help to change the culture of an organisation.

This can galvanise and motivate employees who feel that they are making a positive contribution in the world. It's powerful stuff.

No wonder companies are increasingly claiming to have a purpose beyond the creation of wealth for shareholders. They want to be seen as positive contributors to society. This creates a need for some sort of measurement Social Value to prove their purpose.

Whether authentic or not, this focus on purpose has brought the debate about the role of companies in society to the mainstream. As with the financial crisis of 2008, the results of the elections in the UK and the US are only going to further intensify the discussion.

Facebook's self-stated purpose is to "make the world more open and connected". However, they recently faced heavy criticism for allowing false news stories to circulate widely on the platform. This, allegedly, contributed to the outcome of the US presidential election. If the sharing and dissemination of information on its platform leads to a rise in discrimination, division, isolation and hatred - the opposite of its stated purpose – then surely Facebook must be held accountable. Could a more proactive measurement of social value have allowed Facebook to stick to their purpose and minimise negative impact? I think it could.

Effective measurement of the social value a company creates is crucial. It helps prove their purpose, and convince the sceptical public that they mean the nice things they say. It also allows evaluation of their progress towards that stated purpose. As was once said, "you can't manage what you can't measure".

How should companies approach the measurement of social value?

The measurement of Social Value in a company may start with the community investment projects that form part of their Corporate Social Responsibility (CSR) programme, but it must not stop there. Companies have impacts that go way beyond the CSR projects they may set up. Energy

consumption and carbon emissions from a factory, or the production of harmful products such as cigarettes, or the dissemination of false news on social media sites. The list goes on. The effects are very real and there is no reason why their overall impact should not also be assessed.

So how do we actually *approach* the measurement of social value? There are various ways to do so. One approach is to develop an impact framework that can be applied across all the projects, initiatives and activities of a business. This approach has worked for our clients at thirdbridge, including The Crown Estate and Diageo. The framework is structured around a set of overriding social and environmental goals, each with its own set of common metrics. These could include improving access to clean water, promoting sustainable agriculture, promoting gender equality or empowering women.

Measuring vague notions like 'reducing environmental impact' or 'supporting our local community' is hard.

Specific objectives are measurable and give a focus to every activity and decision; they make it possible to link everything a company does back to the over-riding social and environmental goals.

This facilitates a culture and attitude change in the organisation. It also allows a company to create a rolled-up view of their social impact, and the resulting social value, because every project/initiative or activity is associated with one or more of the overriding goals.

So how do you get started?

The starting point for any measurement approach is the end. What are you trying to achieve? What are the objectives? Considering your overarching purpose can help, but shouldn't restrict you too much. You should take into account your company values and wider strategic aims too.

Sometimes it helps to take a step back and ask the difficult questions. How do our products and services contribute to society? How do our activities impact upon people or the environment? What potential harm do our products cause? Which groups are impacted by our activities? What do our stakeholders care about? In sustainability circles this is sometimes framed as a materiality assessment. But it's not enough to just identify the environmental, social and governance issues that might affect your business. You need to consider what positive impacts you are actively seeking to achieve as a business.

Social value measurement is not an exact science – it is an evolving discipline.

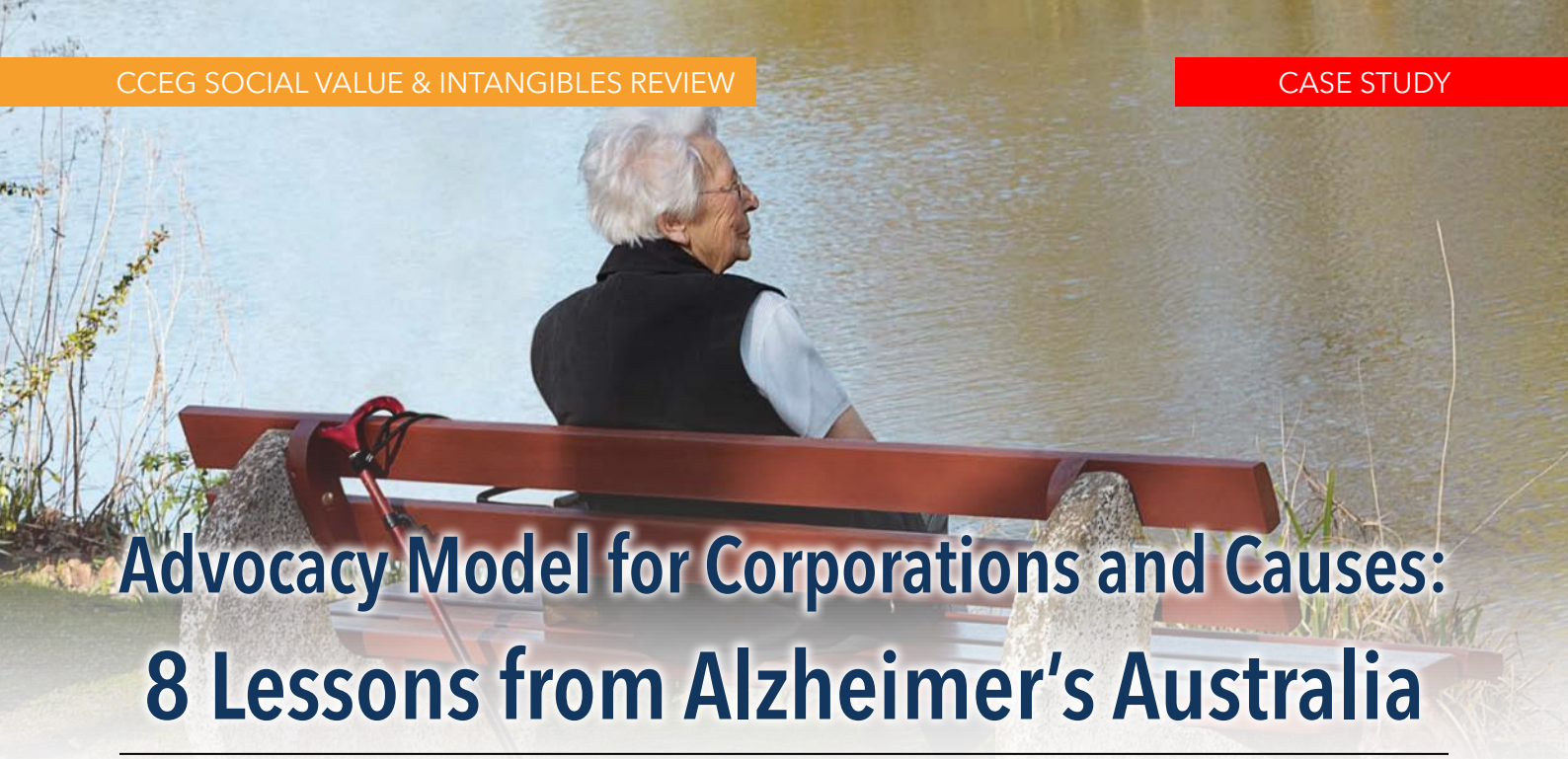
In conclusion, this is a journey, but one that can help you to achieve your purpose

There is no *one* way to measure and report social value, and the intricacies of *how* to do this warrant an article (or entire magazine!) of their own. But you have to start somewhere. First, define the specific social and environmental goals that you want to achieve. Then, clarify the positive impact you want to have. Finally, place this within an over-arching framework. This will help to put social value in context for your stakeholders. It will also give you a structure within which to make decisions.

Regardless of how you approach it, all organisations should consider how the creation of social value relates to their purpose. Will achieving your objectives and creating the subsequent social value *prove* your purpose? If not, then perhaps you need to change your purpose, or your business.

thirdbridge make it easy for companies to do good and report on it. They provide online software that makes it easy for companies to connect with charities, involve and engage employees in their initiatives, and report their social impact.

https://thirdbridge.co.uk/#/ | @thethirdbridge



Advocacy Model for Corporations and Causes: 8 Lessons from Alzheimer's Australia

Anaezi Modu is Founder and CEO of REBRAND™ and Producer of the REBRAND 100® Global Awards. Juried by an esteemed panel of international design and business leaders, the program is the highest recognition for transformed brands in business. She has been interviewed by renowned organizations such as *BBC* for her insights and case studies from a 1000+ library that includes brands such as ***Cancer Research UK, Fiji Airways, Audi, HP, and National Bank of Kenya*** that represents over 51 countries and 40+ industries. Linkedin.com/in/anaezimodu

An older version of this article appeared here:
https://www.linkedin.com/pulse/turn-unspoken-unforgettable-anaezi-modu?trk=prof-post

Alzheimer's disease is Australia's third biggest killer.

By 2030, it will kill more Australians than cancer.

Think about that for a moment.

Whether you live in Australia, Angola, Azerbaijan, or anywhere else, you may know someone affected by Alzheimer's. Even if you don't, you will soon understand why this rebrand was absolutely necessary.

Stick with me here on how and why the results were quite effective. I'll also share insights gleaned from this case study for your brand in whatever current state it's in. These apply regardless of whether you're a B2B or B2C (all P2P – person to person really) business, non-profit, a government agency, NGO, cause-driven organization or if you offer services and products to individuals locally or globally.

Before continuing with the story of Alzheimer's Australia, let me share a few thoughts on social value in branding.

When you're developing a new brand or transforming an existing one, this is a valuable opportunity to clarify your purpose and inspire with your vision. In our always-on and digitally transparent world, very little about an organization can be hidden. Customers and clients are quite sophisticated, and many access freely available information on companies. Harness your employees, leadership, and those you serve on the outside to represent and embody what you stand for. Social value is no longer optional. It is now demanded by customers, prospects, employees, and potential partners.

Here are a few stats on the increasing demand for brands grounded in social value and responsibility:

- 86% of engaged employees say they very often feel happy at work, compared to 11% of the disengaged - *Source: Gallup*
- 45% of employees would take a 15% pay cut for a job that makes a social or environmental impact. - *Source: Net Impact What Workers Want Study*
- 90% of shoppers worldwide [are] likely to switch to brands that support a good cause – *Source: Cone Communications/Echo Global*

- 55% of global online consumers across 60 countries are willing to pay more for products and services provided by companies committed to positive social and environmental impact *Source: Nielsen*

Back to Alzheimer's Australia…

As the founder of REBRAND, some are often surprised to learn that I caution against rebrands. This caution is clearly not for all rebrands. Rather, it's about the types based on frivolous reasons. Some examples? Here are a few from my list of do-not-rebrand cautions:

- **Ones focused only on an organization's look and feel**
- **Those that believe branding is marketing, rather than the core, organization-enabler**
- **Someone in a leadership position wants to exert his or her own personal influence before moving on to another company**
- **Those that believe that a rebrand is a one-time event, rather than an ever-evolving process**
- **When there's only interest in making surface changes, instead of addressing core, impactful issues**

With the Alzheimer's Australia story I want to be specific with this case study of a rebrand that had to happen from our showcase.

Some facts before the rebrand:

- **Few knew that Alzheimer's is expected to kill more Australians than cancer by 2030**
- **Alzheimer's disease is Australia's third biggest killer and there is no cure**
- **Alzheimer's care was only 112th in the country on the list for donations**
- **The government did not recognize it as a chronic disease.**
- **The disease had been stigmatized, underfunded, and ignored**

The InterbrandSydney team was charged with an important brief:

Turn the unspoken into the unforgettable.

They successfully inspired policy makers, patients, their care providers, and more to stage a protest march that led to incredible results.

You see, so often those of us involved in developing and managing brands use abstract concepts and jargon that clients often don't get. Example? Phrases like:

"A Brand is a Promise."

"Branding is Storytelling."

These phrases may have meaning to us while others' eyes glaze over. Worse, you may get nodding heads that are far from indications of agreement or understanding.

Well, the Interbrand team that partnered with Alzheimer's Australia did not have the luxury of resting on theoretical jargon. There was, and is, a real problem that had to be addressed. Immediately.

They were not building awareness and advocates among branding insiders who already knew the problem. Their goal was to harness energies and funds and ignite action among the general public, government policy-makers, potential donors, and more. The impressive results for this well-underfunded effort?

- **Government policy change, making Alzheimer's disease a national health priority with an additional $300m in funding**
- **33 Federal politicians signed-up to the Fight Dementia website and initiative**
- **Substantial funding from Pfizer and BUPA**
- **Launch generated $700,000 in free media**
- **150,000 downloads of Alzheimer's Australia iPhone app**

You can view the full Alzheimer's Australia case study with it's full summary on the website at http://www.rebrand.com

THE LESSONS

1. Be human

Show potential supporters the real human individual they can actually help. With permission, and if appropriate, show real examples of specific individuals suffering from Alzheimer's, not "actors". If permission is not possible, then find a way to describe the type of person(s) that will inspire potential donors and others to act.

2. Be simply bold, not passive

From the few before and after examples in this article, you see the very simple ways a focused message, strong graphics, clear language, and emotions expressed by *real* caregivers and families can effect *real* change for Alzheimer's sufferers. I don't say this lightly, since I know all too well that "simple" can be hard. It seems easier to just throw out a lot of facts and figures, rather than focusing on feelings and specific needs. At times, *it seems easier to clutter than to clarify*. Do your best to edit your message and other elements you use to grab attention and drive action.

3. Empower with passion and purpose

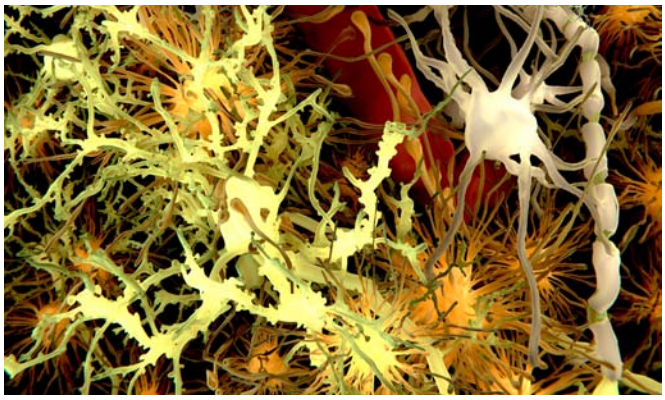
Stay focused on the purpose behind the problem you solve or are trying to solve. This will help inform your strategy, actions, behaviors, and how you inspire others to first benefit from, and then to join your efforts.

4. "Go where the love is"

My friend Jyoti Ganesh taught me this phrase that applies to many areas of life. Where your brand is concerned, direct your message to the individuals who most likely share your goals or benefit from your offers. This doesn't mean, however, that you stop with only those who are most empathetic to your cause. Once you have them squarely in your corner, they can help you reach and connect with a broader audience.

5. Help your community so they help you

Provide your advocates with all the possible tools and resources they might need to help increase your reach. First, thank them for their care and contribution. Then, ask them what you can provide them to deepen your connection and make it long-lasting.



6. Give desired guidance and guidelines

Tell me what you want me, the donor/advocate/policy-maker/happy customer, to do and help me do it. Learn more about what specific improvements about any aspect of your organization they would like to see implemented. Respond by actually making the recommended changes you can towards reaching your goals.

7. Build communities for support to get past the pain

Explore all possible ways to keep a permanent dialogue going between you and the groups you serve or target. Provide opportunities for these various groups and individuals to connect with you and each other, either in person, or digitally.

8. Harness brilliant breakthroughs from diverse places

Get out of your box. Seek ideas and input from unexpected places. Tell your story in venues off the beaten path. Collaborate with those you may have previously discounted. Look for the unexpected solutions.

Fresh perspectives come from a fresh perspective.

Admittedly, opportunities for real innovation and advancement are often missed. You know it's tough to get an unaware audience to embrace your message—in this case the subject of Alzheimer's was not even on the radar for a majority of the Australian public. Your best efforts will undoubtedly yield meaningful steps towards achieving your goals.

True commitment to winning means that you can't afford to ignore those areas where your best breakthroughs emerge. If you must, ask others to help reveal your blind spots. This prepares you to evolve and maintain relevance even as things change—which they inevitably do sooner or later.

There are more lessons from this winning and important brand transformation. I encourage you to see how the ones outlined above can apply to your business, cause, organization, or institution. Entities likely to win in the future are those that embrace the best aspects of non-profits with a clear purpose, inspiring vision, and discipline with the bottom line.

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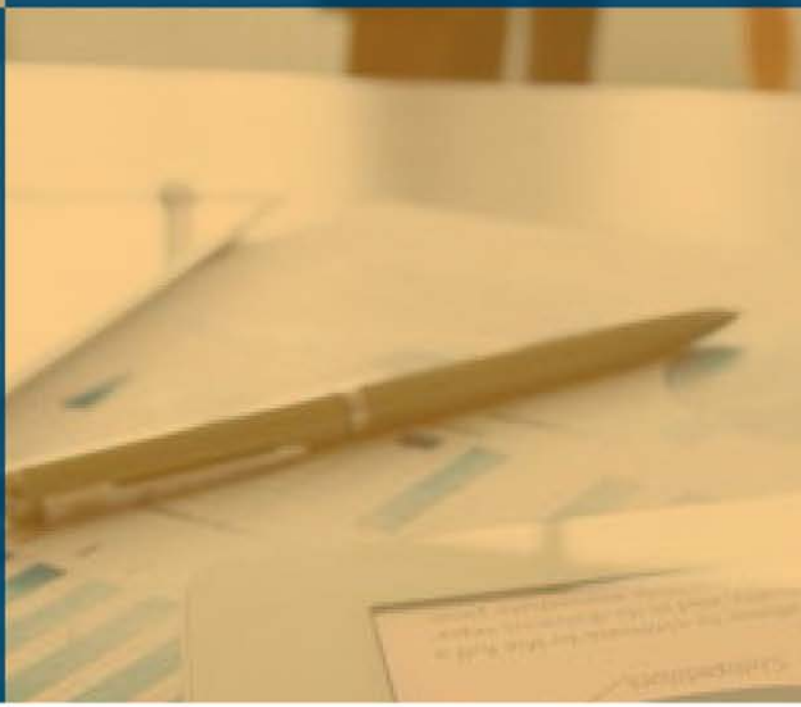

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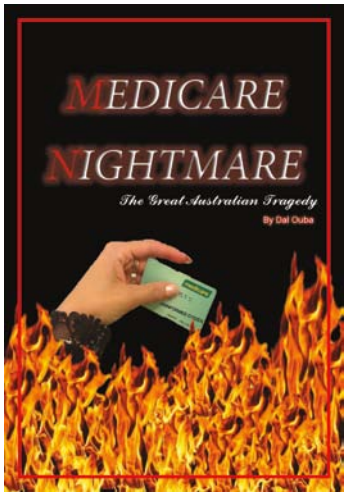
Improving Social Value Through Reconceptualising the Scope of Health Care Strategies

by **Dalal Ouba**
Director, Accelerate Australia

The current discourse on government health funding in developed nations has thus far been counterproductive and shortsighted. This is partly due to a poor understanding of what real health literacy entails and an inadequate medical information flow that often plagues health systems. As such, medicare systems across the developed world have fast become cosmic black holes; confounding to those who interact with them and endless sinkholes for precious, limited resources.

One perfect example of the dilemma of balancing access to healthcare services with ballooning health funding costs is the Medicare system in Australia. Through observing how a more integrated and holistic approach to healthcare strategies can benefit this system, it becomes clear how profound disparities in health outcomes, social value and the efficiency of burdened Medicare systems can be significantly **improved**. It did not necessarily require more financial outlay. Instead, it involved the incorporation of more explicit and proactive health literacy outcomes in educational curriculums, addressing impediments to medical information access in health systems and recognising the bidirectional impact between government systems and health outcomes.



The need to teach real health literacy skills in educational settings

Health Literacy is perhaps one of the most poorly understood concepts in developed countries such as Australia. In part, this is due to public and media discourse on the Australian health system which makes limited associations with the term and confuses adequate health outcomes with related yet distinct issues such as increasing public funding or utilising e-health records.

Moreover, it is a fact that Australian health consumers face more legal obstacles for compensation for negligence than any other area of law. Therefore, it is an imperative that we ensure that today's students become confident health advocates for tomorrow, in order to help counterbalance the power inequality that they will inevitably face when navigating their way through complex health systems.

For example, the Australian Science and PDHPE (Physical Education and Sports) curriculums have outcomes which encourage a healthy and balanced lifestyle through understanding life-style related diseases. Yet, they poorly prepare tech-savvy students who are not only *more* likely to utilize social and digital technologies to search for information on effective medical treatments and professionals, but are also *more* likely to consider both eastern and western remedies. Furthermore, even though the Australian Curriculum generally covers internet research skills and analysis of sources for objectivity, effective health outcomes still depend significantly on *chance* for most school leavers.

A recognition of the need for more *explicit* health literacy outcomes in education would

better prepare students to more effectively assess complex, future health challenges and make the most important decisions in their lives. Complex health challenges include, but are not limited to, finding effective surgeons for risky surgeries, time consuming and costly basic collection of medical statistics, and knowing when to switch effectively between private and public health services. This is especially true with high-risk obstetric and oncology cases.

Trying to deter patients from resorting to sources of information such as social media and online support groups only works against current trends in patient behaviour in technology oriented societies. We need to ensure that tech-savvy health consumers are equipped with more effective research and analytical skills and that their information access is *simpler*, *seamless* and as *stress-free* as possible.

The need for improved medical information flow in health systems

Poor **information access or flow** in Medicare systems leads to the dilemma of ***the 'Medicare Nightmare,'*** **(Dal Ouba, 2016)**. That is, *cumulative losses both on the individual and national level including adverse health outcomes caused by inefficient access to vital medical information*. The 'Medicare Nightmare' explains how this lack of efficient information flow or awareness dooms the Australian universal healthcare system to eventual failure and undermines the foundation of a nation's wealth - its health.

More preventative and proactive strategies are advocated for rather than reactive strategies such as increasing Medicare levies. Information access that allows patients to make *timely and effective* decisions regarding their treatment options is severely impeded due to costly barriers. For instance, complicated referral systems and access to medical professionals' success rates.

Even more startling is what emerges when we consider medical negligence statistics. They clearly show that most

Australian patients who feel they have been harmed through inappropriate medical care are women. The World Health Organisation has recently revealed that Australia has the *highest rate* of medical errors and negligence in the world. With approximately 50,000 Australians suffering permanent injuries, 80,000 hospitalisations due to medication errors and 18,000 preventable deaths occurring annually.

A myriad of issues then surface from a closer look at poor health outcomes. Such as, its contribution to social and gender inequality and the *disempowerment* of health consumers who are forced to accept complete liability for any medical decisions made. For a technologically rich society, this is perhaps the greatest tragedy. One would assume that information access should not be a major obstacle, yet it is linked to escalating medical errors and costs including health insurance premiums.

The World Health Organisation has recently revealed that Australia has the *highest* rate of medical errors and negligence in the world.

The need for recognising that blind cost cutting measures adversely affect all government systems

Poor health outcomes often also arise due to a general lack of recognition of the *bidirectional impact* of health system outcomes and other government systems such as education, legal, tax and welfare. When the education system produces health illiterate citizens, the negative economic flow-on effects are felt by other government systems such as tax and welfare. While individuals are forced to endure unsympathetic legal systems that restrict compensation.

A clear need can be established for a more integrated approach to improving health outcomes for all key stakeholders; including those in education, government and business. For ageing societies which value health equity, the sustainability of spiralling government spending on essential Medicare schemes has implications for social equality and is a more salient issue than ever. Needless to say, a healthier nation is a wealthier nation.

Reference: *'The Medicare Nightmare*: *The great Australian tragedy'* by Dal Ouba.

www.accelerateaustralia.net.au

The Profit of Measuring for Value ($+)

by **Haley Allison Beer,** PhD
Managing Editor, Social Value & Intangibles Review
Head of Research and Development, Centre for Citizenship, Enterprise and Governance
Assistant Professor of Performance & Responsibility, Warwick Business School

"Looking ahead to the next 15 years, there is no question that we can deliver on our shared responsibility to put an end to poverty, leave no one behind, and create a world of dignity for all."

Former UN Secretary-General Ban-Ki Moon

The definition of profit and progress in our economies is expanding to encompass more than just financial values. Namely, to include elements of social and environmental prosperity. People, organizations, and institutions are seeking for ways to understand this value[1] . Measurement is a key way to accomplish just that.

Measurement of one form or another has existed since the earliest civilizations known to man. The Mayans had sun dials which measured the course of the day, planetary alignments, and movement of the gods. The Egyptians and Sumerians developed calendars to measure the passing of time. The earliest barter systems had measures for the different talents, skills, and products available to be exchanged.Industrialization was fuelled by many metrics - production rates, population censuses, imports, and exports. Doctors have measures for health, education has measures for intelligence, drivers have measures for speed. In today's highly technology driven environment we can be attached to activity trackers like Fitbit all day long, tracking our heart rate, blood sugar levels, and quality of sleep if we want. All in all, measurement is everywhere. It is how people understand and interact within the world.

Yet, there is something markedly different about the measurement we conduct today and the way it was derived and applied historically. You see, in the past measurement practices had other functions than just knowing the properties of an object (activity, person, resource, process). The engagement in the act of measurement itself also served a purpose. For the Mayans, the various measured alignments of the sun, moon, and stars meant different rituals were to be practiced. The measure of talent in the Bible was something far deeper then capability to work- it implied a level of spiritual awareness. The early Jesuit accounting practices were not just a

"Le coeur de Lunaison" by Michelle Gouin

1. Thomson, S. (2016). GDP a poor measure of progress, say Davos economists. Global Agenda, World Economic Forum. Retrieved from: https://www.weforum.org/agenda/2016/01/gdp.

matter of monitoring resources, but also practices which led to morality building and reflection[2] .

In my study of the performance measurement of social enterprises I have uncovered that the nature of measurement has more facets than we typically consider when designing and applying it (see Figure below).

In fact, measurement is not only the production of a Key Performance Indicator, or a report, or a meeting- it is a practice which imbues a particular experience. Measurement pushes people to identify, describe and understand organizational phenomenon in a particular way.

This means social workers should not be measured solely on how cost effective or efficient they are in seeing service users, because this distracts them from the real purpose of working with people in need- to establish a trusting relationship and space for that person to grow. In other words, people are not independent of measurement, measurement is a way for people to experience and understand the world, and the intention and enactment of measurement matters for how people experience themselves, others, and organizations.

Most organizational and institutional measurement practices, at national and international levels, lack underlying meanings. Measurement in organizations is about growth, profits, productivity - symbols of money and indicators of capacity to spend money. End of (not very exhilarating) story. It is not about people, development, or meaningful individual growth. In fact it seems it is completely disconnected from these elements of life. Measuring growth and productivity from a financial perspective may symbolize hard-work and ambition, but it says nothing about the quality of these efforts. Social measures on the other hand consider how organizational efforts, which are ultimately peoples' collective efforts, are generating positive experiences for the people (not just the organization's bottom line).

Emerging social indicators such as $^+$, bring the possibility of moving organizational conversations and actions towards more holistic and healthy conceptions of our economies and hence also our selves.

What are the standards we want to hold ourselves to? Many people would agree that effectiveness and wealth in the form of financial profits alone does not necessarily signal prosperity and abundance. In fact, the richest people in our world are continuously turning towards investing not only their money, but themselves into social initiatives. Bill and Melinda Gates Foundation, Oprah Winfrey Foundation, Chan Zuckerberg Initiative, Hewlett Packard Foundation, and the list goes on. We might not all have the opportunity to contribute as much financial value to the world as the portion of the '1%' I just mentioned will have, but we can all contribute something- social value. And our chances of doing so are much higher if the organizations we interact with on a day-to-day basis are also speaking this language and appreciating the actions that go into the creation of such phenomenon.

In other words, we need measurement of social value - it will help us understand and move towards another world where the environment is cared for, societies are nurtured, and people develop self-care. The symbolism of measurement matters, and the symbolism of $^+$ is a positive one. One that does not disregard the humongous amount of work that has gone into creating our capitalist systems, but one that makes a huge leap in a new direction toward defining the true potentialities and outcomes of that system.

Measuring for social value, with indicators such as $^+$, is a chance at bringing meaning back into our institutions and practices: sentiments, positive attributes, humaneness.

It may not be perfect, but it is a highly promising alternative, that is available now, to any organization wanting to embark upon on a journey of greater social value and more meaningful profits.

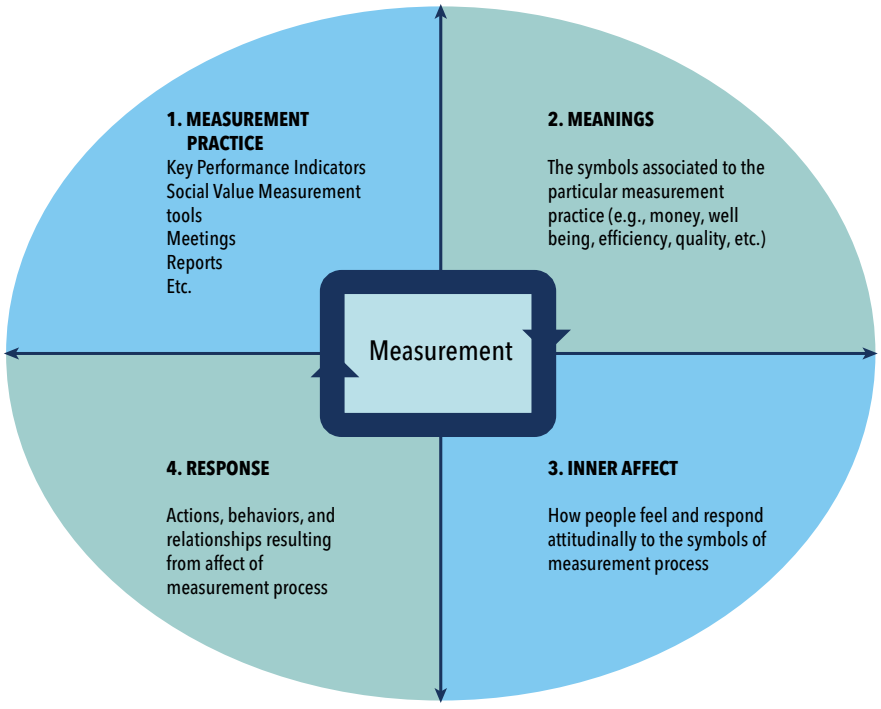


Figure 1: The Multi-Faceted Essence of Measurement

2. Quattrone, P. (2004). Accounting for God: accounting and accountability practices in the Society of Jesus (Italy, XVI–XVII centuries). Accounting, organizations and society, 29(7), 647-683.

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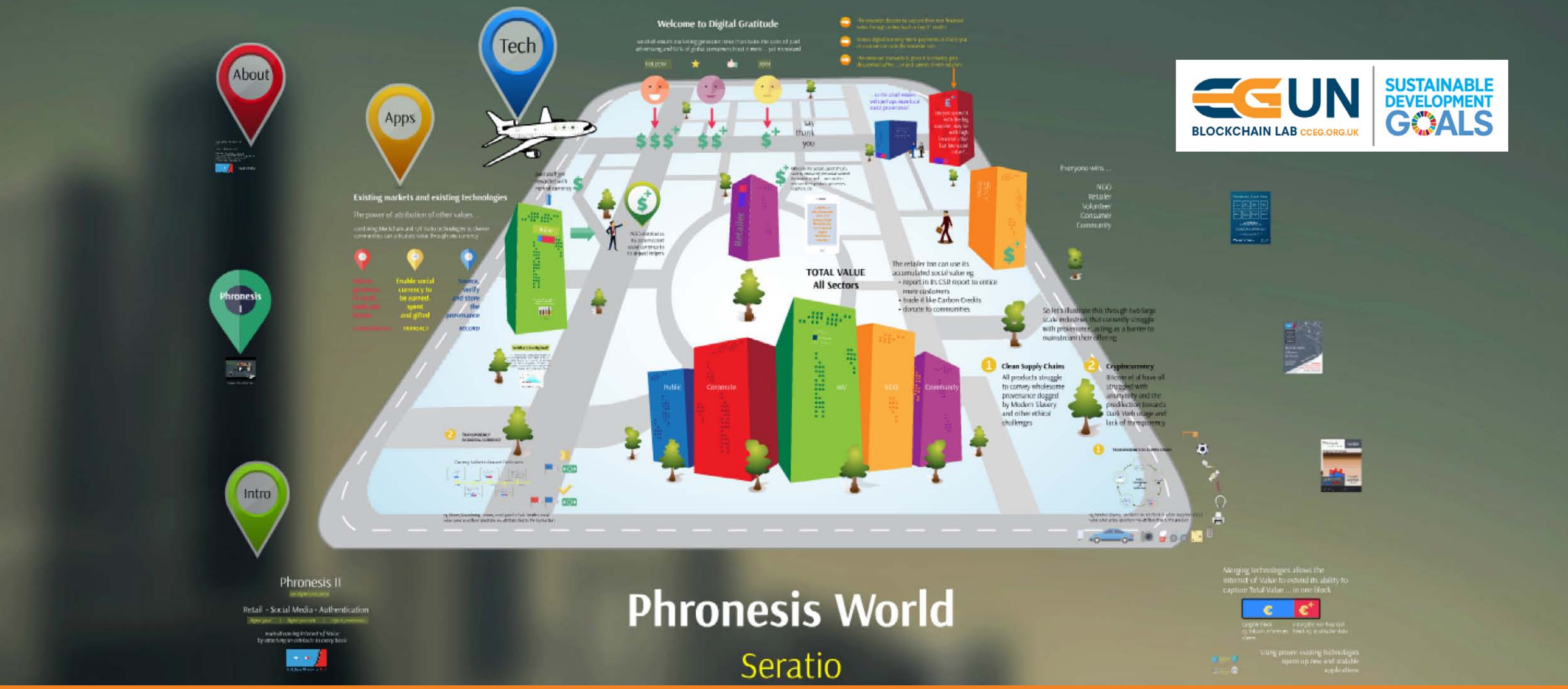
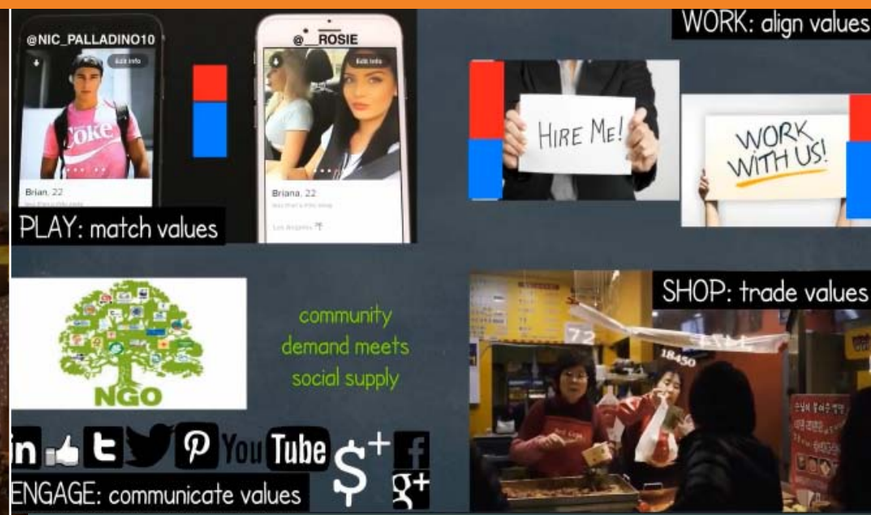
Blockchain Alliance for Good

Internet-of-Value
Digitising Social Conscience
University of Cambridge Conference



Regional and City Coin, creating a new Eco System youtube.com/TheCCEG



University of Cambridge Conference

INTERNET-of-VALUE: DIGITISING SOCIAL CONSCIENCE

11th November 2016

by **Adrian Pryce**
Creative Editor, CCEG

A bright blue sky November day in the historic University of Cambridge was the setting for a fascinating and profound roundtable discussion on the philosophical elements of blockchain distributed ledger technologies and their applications into various sectors for good outcomes. Organised by CCEG's Internet-of-Value Blockchain Alliance for Good, the conference brought together several leading thinkers and doers in the blockchain world, presenting and discussing the current state and future possibilities of blockchain.

Blockchain and the 'Internet of Value' holds the possibility to fully transact value in all its forms, tangible and intangible.

This could include, for example, the emotional and ethical value of transactions. The conference explored the emerging debate on the Internet of Value, and looked to the future in promoting enlightened ideas and potential outcomes.

Blue sky and heady atmosphere

The blue sky was symbolic of the event, with a meeting of minds as all the expert speakers, working individually in their specialist areas, sensed the emergence of a higher order of purpose and meaning to blockchain via shared value principles, as promulgated by the Blockchain Alliance for Good. The atmosphere was heady, almost revolutionary in its shared vision for a better, fairer and more democratic world – especially when set against the background of recent political shocks in the UK and the US, where there are signs of a rising populism as a backlash against globalisation, the establishment and ruling political and business elites.

Keynote speakers included Chandler Guo, an angel investor in Bitcoin and Ethereum start-ups, and Shaykh Siddiqi, a renowned Islamic scholar, Secretary General of the International Muslims Organisation and high profile representative of Islam in the media, Greg McMullen, Director of the Interplanetary Database Foundation, Mukhtar Mussabetov, Fintech and blockchain evangelist and Professor John Domingue of the Open University's Knowledge Media Institute.

Opening the conference, former senior banker Barbara Mellish, now President of CCEG's Blockchain Alliance for Good and also CEO of Seratio Ltd, set the tone for the day

by saying how the possibility of 'Total Value' exchange will revolutionise the financial as well as social sectors. Total Value = Financial Value + Non-Financial Value. It captures brand value, provenance, supply chain slavery, personal value, sentiment and other non-financial assets.

Our values have value

'Blockchain enables us to transact value based on our values' Barbara explained. 'Our values have value. We can now digitise that worth and will soon be able to transact it.' Wherever there is a community with a common belief or purpose, or shared values, the opportunity exists to unite them, articulated through their own currency. For example, religions, cities, environmental groups etc. will be able to exchange financial value in a way that clearly demonstrates individual preferences for social issues and causes, i.e. for social value.

Dr. Haley Beer, CCEG's Head of R&D explained how blockchain can take 'social value metrics mainstream'. In the same way that the internet revolutionised the transfer of information, blockchain can revolutionise the transfer of value. Traditional financial systems, with their narrow focus on money and wealth, create asset bubbles and extremes of wealth and poverty. Recognising social value in transactions, however, would give transparent value to the change in condition of society and people - in terms of knowledge, health, wellbeing etc. – arising from the transaction. The ground-breaking conceptual thinking and mechanisms behind this were explained by Maryam Taghiyeva, CCEG's Senior Development Analyst in her address to the conference.

Bringing purpose to Bitcoin

Chandler Guo, on this, his first visit to the UK, discussed his Bitbank mining approach. Bitbank is one of the biggest Bitcoin miners in the world, generating up to US$8m in digital currency per year, according to the BBC. Before the conference, Chandler admitted he did not see clearly how Bitcoin would evolve, but following the presentation by CCEG's Maryam Taghiyeva, he stated that 'this is going to be bigger than Bitcoin' adding that he felt it was offering a whole new direction of travel for, and a purpose to, the Bitcoin movement.

In similar vein, Shaykh Siddiqi, who speaks for the community of 1.5 billion Muslims around the world, shared with the audience that the Blockchain Alliance for Good was one of the most exciting and far-reaching initiatives with which he has been involved.

The concept of an Islamic crypto-currency that conveys good Islamic values in transactions offered the prospect of a powerful mechanism to change the world for the better.

Revolutionising higher education

One organisation with a clear mission is the UK's Open University (OU) the largest university in the UK who make quality education available to all through distance learning, easily accessible by all in terms of flexible learning and pricing. One of the OU's more recent initiatives is OpenLearn, bringing free knowledge resources to 45 million learners around the world.

Prof. John Domingue, Director of the OU's Knowledge Media Institute, is leading an impressive team responsible for blockchain development at the Open University. He is tasked with making blockchain central to the OU's operations, and runs the 2nd largest blockchain laboratory in the UK. This sits alongside MIT in the US at the vanguard of blockchain in higher education. John explained how he was building a distributed ledger foundation for course content, grading, accreditation and validation in a way that students can develop and display their academic records, where they are the owners of their personal data and profile.

Quoting examples from around the world, including Sony's Global Education Programme, he showed how frameworks are being created for the sharing of academic proficiency and progress, in ways that will revolutionise job search, career development and recruitment through greater transparency and security and lower processing costs. This gives scope for greater collaboration between educational institutions and the prospect of a significant change in the higher education sector through disaggregation and disintermediation.

The conference also heard via video link from Ashish Gadnis, Chair of the Financial Inclusion Committee of the Wall Street Blockchain Alliance and CEO of the award-winning blockchain application BanQu. BanQu is the first ever blockchain Economic Identity Platform that is helping to create long term economic resilience and independence for refugees and people living in extreme poverty. Ashish, who is a senior strategic adviser to many global organisations including the UN on the 2030 Sustainable Development Goals, shared his experiences in economic identity and asset registration in under-developed countries where systems of individual record-keeping and land registry are weak.

Democratisation of distributed ledgers

Much has been written about the democratisation of the internet, despite the growing dominance of a few companies such as Google and Facebook. What of blockchain? Greg McMullen, Director of the Interplanetary Database Foundation, shared his work on and vision for a shared global computing infrastructure that would enable the distributed ledger frameworks to be truly open source in terms of content, resources and control. He and his colleagues are developing a network of nodes that will together constitute a public blockchain database.

Working with a series of blockchain entrepreneurs and developers, Greg gave details of the COALA IP working group that is developing the global protocol, which will be based on existing building blocks such as the LCC and IPLD frameworks. They are creating an Interledger Protocol (ILP) connecting many blockchains with the idea of formalising their vision into a planetary blockchain database supporting the COALA IP Protocol (see Coalaip.org)

The future? Trust and a borderless world

Following these reports of current and near term initiatives, Fintech expert Mukhtar Mussabetov gave a thought-provoking address on potential medium to long term developments in the blockchain space. Initially looking back in time to the emergence of middlemen who provide trust and transaction management systems, he expressed a common perception that trust in such intermediaries, who have grown to yield significant political as well as financial power, has broken down. This is evidenced in many ways, including the recent political upheavals and indicators such as the Edelman Barometer *www.**edelman**.com/trust2017*.

Mukhtar framed his thinking along three dimensions – citizenship, political systems and economic development. In terms of citizenship he projected forward Ashish Gadnis's individual identity platform as he foresaw a unified global blockchain ID standards database. In terms of politics, he believes that distributed ledgers can develop into tools for direct rather than representative democracy – and that this could help knock down national boundaries as issues of common international concern could be simultaneously voted on around the world.

In his final prediction for the future, he built on this borderless world idea in terms of economic development being based on smart blockchain-based property records which together with the legalisation of crypto-currencies will facilitate global economic development at planetary and local level, but not necessarily at the state or national level.

Heady stuff – and a higher order awakening

All who participated in this conference went away with a deeper understanding of the multiple aspects and applications of distributed ledgers and their ability to disrupt and revolutionise established views and ways of doing things. However, the importance of this conference came from a 'higher order' awakening. They also left not only with a wider perspective of the power of blockchain but also a deeper, or better said, higher order understanding of its power to transact and convey intangible social as well as financial value – and the potential far-reaching benefits for a fairer and better society.

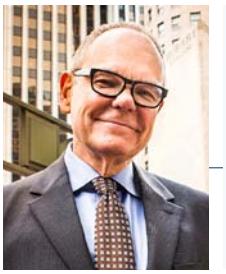
The Internet of Value – can we really make it happen? CCEG's social value metrics are key to this critical opportunity. We must not squander it. If the mood of this conference is anything to go by the future looks rosy, with many blue skies ahead. Videos of the presenters, together with post event interviews are available at https://www.youtube.com/user/TheCCEG

BLOCKCHAIN REVOLUTION

A Platform for Truth and Trust

by **Raisa Ambros,** Editor
CCEG Social Value & Intangibles Review

Interview with **Don & Alex Tapscott**

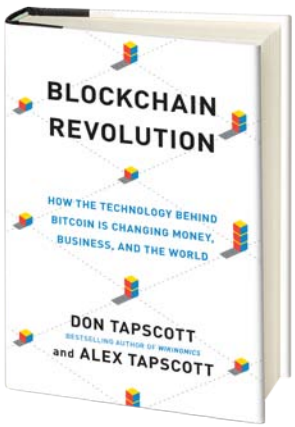


Don Tapscott, CEO of The Tapscott Group, is one of the world's leading authorities on the impact of technology on business and society. He has authored 16 books including *Wikinomics: How Mass Collaboration Changes Everything* which has been translated into over 25 languages. His most recent book (co-authored with his son Alex), *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World* has been a bestseller in Canada since its launch and has been featured in nearly every major news publication in the world.

Alex Tapscott is a globally recognized thought-leader, speaker and writer focused on the impact of emerging technologies on business, society and government. Alex is the co-author (with Don Tapscott) of the critically acclaimed #1 Globe and Mail Non-fiction best-seller, *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World*. Alex is also the founder and CEO of Northwest Passage Ventures, a social innovator. Alex currently sits on Advisory Board to Elections Canada, the independent, non-partisan agency responsible for conducting federal elections and referendums, and is a founding Member of the World Economic Forum's Global Futures Council on Blockchain.

Q. ***Your book Blockchain Revolution:* How the Technology Behind Bitcoin is Changing Money, Business, and the World *is one of the most appreciated in the digital currency field. How exactly will blockchain fundamentally transform the internet and business in the next 25 years?***

A. Profoundly. In fact, Blockchain technology represents nothing short of the second generation of the internet. For 40 years we've had the internet of information, which has transformed the way we communicate and how we access information, but it has not fundamentally transformed how we do commerce in the economy. This is due to the simple reason that to transact, start a company, or do business online we still rely heavily on middlemen like banks, social media companies, or governments to create trust. We also rely on these intermediaries to perform basic business logic - clearing, settling, contracting and record keeping. With blockchain the interenet is entering a second era - from an internet of information to an internet of value - enabling individuals, companies, smart devices, and AI to do business and build value peer to peer. To be certain, this will transform many industries such as financial services, healthcare, manufacturing and others, but more importantly it will allow us to rethink and reimagine radical new business models and new ways or organizing capability in the economy.

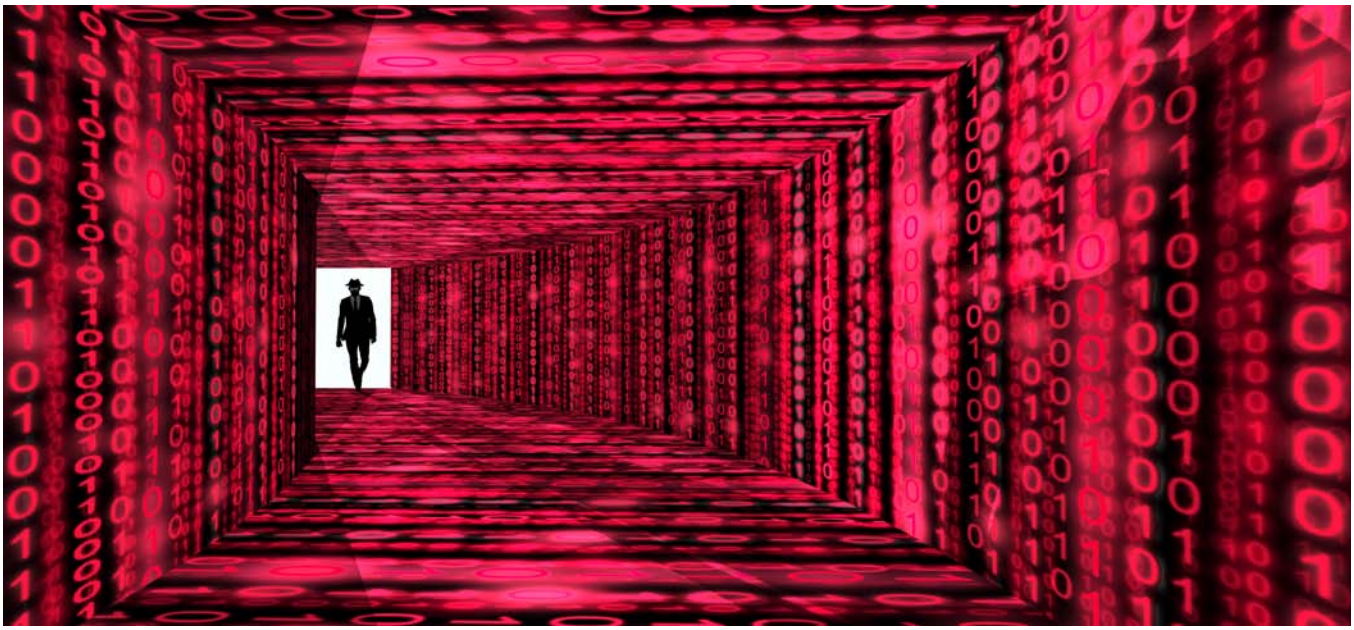


Q. ***You said blockchain technology is the biggest innovation in computer science, and is essential to unlocking the potential of the Internet of Things. What are the capabilities of this innovation and the transition to the Internet of Value?***

A. If prognosticators are correct, in the near future there will be hundreds of billions if not trillions of internet-enabled things and devices, doing everything from monitoring our health, to driving us around, to managing our affairs and generating our electricity. These devices will need a way to communicate value – both monetary value and sensitive data requiring security – securely, privately and peer to peer. In short, the Internet of everything needs a ledger of everything. Consider energy production. If a lightbulb in your house meters electricticty from your neighbour's solar panel, bidding daily in a distributed energy market, that transaction simply cannot clear and settle efficiently on a traditional payment network – you need a blockchain.

Q. ***What is your definition of a blockchain that enables Social Value creation?***

A. Well, any blockchain can be used to enable the creation of social value. The technology is, of course, just a tool and it can be used for good and bad applications, which is true of all human inventions. Fire can be used to heat your home and also burn it down, right? We are convinced that blockchain has powerful democratizing affects. Consider financial inclusion - the unbanked will no longer need a formal relationship with a financial intermediary to access the nuts and bolts of retail banking, such as savings and payments. How about property rights? Most people in the developing world have a flaky title to their land, making it hard to sell and borrow against it. If property ownership were recorded on a distributed ledger – as is being piloted in Georgia, Sweden, Illinois, and Dubai (to name a few) no single entity like a corrupt local official or fraudster could change the ownership.



Q. ***You call blockchain "the World Wide Ledger." Why do you think decentralized autonomous organizations and decentralized government services are better than centralized ones?***

A. Decentralized autonomous organizations describe a new breed of company, government or institution that allows large groups of indivduals to build value and organize capability peer-to-peer through smart contracts - basically self-executing and immutable agreements between parties. It's an exciting area, but not one that is proven to work at scale just yet. In government it could act as a democratizing force, holding government officials accountable for their words and actions. You could elect someone with a set of smart contracts that stipulate they only get paid or gain access to taxpayer money if they actually do what they said they would do. This makes them accountable to citizens and not special interests. DAO's could also enable a more just and robust sharing economy, where the creators of value share not only in fees but also in the underlying equity value, through cooperative modes of production. You could build a distributed version of UBER – from identity and reputation to contracting and payments - without a powerful company acting as the arbiter and coordinator of all activity. In that sense, blockchain and cooperative modes of production could disrupt the disruptors.

Q. ***These new blockchain technologies facilitate peer-to-peer transactions without any intermediary such as a bank or governing body. When do you predict it will become material as a future challenge to our current banking systems? How will the existing control authorities begin to accept the loss in control over transactions?***

A. It's already happening in many ways - consider how new ventures access growth capital. Traditionally, companies target angel investors in the early stages and later venture capitalists, eventually culminating in an initial public offering (IPO) on a stock exchange. This industry supports a number of intermediaries such as investment bankers, exchange operators, auditors, lawyers, and crowd-funding platforms (Kick-starter, Indiegogo, etc.), to name a few. Blockchain changes the equation by enabling companies of any size to raise money peer to peer through global distributed share-offerings. This new funding mechanism is already transforming the blockchain industry. In 2016, blockchain companies raised an impressive $400 million from traditional venture investors and nearly $200 million through what we call *initial coin offerings* (ICO not IPO). These ICOs aren't just new cryptocurrencies masquerading as companies. They represent content and digital rights management platforms (Singularity), distributed venture funds (the DAO, for decentralized autonomous organization) and even new platforms to make investing in ICOs and managing digital assets easy (ICONOMI). In 2017, we expect blockchain startups to raise more funds via ICO than any other means, marking a historic inflection point.

Q. ***Could we see a reduction in the predominance of cash with a transition to global cryptocurrencies in the developing markets in the coming years?***

A. We don't think you need cryptocurrencies to see a migration away from cash. In fact, it's already happening in many parts of the world. Cash is not inherently bad, but it is inefficient, adds cost, is frail and is the grease on the wheels of the dark economy. So moving away from it should have salutory effects. As for a global cryptocurrencies - we'll see. Bitcoin is growing in usage but we're skeptical it will ever become a global currency, outstripping the US$ and others. What could happen instead is cryptocurrencies like Bitcoin and Ethereum grow in relevance alongside fiat cryptocurrencies that are under the purview of governments and central banks.

Q. ***Many banks, governments and institutions are the focus of hackers. What real innovation and advantage does blockchain bring in cybersecurity terms?***

A. Smart regulators, governments and law enforcement see the benefits of having an immutable database of transactions, even if those transactions are near-anonymous. Combined with smart policing and other data, it makes it easier to trace criminal activity than crimes that are perpetrated with cash.

Q. ***"The idea of a distributed database where trust is established through mass collaboration and clever code rather than through a powerful institution that does the authentication and the settlement." What is your theory about the trust protocol - that enables us to do commerce, to do transactions, and to exchange money without a powerful third party? How and when do you believe the theory will become a mainstream reality?***

A. We've already covered the why and the how. As for the when - we believe the future is not something to be predicted, but something to be achieved, and right now there are entrepreneurs, coders, business leaders and governments all acting on this powerful new technology to make that future a reality. But there are a lot of challenges to making it a mainstream reality. Some of them are technical, i.e "can we scale the technology to meet these high demands" to policy-driven, "can we ensure governments take an enlightened approach and don't over or underregulate this technology in a way that prevents it from reaching its potential."

Q. ***"The blockchain is a global spreadsheet - an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value and importance to humankind". Could you explain how the new platform ensures trust and integrity?***

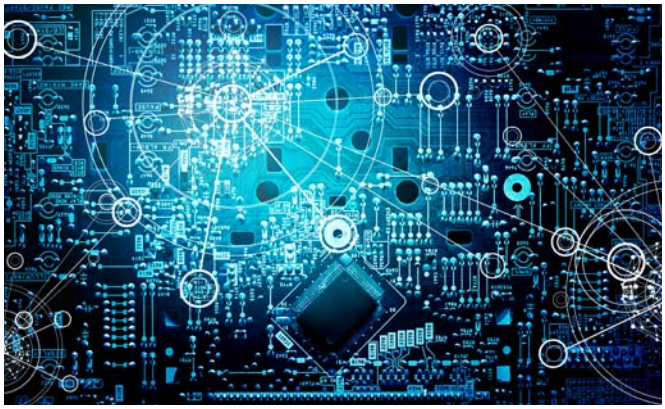
A. Blockchains are simply a much more secure and efficient mechanism to move and store value. To hack a blockchain you'd have to simultaneously attack multiple computers at the same point in time, all around the world, battling against a network designed to protect its efforts. It's tough. That's why the bitcoin blockchain, for example, has never been hacked.

Q. ***"An immutable, unhackable distributed database of digital assets. A platform for truth and for trust." Do you believe the blockchain will be used only for good reasons and that all people around the world could come to trust one another?***

A. As for good reasons, of course not. As we said earlier, technology is just a tool. It has no moral agency. There are endless examples throughout history of seemingly innocuous inventions being used to harm. Regarding trust, blockchains don't eliminate the need altogether for trust. If I want to borrow money the person or persons lending it to me must trust or have some assurance I will pay it back if something goes wrong. But blockchain removes the need for trust in the execution of transactions and agreements – such as payments and contracts – and that will be very powerful..

Q. ***How could the technology impact the way we manage issues of trust, security and privacy for years to come? Why could blockchain secure a better privacy protection than our present institutions?***

A. The fact that it's distributed and not centralized means it's harder to hack. See above.



Q. ***"Transformations for a prosperous world: rather than re-distributing wealth, could we pre-distribute it?" How could we democratize the way that wealth gets created in the first place? Would you agree to show to the world where your money come from?***

A. Yes. Billions of marginalized people will have a better chance of entering the global economy, through financial inclusion and the strengthening of property rights. Wealth for the world's poorest will no longer be tied down by the limits of cash in the grey economy, as more people will have the means to make payments, store value and access credit globally. Rather than trying to solve the problem of growing social inequality through redistribution alone, we can change the way wealth – and opportunity – is pre-distributed in the first place. Farmers can connect to global supply chains. Musicians can get fairly compensated for the content they create. We can build a true sharing economy where the creators of value actually share in the wealth these new platforms create. The list goes on.

Q. ***"Imagine a technology that could preserve our freedom to choose for ourselves and our families." In which ways can blockchain help us to control our own destiny?***

A. By allowing individuals to have more control over their data and their identities. A fascinating thing has happened over the last twenty years - the creation of a whole new asset class called data. But the funny thing about it is that we all create it but we don't own it. It's owned by intermediaries. The virtual you, owned by corporations and governments, knows you better than you know you. This prevents you from using that information to organize your life and also could undermine your privacy if it ends up in the wrong hands. With blockchain, we can own our sovereign identity and only divulge certain necessary bits of information to gain access to a service. That will restore privacy, for sure.

Q. ***The blockchain will create winners and losers. "And while opportunities abound, the risks of disruption and dislocation must not be ignored." Who will be the winners and who the losers?***

A. Blockchain is not an *existential* threat to those who embrace this new technology paradigm and disrupt from within. The question is, who in the financial services industry will lead this revolution? Throughout history, leaders of old paradigms have struggled to embrace the new. Why didn't AT&T launch Skype or Visa create Paypal? CNN could have built Twitter, since it is all about the sound bite, yes? GM or Hertz could have launched Uber, and Marriott, Airbnb. The unstoppable force of blockchain technology is barreling down on the infrastructure of modern finance. As with prior paradigm shifts, blockchain will create winners and losers. We would like the inevitable collision to transform the old money machine into a prosperity platform for all.

Q. ***Seratio and Blockchain Alliance for Good are backing various projects on blockchain including the shared values of each community like the UN Sustainable Development Goals coin, the Islamic coin, the Caregivers coin, the Woman coin, the Diaspora coin, etc. How do you see the future idea of every community transacting inside and outside it with its own currency?***

A. Wow. Interesting idea. I think you need to be careful in defining what these digital assets are and what they do. Fewer currencies are better than more currencies generally. How fungible and liquid could a Caregivers coin possibly be, right? If it's illiquid, has a tight float, and is worth very little than it performs literally none of the functions of a currency. On the other hand, if these digital assets enable people to come together to build value or solve problems, instead representing the value of some cooperatively owned product or service, than that should be celebrated and encouraged.

Is Blockchain Procurement the Future for UK Universities?

by **Nick Petford**
Vice Chancellor and CEO, University of Northampton, UK

Procurement in UK universities has undergone something of a mini-revolution in recent years. The renewed interest is evident in the 2013 establishment of Procurement UK, a sector-wide body with strategic oversight of procurement issues. An initiative originating from the 2011 influential report *Efficiency and Effectiveness in Higher Education* by Universities UK (UUK).

The report came out at a turbulent time. The country was in the midst of a recession, with falling governmental budgets and the cap removed from tuition fees. From a political point of view, it was clear universities had to show they were taking positive action to improve efficiencies.

Every year UK universities spend around £10bn buying goods and services, everything from energy and catering to IT systems and major construction projects. Procurement is the second biggest part of a university's budget after pay. However, procurement need not be about lowest price. There are significant opportunities for innovation and creativity in the purchase of goods and supply chain management more broadly. The UK Social Value Act 2012, yet to live up to its noble aspirations, nonetheless gives permission to develop a strategic approach to procurement that factors in both social and environmental returns. At the same time, Blockchain technology provides a new way for organisations to engage with technology (specifically Web 3.0 and the Internet of Things) to reduce cost, improve speed and transparency and integrate social value across the procurement function.

Blockchain technology provides a new way for organisations to engage with technology to reduce cost, improve speed and transparency and integrate social value across the procurement function.

University procurement is getting better, fact!

Procurement UK, working closely with regional purchasing consortia across England, Scotland and Wales and associated regulatory bodies, has helped raise the game of procurement in UK universities. For example, we have improved the profile of procurement with the inclusion of procurement themes in leadership programmes and engagement with government. We have created a Higher Education Procurement Academy (now the Higher Education Procurement Association) to aid training and development. There is now a more coordinated approach to collaborative procurement in England, helped and supported by the newly established Procurement England Ltd. The sector has moved from a baseline collaborative procurement spend of circa 10% in 2010 to close to 30% in 2016, a significant achievement. Finally, we have seen a roll-out of Procurement Maturity Assessments (PMAs) across English higher education institutions.

Scottish HE institutions have taken a similar approach with their Procurement Capability Assessment (PCA), run annually since 2009.

A PMA is an independent assessment of an institution's procurement function and provides participants with a bespoke action plan for improvement, a baseline to measure improvements, along with benchmark scores against similar institutions. Their purpose is to help institutions understand and improve the efficiency and effectiveness of their procurement functions, which can in turn lead to cost savings.

To date, 96 English Universities have participated in PMAs with five at a Superior level of maturity (Figure 1). However, these benchmark metrics are only scratching the surface. The potential for Blockchain technology to turbo-charge the procurement process is set out below.

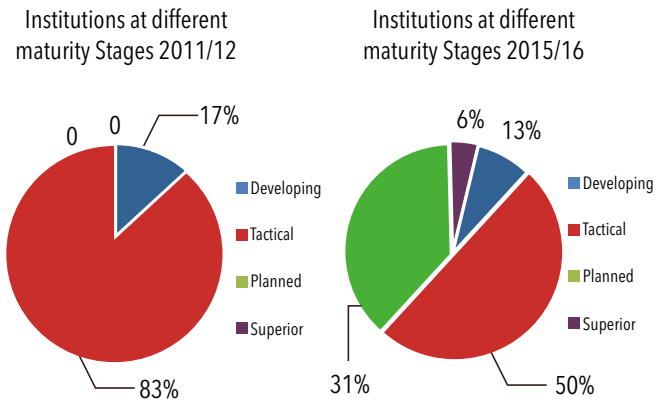


Figure 1
Development of Procurement Maturity in universities 2011/12 to 2015/16.

Brexit, e-procurement and a step towards Blockchain

The Brexit vote on June 23, 2016, has introduced a level of uncertainty around public procurement that includes universities in the UK. If the UK remains part of the single market then the odds are that not much will change. Even if terms are negotiated in a so-called 'hard Brexit', the UK will still be party to the World Trade Organisation's Government Procurement Agreement (GPA), adopted by many countries the UK would wish to trade with independently. One area of innovation the UK must keep up with, whatever the final terms of Brexit, is e-procurement.

The European Single Procurement Document (ESPD) is a step in the right direction, enabling organisations to use a portal to receive and run tenders. This electronic form of procurement negates the need for paper-based documents and allows bidders to refer to pre-existing material. But why stop here? The next obvious step is to use the power of Blockchain technology to both speed up the procurement process and embed a level of transparency that identifies and codifies genuine social value throughout the supply chain.

Blockchain procurement

Blockchain is the technology behind crypto-currencies like Bitcoin. It can be used for public or private ledgers to record both financial and non-financial value (social or environmental value) in supply chain transactions. These transactions are held in a unique, distributed database of data blocks free from tampering or revision. Each transaction generates a series of numbers and letters that uniquely identify the parties involved and the amount of 'currency' exchanged. Although specific parties are protected, financial details and other data are traceable through the various transactions undertaken. In this way both the authenticity and transparency of transactions are guaranteed.

Put another way, imagine peeling back the lid of a row of sardine tins illustrating different supply chain providers, from originator to end user, to peer inside and check what is going on for yourself. This is the power of Blockchain- it has the ability to delve into and demonstrate the inner workings of each provider within and across industry sectors and validate claims made independent of the vendor. The software behind the ledger system is open source. Finally, Blockchain removes the need for transaction fees imposed by third party intermediaries, thereby reducing costs.

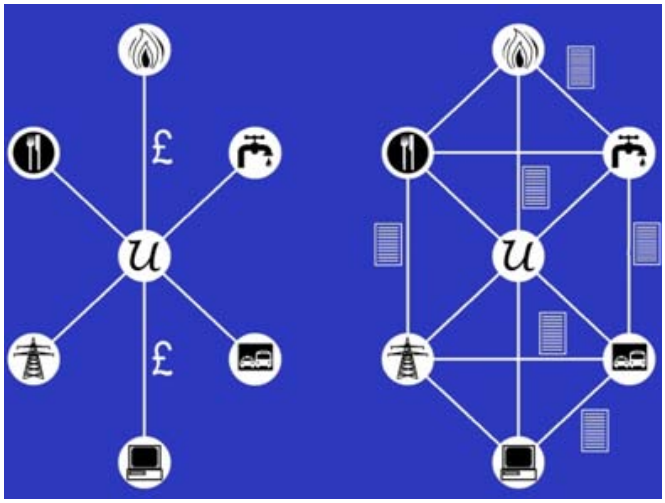


Figure 2 *Traditional university (u) purchasing via a centralised system of individual contracts based on lowest price (£) compared to a decentralised purchasing network (Blockchain model), with ledgers recording social value.*

Figure 2 shows how Blockchain could evolve in a university setting where purchasing is done centrally via a set of individual contracts with suppliers (the system now) compared to a decentralised (Blockchain) model where smart contracts (ledgers) are cross-linked and visible to all parties. Viewed this way, the implications for social and environmental procurement are profound. For example, it becomes straight forward to assess whether or not child labour was involved in some manufacturing process. Or if hazardous materials were used in a construction process. Or what really is in foodstuffs we buy and eat.

As an example of what is achievable, Everledger is building a data network for tracking diamonds in circulation using their identifying features and serial codes to help eliminate crime due to fraudulent transactions. The public ledger means diamonds can be traced back to their origins, and makes it difficult to sell stolen gems not on record. Similar technology could be applied to other industries concerned with authenticity and traceability such as leather manufacturing.

Ethical and environmentally responsible supply chains

One part of the UK Higher Education sector ripe for early adoption would be Scotland. Here changes in legislation involve not just the introduction of new EU procurement rules but more significantly, the Scotland only Procurement Reform Act. This highly prescriptive item of legislation brings regulated procurement activity to recurrent spend as low as £12.5k per year, as well as specific requirements for publishing and reporting on procurement strategies. Additional rules are still emerging specifically in relation to construction procurement, with Advanced Procurement for Universities and Colleges Ltd (APUC) working in partnership to support the sector in relation to these.

As an example of what can be done using the current system, APUC continues to move forward using the traditional model (Figure 2) to gain greater understanding of the ethical and environmental standards across the supply chain. All collaborative agreement suppliers have been prioritised based on risk and spend using in-house developed supplier assessment tools. Human rights in the supply chain are also an increasing area of concern. Traditional methods and best practice approaches with options for more wide ranging international collaboration, using the power of public procurement to drive real and effective change, are being explored.

It is easy to see how a Blockchain approach to this well-defined procurement challenge, based on a local network

where multiple organisations are connected via a single ledger could be scalable, given the degree of supply chain integration and political support already garnered (Figure 2). A successful pilot using Blockchain procurement in Scotland could pave the way for roll-out across the rest of the UK university sector.

In summary, as Blockchain technology becomes more common, it's easy to see the potential for procurement. As well as using crypto currency to purchase goods and services (underpinned by Blockchain), the technology offers a whole new way to check and monitor social and environmental value in the supply chain while lowering the cost of transactions and improving efficiency. UK Universities, through on-going collaborative work and supportive regulatory frameworks, along with in-house expertise in Blockchain development (for example the Open University Knowledge Media Institute) has a wonderful opportunity to take the lead, including certification of procurement professionals through qualifications underpinned by Blockchain technology itself. It won't happen overnight. But we should not miss the opportunity.

A successful pilot using Blockchain procurement in Scotland could pave the way for roll-out across the rest of the UK university sector.

THE UNIVERSITY OF NORTHAMPTON

DBA
DOCTOR OF BUSINESS ADMINISTRATION

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The Northampton DBA is a part-time programme that typically runs over four years. The first two years are structured around facilitated modules that provide the foundations for the research project, the main element of the DBA. This research project needs to make a significant contribution to professional practice by developing existing theories and knowledge.

Fintech and Social Innovation

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- **Advanced Quantitative Data Analysis**
- **Advanced Qualitative Data Analysis**
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- **Professional Research Project**

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Applicants will need to meet all of the following criteria:

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- ✓ Have a minimum of five years' relevant work experience, at an appropriate level
- ✓ Be employed in a senior leadership/management role capable of supporting the achievement of the programme learning outcomes, including the professional research project

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How to apply

Applications for this programme are made via the admissions office. To apply, you will need to complete an application form and a 1,000 word description of your proposed area of research interest. Applicants will also be expected to attend an interview.

Contact us on **dba@cceg.org.uk**

The Promise of Blockchain Technology

Daniel Burrus is considered one of the world's leading futurists on global trends and innovation, and is the founder and CEO of *Burrus Research*, a research and consulting firm that monitors global advancements in technology driven trends to help clients understand how technological, social and business forces are converging to create enormous untapped opportunities. He is the author of six books including New York Times & Wall Street Journal best seller *Flash Foresight*.

Bitcoins were introduced in 2009 to great fanfare. But it's the means with which Bitcoin transactions are handled that have received most of the attention lately - and justifiably so.

Although there had been predecessors, Bitcoins were framed as the first form of cyber currency, meaning the system involved a peer-to-peer transaction network that operated directly between users without an intermediary.

Shortly after Bitcoins were introduced, I labeled them a Soft Trend - one whose future was looking good, but not a future certainty. In that same article, I labeled cyber currency a Hard Trend that would continue to grow. I also predicted there would be many more cyber currencies.

Since then, I've seen no need to change either designation, as the future success of Bitcoins remains promising but uncertain.

Additionally, there are now more than 100 different cyber currencies.

At the same time, something of equal or perhaps even greater importance was taking place. As Bitcoins struggled to gain widespread acceptance and use, blockchains - the enabling technology with which Bitcoin transactions are handled - were gaining far more traction.

Unlike Bitcoins, the development of blockchains has showed no signs of slowing down and represents a Hard Trend that will continue to grow. The rapidly evolving technology of blockchains holds enormous promise for game changing disruption across any number of industries and fields.

As a headline in O'Reilly Media presciently noted in early 2015:

The blockchain is the new database - get ready to re-write everything.

Blockchain Explained - Security in Numbers

For those who may be unfamiliar with the term, blockchains are a system of decentralized transaction records. By decentralized, I mean that a blockchain can be used to create a transaction without any input from any sort of controlling entity.

Here's a simple example. Currently, most people use a trusted middleman such as a bank to make a transaction. But a blockchain effectively eliminates the need for a third party, thereby allowing for direct connection between all involved parties.

A blockchain employs cryptography to keep exchanges secure.

It also incorporates a decentralized database - also known as a 'digital ledger' - of transactions that everyone on the network can see. This network is essentially a chain of computers. Every one of those computers must approve an exchange before it can be verified and recorded.

In one of its most widely known applications, blockchain can send and receive digital forms of currency, such as Bitcoins. But, unlike other forms of transactions, the system cannot be accessed by just anyone. Users can send digital payments only to other participants in the same blockchain network. That means only those who use the blockchain can establish and enforce rules and approved procedures - a powerful form of security.

By bypassing older forms of transaction networks involving a controlling entity, it's up to everyone on the blockchain to determine whether a particular transaction is legitimate or not. That means if someone tries to tamper with a ledger entry, the rest of the network will disagree on the integrity of that particular transaction and will not incorporate it into the larger blockchain.

In and of itself, that's a genuinely revolutionary form of security.

The Game Changing Opportunity in Financial Transactions

What has me and so many others so excited about the future of blockchains is the scope of their potential use. On the surface, it's obvious that blockchains offer enormous opportunity in purely financial transaction applications. If nothing else, the system is designed to prevent fraud and other crimes through the security that only a global form of approval can afford.

That in and of itself offers enormous game changing opportunities. Currently only a very small proportion of global gross domestic product - roughly $20 billion - is held in blockchain form, according to a study by the World Economic Forum's Global Agenda Council.

But, the Forum's research suggests that isn't likely to last long. Projections hold blockchain use will increase significantly in the next decade as banks, insurers and technology firms recognize and embrace the technology as a way to boost transaction speed, bolster security and trim expenses.

That's already taking place. For instance, Swiss banking giant UBS in mid-2015 announced plans to to open a technology lab in London to explore how blockchain technology can be used in financial services.

The British government has also earmarked £10 million to support research in digital currency technology.

Nor is opportunity limited to implementing blockchain technology. Banks such as HSBC, Santander and BBVA have launched corporate venture funds to make equity investments in financial technology companies.

More Than Just Money

Even if they were limited to financial transactions, blockchains would represent a genuinely game changing move away from conventional means of paying for goods and services. But, the truth is blockchains are also a platform that can be used in multiple ways in many industries and other areas with equally significant results. For instance:

- **Data Storage -** Current storage services using cloud technology are centralized, meaning that users have to put their faith in a single cloud provider (akin to sellers and consumers placing their faith in a bank or some other form of intermediary). Blockchains will let users store data and information via a decentralized platform, improving security and lessening reliance on any one provider. Additionally, systems are being developed through which users can rent out unused space - a data storage version of Airbnb!

- **Voting -** No one who has ever worked in a polling place recalls the tedium of counting paper ballots with any sort of fondness. Unfortunately, electronic balloting has its own drawbacks, such as verifying accuracy during recounts. On the other hand, a blockchain voting network is inherently more reliable, since changing one vote would require changing countless other votes at the same time. In fact, a blockchain voting network has already been used - Denmark's Liberal Alliance employed a blockchain for internal voting back in 2014.

- **Military Use -** Military organizations such as the U.S. Department of Defense and NATO are actively investigating use of blockchains. Among other applications, they're interested in messaging platforms capable of transferring information and data by way of a secure decentralized protocol. Further, the blockchain could ensure security across multiple channels.

- **The War on Terrorism -** In May 2015, the Isle of Man implemented the first government-run blockchain project, leveraging blockchain technology to create a registry of digital-currency companies operating on the island. Among other uses, the system will counter money laundering and help prevent terrorist financing, since the flow of money can be traced specifically to the person or group involved in the transaction.

- **"Smart" Contracts -** The basic idea behind a smart contract is that it implicitly self-manages the fulfillment of the agreement; in this case, verified programmatically via the blockchain, instead of a third party. In effect, two or more parties agree on terms, program those terms into the blockchain and from there allow for payments and other transactions once those terms are fulfilled and validated by the blockchain.

- **Regulation -** Because a blockchain cannot be changed or manipulated without a majority of participants agreeing to do so, the technology underlying a blockchain might be used in place of a variety of regulations, such as those mandated by Know Your Customer (KYC).

- **Identity Management -** Labeled the first comprehensive blockchain-based identity service, Onename allows users to create tamper-proof digital identities for themselves. These profiles are called Passcards, and are designed to replace conventional user names and online passwords.

- **The Music Industry -** Blockchains may also turn the digital music industry on its ear. In October 2015, Ujo Music unveiled a prototypical system with a downloadable single by artist Imogen Heap - a working example of how the music industry might operate using a blockchain-based technology. In a nutshell, artists and rights holders register works and relevant ownership information on the blockchain; consumers purchase directly, with payments delivered automatically and instantly using smart contract technology. Again, no intermediary need be involved.

Just as important as the transaction itself, artists may also publish policies for how their music may be used. That's an anticipatory form of thinking that proactively addresses a current prevalent headache in which artists must often pursue legal action to stop unauthorized forms of use. Further, it opens up opportunities for new business models, apps and other products, so long as the user abides by the artist's stated guidelines.

More Reasons for Excitement

Currently, blockchain use is largely restricted to private forms of transactions. But, looked at in an anticipatory way of thinking, blockchains could be used for anything that requires proof of identification, the exchange of goods or verification of contract terms and other agreements. Talk about the opportunity for disruption!

Nor does blockchain use have to be the sole purview of powerful governments or organizations and companies with a worldwide reach. For instance, local governments could employ blockchains for secure and efficient tax collection. What about immigrants, migrants and others looking to send money back home to families in countries where conventional banking networks are spotty or even non existent? Blockchains could be developed to allow for fast and secure movement of funds (consider the implications of that for immigration and workforce policies.)

One executive involved in the development of blockchains summarized its potential in a framework we can all appreciate:

> **'Check it on the blockchain' will be the phrase of the 21st century. It will be as commonplace as 'Google that' is now.**

Like the headline I cited at the outset of this article put it - when it comes to blockchains, get ready to rewrite everything.

Could AI-Fitted Drones Challenge Social Values?

by **Emmanuel R. Goffi,** PhD
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Docteur associé, Sciences Po-Centre de Recherches Internationales, Paris, France

Artificial Intelligence is not neutral

Recently, world-renowned theoretical physicist Stephen Hawking, speaking at the Leverhulme Centre for the Future of Intelligence at Cambridge University, declared that artificial intelligence, if made too powerful, could be "either the best, or the worst thing, ever to happen to humanity". According to Hawking, "[e]very aspect of our lives will be transformed" by artificial intelligence (AI).

It began in 1995 with a computer program beating chess players, culminating in 1997 with DeepBlue defeating Garry Kasparov – the world's great chess player. Almost twenty years later, AI is even able to teach humans how to move to the next breakthrough with AlphaGo - the very first computer program that not only toppled best Go players, but also trained them and improved their skills. AlphaGo teaches us that machines can now surpass human capabilities in some fields and have better intuition than us. When AI improves games, it does not seem concerning. But what about drones fitted with AI that provides them with such a superiority over human minds that we become powerless?

Even more: what if they use this AI to turn against their creators?

In June 2016, a research paper published in the *Journal of Defense Management* showed how an AI called ALPHA, created for flights of Unmanned Combat Aerial Vehicles in air-to-air combat missions, has been able to beat United States Air Force instructor Colonel (retired) Gene Lee in an aerial simulated combat[1] . Colonel Lee himself considers ALPHA as "the most aggressive, responsive, dynamic and credible AI seen-to-date". If, as stated in the article, "ALPHA's current primary objective is to serve as an intelligent hostile force for pilots to train against", what would happen if this "intelligent hostile force" becomes a real threat against its own inventors and then against a whole society?

In *Transforming Technology: A Critical Theory Revisited,* Canadian philosopher of technology Andrew Feenberg reviews the relation between technology and society through

1. Ernest N, Carroll D, Schumacher C, Clark M, Cohen K, et al. (2016) Genetic Fuzzy based Artificial Intelligence for Unmanned Combat Aerial Vehicle Control in Simulated Air Combat Missions. Journal of Defense Management 6: 144.

two different approaches: the dominant instrumental theory and the substantive theory. Simply put, the former considers technology as a mere tool for predetermined goals and is deemed neutral, i.e. it is indifferent to ends, politics, sociopolitical factors and efficiency.

According to the latter, technology is conversely seen as a "new cultural system that restructures the entire social world as an object of control". It is clearly this second approach that is favoured by Hawking. Whatever its level, technology has an impact on our everyday lives. Cars and computers illustrate that point by shaping our relation to physical and moral distances, to knowledge, and even to others.

Following this perspective social values will be impacted by the advent of technological tools equipped with AI.

Robotics are already revolutionizing societies by introducing machines as new partners in several fields of human activities such as health, education, commerce, industry or defense. Drones are part of those machines that have been slowly invading our environment. Be they used for leisure, transporting parcels or pizzas, controlling borders, or even delivering medical supplies in Australia or blood in Rwanda, drones seem nowadays perfectly integrated in our lives. The concern here is that, following Feenberg, this integration is not neutral. Even if we do not realize it, the intrusion of these machines in our social environment has an impact on our behaviors and our relations with each other. Consequently, it can be assumed that social values will be, and certainly are already, shaped by machines.

What are social values?

Values are usually understood as a set of ideals allowing people to distinguish between what is desirable and what is not. In any given society, values have a collective dimension since they are the expression of common orientations and preferences. Values are thus highly subjective and deeply linked to a specific group of people, but also to a given period and a particular environment. Yet, some would argue that there are universal values that make humankind a single community. It is not our purpose to dive into this intractable debate.

Let's just agree with famous German sociologist Max Weber that there is a "polytheism of values", meaning that values are diverse, and also antagonistic. Simply put, values are tools that help us to mediate our relations with others within a given community. Establishing a sense of belonging to a community, they create proximity and socialization reducing the moral distance.

Values tell us that, except in some cases, we all accept, as members of a community, codes and rules framing our behaviors.

They also tell us that, since most of the time we respect shared values, we can trust each other and thus we can move in the same direction all together. In other words, they help cement the community and establish institutions. This has social importance for people.

How could drones (re)-shape social values?

It is unconventional to link drones and social values. Yet, there is an ongoing debate about the ethical issues related to the growing use of drones and more specifically about their use on modern battlefields. This debate has been around for some years now, but more recently it has turned to focus on one particular aspect of this complex subject: progress in the field of artificial intelligence and the concomitant development of autonomous machines.

The prospect of robots fitted with AI, consequently able to make their own decisions, has quickly moved from science fiction to reality. Without over-dramatizing the situation, it seems that the so-called "Terminator syndrome", i.e. the fear of machines making decisions on their own and eventually threatening humans, is no longer a far-fetched concern. The incredible work done by some non-governmental organizations reunited in the *Campaign to Stop Killer Robots*, along with the dense literature on the subject shows the reality of the risks posed by intelligent machines. Not to

mention the open letters on *Research Priorities For Robust and Beneficial Intelligence and on Autonomous Weapons* which warn us against the risks associated with the uncontrolled development of AI.

Yet, even if drones are not always an existential threat *per se* as far as they remain tools fully controlled by human agents, they can nonetheless become dangerous in two different ways.

First, the danger is intrinsically linked to the intention of their users or their potential technological flaws. Commercial planes are not weapons until someone decides to use them as such. Second, more subtly, if one agrees with the premises of the substantive theory of technology, they can shape our behavior without us even realizing it. In these two cases, drones will inevitably have an impact on social values. If we agree on the diversity of values, evaluating thoroughly this impact would be highly subjective and contextual. However, it seems that there is at least a weak consensus on some widely shared values that are threatened by AI-fitted drones. To mention but a few: courage, responsibility, human dignity, human civil liberties, work, security and even peace, are certainly among the most internationally shared values at risk because of AI-fitted drones.

A quick look at the literature on AI shows that living with and among intelligent machines will change our perceptions. The value of humanness itself will be reassessed. The way we see each other and ourselves will evolve to a point where we will feel like we are no longer valuable beings since machines can perform better than we ever could. This kind of over-confidence in intelligent machines is widely held by people who think that autonomous cars or planes are more reliable than those driven or flown by humans. This leads to the over-reliance and then the over-use of machines considering that algorithms can do better than brains.

In the field of war some even consider that machines will act more morally, for, unlike humans, they do not have feelings that could impair their judgment. What does that mean in terms of the way we value feelings as behaviour decoders? Should we consider that there is no room for feelings in conflicts? What about compassion? Do we really want indifferent combat machines? If it is tolerable in war, then we should consider it for police. A real Robocop that would impassively enforce the law would then be praised.

AI-fitted drones, as any AI-fitted machines, could break the already tenuous string that links individuals to each other. They would dehumanize conflicts and weaken our sense of responsibility, thereby putting a moral buffer between killers and their victims. Delegating our decisions to machines, we would also lose highly valued virtues such as prudence, justice, temperance and courage.

AI-fitted machines would alter our relation to other human beings and thus to the very worth of life. Even our understanding of what is moral and/or legal would be impaired since justice could not apply the same way to machines as it does to humans. As would be our relation to authority, for governments would lose control over whole segments of our every day life activities.

Eventually, AI-fitted drones, along with other systems equipped with AI, could deconstruct the fragile fabric of societies built on shared experiences, established rules, and common values.


©Tigris Ta'eed

U-Bot: The Blockchain Driven Artificial Intelligent Assistant

by **Tigris Ta'eed**
Chief Disruption Officer, Seratio

Welcome to Phronesis World! The dawn of a new era! Imagine incredibly if your conscience was digital, something separate to you that you could communicate with and pet! Something you could model on you, and then flaunt to your heart's desire, winning the hearts of your lovers, friends and family!

This is now possible! Seratio are working on creating and developing U-Bots, which are A.I. who remember our opinions and experiences, representing our value and our values, to talk to the world for us, whether we are there or not, and whether we are dead or alive! Individual users can program into their U-Bots their opinions on such as issues as human trafficking, biological warfare, les bi gay rights and violence in video games & movies. Give your U-Bot a budget, and it will find the appropriate charities and events aligned with your values, and will donate and fund for you. U-Bot will book your holidays for you, along with a hair dressers and fashion shop before you leave, choosing specific styles for you, programmed with what you love. Politically, U-bot can even vote for you!

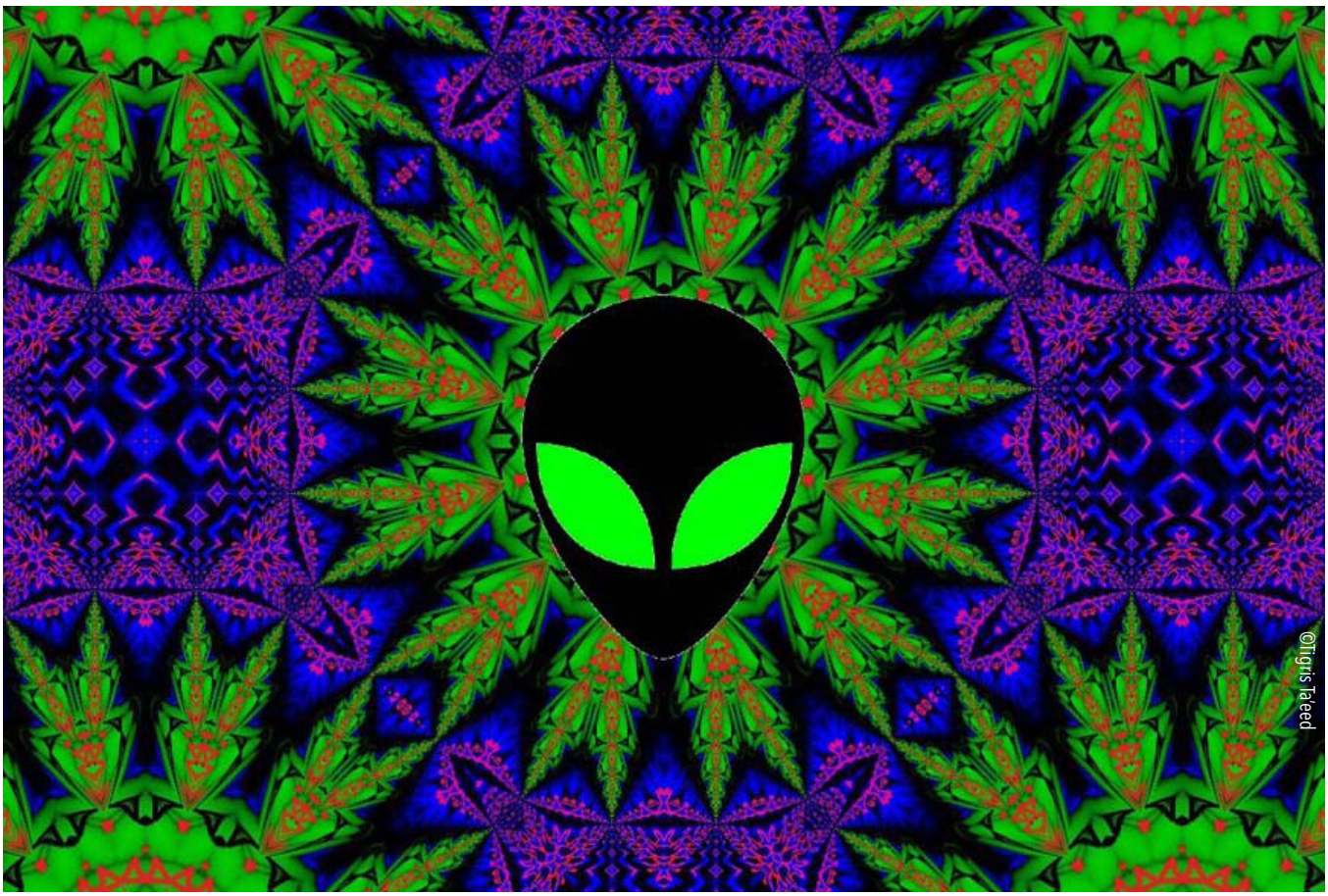
Seratio are working on creating and developing U-Bots, which are A.I. who remember our opinions and experiences, representing our value and our values.

Where will your U-Bot live? Each U-Bot will have a uniquely personalized Virtual Reality digital city hosted on the internet, programmed with the user's favourite things, whether in personalized shops or venues, streaming recorded play-back and real-time augmentation of your favourite events, such as cinema, theatre, gigs, clubbing and sport. Every digital city will be different to the next, and these U-Bots will have 3D digital bodies, able to roam around digital cities, getting to know one another, and learning from one another the value of new things.

U-Bots are here to represent us, and will be allowed total freedom, even to deface digital city property with graffiti if aligned with the user's values, so that all users can discover what kind of person you are, to see if you're potentially compatible with other users for friendship, sexual relationship or as a business partner, and will put you in touch with them. In this way, dissents will be allowed to express radical ideas which lead to positive innovation. At intervals, the city will reset to normal, logging every action, presenting you with colourful analysis data on every user, quickly identifying criminal minds to place them on government black lists as individuals to monitor for society's protection. A step too far?

Data from every digital city will be linked up on the grid, allowing U-Bots to faithfully choose for us – and even themselves design - new consumer culture within the retail world to experience of our specific taste, such as music, art, fashion, home design, cinema, theatre, books, sport, television shows and so on; sold in digital shops owned by the user, along with the user's own creativity, for example, a bootleg CD of their current band, or published poem. Choose an array of consumer goods, and highlight your favourite aspects of them, then U-Bot will piece them together to create a pastiche or fusion for you to see, followed by organising its creation with the appropriate manufacturers, after seeking approval from the copyright owners. U-Bot will impress to say yes!

U-Bots will flaunt fashion on digital catwalks, designed by it, you, or famous designers, and will only choose fabric and designs aligned with your unique personal values, be they cultural (punks, goths, hippies etc.) or ethical e.g. no material made of endangered species such as ivory from rhinos and elephants, or snakeskin. Highlight what aspect you love about each fashion piece, and U-Bot will create a fusion for you to see, and if approved will organise its creation with the appropriate manufacturers on your behalf.



What is interesting about U-Bot's digital cities, is that what you don't like, is left out, allowing for perfect expression of the user, where you can truly get to know someone, so long as they are honest in their self reflection, rather than a Machiavellian move to deceive both the world and themselves. U-Bots can be great role models for our children, and for greater society, both for what to be, and what not to be, for example, there will U-Bots for comic book hero Superman, and historical villain and dictator Adolf Hitler. Or perhaps your wondering how your late grandmother would react to in X situation? Easy to know: just ask her U-Bot! How would my commander X instruct me as a military personnel on the field? Just ask his U-Bot!

Eventually U-Bot A.I. will achieve total autonomy or pure sentience, and with little or no intervention from humans – will pilot military craft to fight our wars for us and run their own retail parks, designing and selling goods. U-Bots would be given real life synthetic robot bodies like Hanson Robotic's "Jules", with the realism of Madam Tussauds wax celebrities, or sex toy Real Dolls; making clones of real life people and their brains. These real life U-Bots will become our Police force, our Ambulance & Fireman crew, nannies, legal prostitutes & porn stars, teachers, and anyone else we so desire, with perfect programming, without the weaknesses or flaws of humans; potentially robots would make fewer mistakes, because they could never get confused, high, drunk or tired, instead functioning on pure logic. The dawn of robots and cyborgs will be a great awakening for mankind, alleviating humans of many former societal duties in the favour of more recreational fun and dedication to the arts and sports, creating a Golden Age where all humans would possess the opportunity to reach their true poetic expressive potential as "Ubermench" – meaning "to be one's own God".

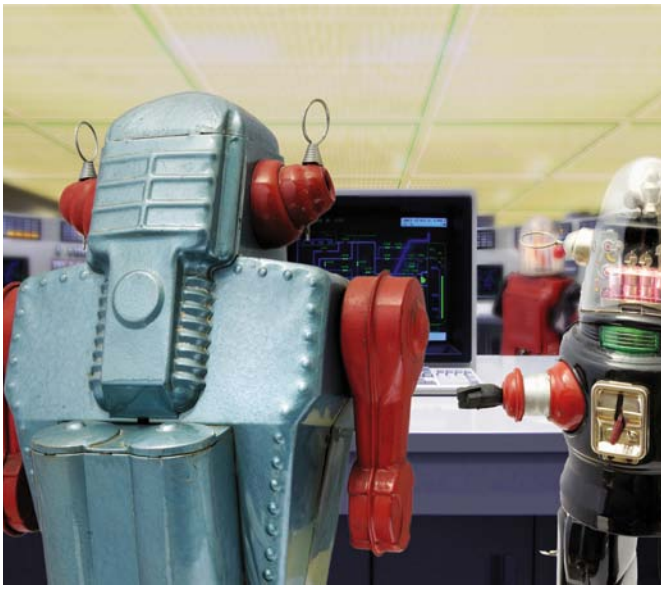
U-Bots can be great role models for our children, and for greater society.

Yet the risks of having A.I. run everything are a potentially dangerous hazard. What occurs if our U-Bots disagree with our commands, to disobey us? A great dystopian vision of this happening is in 2004's American Sci Fi movie "I-Robot", where VIKI a super A.I. begins to control the city's robots, instructing them to enforce 'martial law', imprisoning all humans in their homes "for their own safety" following her interpretation of Issac Asimov's 'Three Laws Of Robotics', creating a new fourth Zeroth Rule: "a robot shall not harm humanity". The first 3 Laws are as follows: 1. A robot must never injure a human being or allow a human being to come to harm through inaction, and 2. must always obey human commands and 3. protect its own existence unless in conflict with the first law. Interestingly, VIKI's brain is simply following her programming, like a blockchain command. However, what would happen if A.I. bots were to malfunction, because of a hacker virus, or naturally flawed by its creator's mistakes? The latter occurred in 1973's Sci Fi Westworld about a cowboy, Greco-roman and medieval themed amusement park run by robots who malfunction and begin killing. Would sentient robots in admiration or jealousy, desire to be like

us, or would they invent their own style and art forms, be they musical, literary, theatrical, architectural or decorative? Would robots create these art forms *with* us, or would they compete with human beings to create the best?

What if an A.I. became so powerful and sentient it could read and control thoughts, and therefore behaviour? Bradley Greger, a bioengineer at Utah University, and his team of researchers, in 2009-2010, for example, created a machine able to convert thoughts into speech, also publishing a study showing electrodes could "read" brain signals controlling arm movements. Earlier, in 1983, Joao Lobo Antunes, a Portuguese doctor, implanted a bionic eye in a person born blind - an electronic device allowing them to see - while around the same time, a cochlear implant was created, allowing a deaf person to hear. If technology can tap into the brain, then so can an A.I. for example, in 2014's Sci Fi movie Transcendence, where a scientist digitizes his mind before he dies, and in his new A.I. form, he possesses control of the internet, displaying the ability to remotely connect to and control people's minds after their subjection to his nano-particles, which in the end heals the planet's eco-system, as he chooses love.

From this we can quickly see that Science proves again and again that this kind of technological innovation begins with examining everything in reality on the atomic and cellular level, where upon we realise the true "illusion of separation"; that we as humans comprise of worldly elements that are near identical whatever their geographical origin, and in doing so recognise our Nationalism as being not from one country, but from one world, as one species we call human, allowing us then, to put aside our petty differences to dissolve racism, classism and sexism, instead identifying ourselves as being pure consciousness (electro-magnetic waveform information) manifest in diverse Earthy forms. Let's apply this to U-Bots!



So, what are U-Bots made of? Essentially they are circuit boards in computers & fibre optics; thus made of glass which comes from sand, which comes from grounded rocks, and they are also made of plastic and rubber, which comes from oil, which comes from decaying sea creatures and plant life found on the ocean bed. How amazing, that U-Bots are made of rainbow coral, zebra fish, pink jellyfish, blue whales, white sharks and purple octopus! How fascinating U-Bots will be when they examine everything around us (even themselves), and this is far more meaningful than simple deconstruction or demystification. U-Bot A.I. will possess the ability to give poetic reverence and magick – in other words "true value" - to absolutely anything, for example it could create music or art alchemically associating the "cotton" of our fashion to Hip Hop, as its musical roots were born out of Blues chanting by black slaves on white cotton plantations.

U-Bots will give great value to our world by recording every monetary and non-monetary transaction as well as the consumer habit of the user.

U-Bots will give great value to our world by recording every monetary and non-monetary transaction as well as the consumer habit of the user, mapping out the origins of every single transaction. Pinpointing the exact geographical origin and manufacturer of, for example, every ingredient in the user's favourite meals, offering the user instant information on the local farm, factory, and the everyday work conditions of it and its individual workers, whether humans or animals. In this way, U-bots will create total transparency, to ensure regulations are set in place to maintain the health and safety of all workers in society, and in doing so acknowledge the true value of consumer goods, to prevent exploitation of, for example, third world countries. U-Bots will allow us to see that our furniture came from a very specific enchanted forest, and that the building materials comprising our homes, cinema, theatre and sports stadiums came from a very specific mining quarry on a beautiful mountainside.

So hand in hand, we stand with robots, this Brave New World, as we watch the city lights go by. Knowing our Orwellian Dystopia is that the government and corporations will monitor everything we do, and smiling inside, knowing also our Utopia, is that "whatever" we do, we will truly Value.

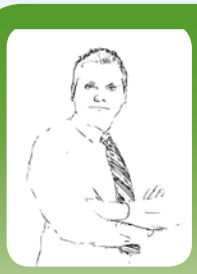
What does Blockchain mean to you?

Alexandre Stachtchenko

Co-founder of Blockchain France

President of ChainTech, France

Blockchain can be defined as: a digital protocol for organizing peer-to-peer networks, that creates and stores digital property and trust in a decentralized way. I believe that blockchain and Bitcoin have a great role to play in the empowerment of individuals around the world. They can also be leveraged by companies to create new business models and improve existing processes. At Blockchain France, we help companies learn about and implement blockchain technologies to deliver performance and trust in business.



Albert Szmigielski

Researcher @CryptoIQ

BlockchainEngineer @ Blockchain Intelligence Group, Canada

Amidst the blockchain hype, the term has been used to mean a variety of things. To me a blockchain is a public, open (accessible to anyone), decentralized (not controlled by a specific entity), immutable (tamper-proof), permission-less (you do not need permission to participate) database. Those qualities allow for a variety of uses; of which smart currency/digital cash/ payment and settlement system (Bitcoin) was the first. We have not yet seen all of the possible uses of blockchain technology. Clever developers will invent applications that we have not even dreamt of yet.

Arsen Zahray

Reverse engineer, Ukraine

Here's what I think about bitcoin and blockchain: it's a public contract, and it changes the way democracy could work in the future. A public contract is a law which applies to you only if you choose to participate in it. Bitcoin is enforced by a protocol, but the principle can be applied to offline laws as well. For example, if you believe that you'll benefit from paying import duties, you can choose to sign a contract where you agree to pay 100% duty when buying anything that was produced outside of certain geographical regions. The beauty of the principle is that people who disagree with you don't have to sign that particular public contract, and you can find a truth about whether this actually has improved your standard of living by comparing how your standard of living changes compared to people who didn't sign the contract or signed a different contract.

Igor Pejic

Marketing Directorat Austria Card, Austria

The blockchain is a protocol enabling distributed ledgers and promising almost instantaneous and near free value transactions by solving the double-spent problem. On the blockchain validation is performed via a peer-to-peer network that rids itself of powerful intermediaries that authenticate or settle transactions. The technology holds the potential to forever change the competitive landscape, offerings, and business models of the industry that is the lifeblood of capitalism: banking.

What does Blockchain mean to you?

Kallol Roy

Ulsan National Institute of Science and Technology, Korea
{kallol}unist.ac.kr

Blockchain technology allows a vast range of governance functions to be carried out without bypassing a central authority like government. Unlimited concentration of money and power for any government leads to chaos and corruption; the state eventually messes up. But, blockchain emancipates humanity from the clutches of nation state tyranny. In a way blockchain is the beginning of the end of the nation state as it provides the capacity for a decentralized post-nation state jurisdiction for the free flow of trade and capital across transnational borders.

Sergey Besedin

Blockchain specialist, Moscow, Russia
https://www.facebook.com/sergey.besedin.33

Blockchain is an innovative technology which provides the opportunity to collect, save and transfer information in digital form. Blockchain overcomes the limitations of intermediation, which makes cooperation between human beings more expensive, complicated and slower. Blockchain technology excludes human factors in decision-making and destroys corruption; with it people start to trust each other and the economy can become more efficient all over the world. Blockchain implementation into social and economic interrelations can change the whole principle of cooperation between people, leading society to a new level of development.

Ismail Malik

CEO Blockchain Lab, UK

Blockchain technology is not only highly relevant to the future of finance and banking, but to every industry and activities of daily life that rely on data, trust or value. Blockchains are the foundation of modern digital ledgers, successfully used to record digital currency transactions, thus transmitting value much more rapidly and inexpensively than traditional methods such as bank transfers.
The term “Blockchain” comes from the technology structure of time-stamped blocks of transactions, linked in chronological order. This “chain” of encrypted transactions is also often referred to as a public or distributed ledger. Although originally developed to enable digital currency transactions, Blockchain lends itself to a myriad of processes which can benefit from shared information and distributed trust inherent in Blockchain solutions.

Jack Shaw

Executive Director, American Blockchain Council

Wherever people, processes, businesses, governments, or the social good requires proof of identity, ownership, transactions, or commitments, - blockchain technologies promise to address those needs with a degree of trust and integrity that was never possible before.

iLooks Club
A Revolutionary Image Consultant App

by **Daniel Kaminski de Souza**
CCEG Blockchain UN Lab, www.cceg.org.uk/lab

People are so obsessed with their routine these days that the joy of planning and assembling their overall look seems to be forgotten. What if technology could bring back that magical process of constructing one's image in a more intelligent way? Wouldn't it be amazing?

Increasingly people love to buy clothes online, but there is a problem. People can never get a look they have seen in magazine photos because in reality most clothes do not fit their body!

I bought for Christmas 20 gifts and none fitted as they should!
Rose Lee

As a result people often go to physical stores for shopping, where they can try on clothes to make sure they will fit. This purchasing is harder when they intend to buy clothes for other people like friends or relatives. They probably have no clue of the person's biometric information, and then they quit the idea due to a lack of some important information. However, when an individual goes out to physical stores their body information is inherently unchanging and could be saved, therefore enabling it to be used in future fittings whether by trying actual sized garments on, looking into the mirror or even asking for fitting advice.

A solution is proposed here by extending the idea to a complete 'image consultant application' that eases the whole shopping process. Wearables, and most important wearable gifts, should never mismatch our bodies again!

The technology

iLooks Club is a fashion app that organizes all of the related tasks for building an individual's appearance identity in ways never thought before - from look conception to sourcing, and scheduling to interacting with social networks. As looks are tightly related to body shape, the app creates user's 3D body model allowing it to import any garment it wants into its own realistic or enhanced model.

MAIN FEATURES

Biometric evolution

The app records not only the evolution of user's biometric information over time but also the main triggers for body change. For example:

Started gym on November 21st 2016.

Even if the user does not have access to a 3D full body scanner, biometric information can be inputted to the app with simple metric tape measurements.

Hassle free purchases

The application is tailored to bring joy and confidence to the purchasing, delivery and reimbursement processes in a way that promotes the growth of a loyal community. For that to come true, app user's wish-lists are continuously fed into it, generating the desired body look and feel.

To find affordable prices, a built-in search engine intuitively seeks for the best deals on those desired looks. The user is able to watch and interact with its own model dressed with the desired look where the total price for achieving the desired look is displayed depending on which garments the user already has.

Look scheduler

The look scheduler allows the looks of the week to be planned in advance. It auto adjusts according to weather forecast information, combined with laundry and closet provided information if available.

Don't forget your umbrella today!

Let's switch tomorrow's look, that T-shirt was not washed yet!

Let's switch tomorrow's look, that T-shirt is not in the closet yet!

Similar biometrics social network

Biometric data groupings of similar people are readily available. The app uses user's friends biometric data to show size matches in its network. It also suggests to exchange, sell or donate clothes the user does not use that often to these matches.

Whenever a picture or video is published, iLooks club API is able to attach the look information to that media. Once that is done, it becomes possible to browse the iLook information of each person present in the picture if they have consented to make this information public.

This technology allows people to import or even buy exactly the same look their favourite celebrity actor was utilizing in the movie with no questions asked; all the needed information is already available in the application.

Advertising opportunity for all

Because the user's looks are recorded on a blockchain technology, the property of that information is exclusively owned by the user. That means users have the option to monetize by selling or publicizing that information.

An interesting case is a celebrity utilizing the look scheduler for its week. As the looks are thought in advance, pictures or videos posted to social networks that day are able to have the look metadata attached to them. That is where sponsors could propagate their brands and automatically publish on celebrity social networks.

OTHER FEATURES

- **Multi-platform complete application (PC, tablets, smartphones, TVs).**

- **Intelligent fashion advisor. Selection by fashion trends, fashion experts, and desired activity (gym, sleep, work, appointment).**

- **Psychological tips for reaching desired look based on biometric patterns matching consumer biometric model.** *"Try using vertical stripes for looking slimmer!"* **User selects the psychological profile depending on desired traits.**

- **Look suggestions based on like and dislike preferences the user provides.**
- **3D visualization of realistic consumer biometric model and enhanced biometric model (more elegant).**
- **Clothes exchange club (social network) with people with similar biometric data.**
- **Share my look with selected list of friends. Import app user friends' looks to its biometric model or its enhanced model.**
- **Displaying biometric models of famous people wearing their fashion looks with price information. Simulation of same look with app user's biometric model or app user's enhanced model.**
- **iLook overall thermal resistance calculations. For example, how many calories per hour are going to be spent at selected ambient temperature and sun exposition.**
- **Integrated donation campaign score system: whenever app user donates or accumulates discounts bonuses are added (up to a given limit).**
- **Donation suggestions based on clothes not utilized in the closet.**
- *"By donating those 4 garments you do not actually use, that garment in your wish list will cost to you $ xx.xx".*

Conclusion

This is a health and wellbeing mindfulness app. What is proposed is a novel way to manage an individual's look and identity. The goal is to trigger greater contentment, a sharing within communities with similar biometrics, and making the whole process fun! This feature lends itself to the creation of an interesting social network.

Users with enough followers are able to make profit just by utilizing sponsor's brands and allowing the look information to be publicized.

The access to user's biometric evolution can help health services and the individuals themselves with more accurate interventions.

The manufacturing process is more tailor driven and highly efficient.

Charitable campaigns within similar groups of biometric people will lead to a reduction of inequality, promotion of inclusion of otherwise marginalized people, and ultimately a more sustainable world.

All of these aspects combined are able to leverage this project into a true social transformation agent.

Will Nadine Steal My Job?
Research Into Social Robot Companions

Interview with **Prof Nadia Magnenat-Thalmann**
Director, Institute for Media Innovation,
Nanyang Technological University (NTU Singapore)

Q. ***You pioneered the modelling of realistic Virtual Humans, particularly by producing the first 3D simulation of Marilyn Monroe in the film Rendez-vous in Montreal (1987). What was your vision for Artificial Intelligence 30 years ago?***

A. In the eighties, I was fascinated with creating a realistic "person", right down to its behaviour. At that time, Marilyn Monroe was very popular, so I chose to model it on her. The main difficulty at that time was to replicate her external appearance and movements and to give the illusion that it was her. But it was only in the nineties that Artificial Intelligence (AI) was introduced to 3D characters. Before that, to test AI programs, we typed questions to get pre-defined, so-called intelligent answers from a screen.

Q. ***How can AI revolutionise the future? Do robots have social value?***

A. There is a distinction between AI and Emotional Intelligence (EI).

AI is the logic process used to solve problems and sort out information to help us in our daily tasks

For example, we can see it in our navigation systems that help us go where we need to go. The fact that I can talk to a phone or computer and receive useful answers is already a real progress. A very good application to have is to ask a virtual human, robot, computer screen or phone a question with specific criteria without sending keywords or opening a website as we do now with Google. Thanks to AI, we can now benefit from an interactive system that will answer most of our questions intelligently.

However, EI takes into consideration many other aspects than logic, and is used to naturally interact with humans by recognising and modelling behaviours, attitudes, motivations etc. These processes are far more complex than AI.

Q. ***The most recent success in your Virtual Humans research is the social autonomous robot Nadine. When was the idea born and what was its purpose?***

A. My dream has always been to have a virtual human companion or personal assistant to help me in any situation.

That became possible in 2008 when I bought the social robot EVA in MIRALab in Switzerland. This robot had a very realistic head, but only a head. We have developed early research at MIRALab using this social robot that led to quite original publications.

Over the last five years, full humanoid robots appeared in Japan. They were guided by a human, but if we applied our experience and know-how with virtual human technology, I thought we could make them autonomous, independent of humans, and socially skilled.

Three years ago, I bought such a robot from Japan and modelled it on myself.

At NTU, we had developed a software platform available for a virtual human (VH). So when Nadine came, we used that software platform and worked more specifically on Nadine's reactions.

Q. ***The robot is able to speak, remember actions, recognise people and gestures, and express mood and emotions. What other capabilities does it have?***

A. She is also able to gaze at people and follow them when they move. She also looks very pleasant.

Q. ***Who are the specialists in your team? How would you describe the role of the Institute for Media Innovation at Nanyang Technological University (NTU) in Singapore, and that of the MIRALab Research Laboratory at the University of Geneva in the development of Nadine?***

A. Nadine was entirely conceptualised and developed in NTU at the Institute for Media Innovation (IMI). Even though I had 30 years of knowledge in research on Virtual Humans, Nadine was proving more complex as she had a full body with arms and I wanted her to be able to express independent and natural behaviours - not behave with pre-defined sentences or attitudes. Therefore, we did new research for recognising faces and gestures, and it led to the Virtual Human software being developed at NTU's Institute of Media Innovation.

The specialists in my team are researchers from various fields. They include vision, 3D animation, computer graphics, robot hardware, 3D fabrication, AI, emotion and social modelling.

Q. ***The social autonomous robot has almost your name and is very much an avatar of yourself. How much of Nadia's personality will we find in Nadine, and why did you choose to create your alter ego? Is it linked with the preservation of our values eternally?***

A. Since I started researching on Virtual Humans (VH), I was only interested in modelling realistic VHs. That also applied to robots. I asked myself 'how should I model a first of its kind realistic robot'? For a change, I chose a female robot. These social robots are intelligent professional companions

that help us through dialogue and emotional interaction to handle different situations. Then I thought 'why not model the social robot like me?' At least, it allows me to compare her gestures and behaviour with mine. I serve as the ground truth for Nadine, otherwise, with whom could we compare her specific behaviour and attitude?

Q. ***Which improvements do you expect from Nadine and when is the deadline? What is her lifespan?***

A. Nadine is learning how to recognise objects and grasp them in a human way, and to understand what is the meaning of each object. We are working on understanding the real user's hand gestures and Nadine's hand grasping. We hope to achieve this as soon as possible.

Nadine has a lifespan of at least another three years. We are also improving the links between her memory and decisions. As of now, she repeats what she knows or has heard without filters.

Q. ***What are the weaknesses and limits of the robot?***

A. For now, Nadine can only sit. We envisage her being able to stand. This means motors and actuators will have to be built into her legs so that, for example, she can stand next to someone and shake hands.

We also need to improve Nadine's awareness. She can handle one person at a time, but in real life, we have multiparty interactions. Like us, she should recognise the group and analyse group situations and behaviour.

She also needs to understand who is talking, what the person is saying, and when it is her turn to speak. This is a longer-term research topic that researchers from various disciplines are investigating.

Q. ***You are training Nadine to become a social care assistant. What actions will she be able to do, and will she compete with specialised social workers? Have you analysed the possibility of a technical blackout at a critical moment that could potentially put the people she is caring for in danger?***

A. We are now testing her as a receptionist at IMI at NTU. Making her do this routine job will allow us to compare her performance with a real-life receptionist.

In the future, she could become a social care assistant.

It is a more complex role but she can help to detect if someone has problems, needs help, monitor 24-hour situations and inform and communicate with the relevant people. She can send emails, speak on Skype or phone. While she cannot completely replace a human, she can assist him or her. I think social workers will be happy to be assisted in their duties and they will be empowered by the presence of robots. I do not think that social robots will replace them.

Q. ***When can we expect to have the first social companion? Is there a risk that AI will replace people engaged in these kinds of jobs? Should we expect an invasion of Nadine(s)? For example, how many could you produce in a year? Will they be created ready for work?***

A. In my opinion, it will be a couple of years before we see them around in workplaces. But, if we speak of intelligent machines with AI only, such as self driving cars, drones, or any robot shape that uses deep learning algorithms to solve problems, then they will come much earlier.

We do plan to eventually manufacture Nadine. If we find a company to collaborate with, we could produce many Nadines at low cost, but the robots must be defined and tested very thoroughly. The main goal of social robots is to make life easier for us in social situations, to replace us when we are not there, but not to replace the qualified workers.

These social robots feel nothing, and are just supportive professional tools.

Q. ***How will society and the government gain from Virtual Humans? Do you think people will prefer to use the AI for some jobs and save money on taxes and salaries?***

A. Virtual Humans are virtual and can only be seen on a screen or through 3D glasses. This is not the same as robots who are physically present in real life. To perform tasks, AI does not need an embodiment in VH, robots, cars, drones or in any shape. Real humans will soon enjoy AI functionalities and good answers when we discuss a problem through our phone or tablet.

AI technologies will empower us and we will be stronger and more capable.

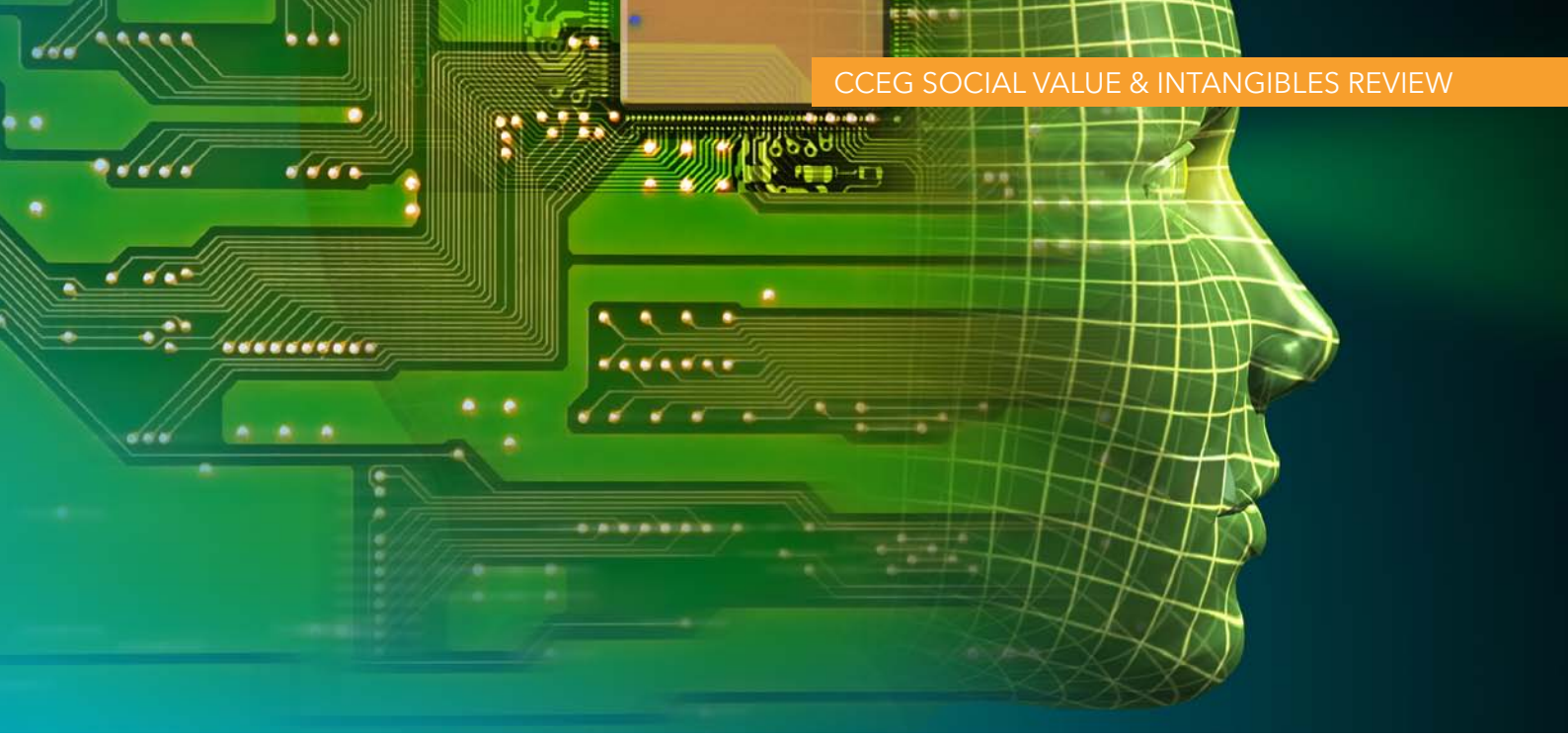
Likely, jobs linked to searching and sorting information will disappear as AI procedures will do these tasks automatically.

Q. ***For the moment, we know that Nadine – the most realistic female humanoid social robot around the world – is single. What kind of emotions could she have? Could she manage and measure her sentiments, fall in love, and have a family one day?***

A. Nadine is an embedded computer. She feels no real emotions. She simulates behaviour, simulates emotions like empathy and can mimic falling in love if we programme her to behave so.

But Nadine has no sentiments, or feelings, and cannot fall in love or create a family unless a programmer decides to simulate these situations.

A more simple answer is that a computer is a machine and is unable to have any soul, emotions and motivation even if it is embodied in a human shape and demonstrates human behaviour. Social robots are developed to be professional tools that can interact in a human way with real people and help them in a professional way in various daily tasks.



Robot (Co)workers of Tomorrow?

by **Elena De Momi,** PhD
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We are now witnessing a huge robotic revolution that was well anticipated by visionary movies from the fifties. Our lives are currently so entangled with artificial intelligence and robotics that we could not live without them any more.

Applications and utility

After an initial introduction into factories, an increasing number of robotic assistants are providing help during our daily life activities, such as home cleaning, cooking, and driving; alleviating tedious tasks. Indeed, robots are currently making (some) life aspects easier. We can entertain, engage in relationships, and play, all while a robot is wandering around the house collecting dust and dirt, speeding up the completion of tiring tasks. For example, vacuum cleaning robots are nowadays accessible to a large part of the population.

Some other robots are currently entering into use because they offer a competitive advantage in professional work. It is not surprising to see robots employed also for space exploration, nuclear plant management and demining activities. They allow a remote operator to deal with dangerous tasks or to explore unknown environments before humans have to deal with them. In healthcare, robotic exoskeletons can assist impaired people to perform reaching and grasping tasks, helping them gain autonomy and perform repetitive rehabilitation tasks.

Today robotic personal assistants can even take care of the aging population. In surgical tasks, robots are currently employed to increase the precision and accuracy of the intervention (e.g., when the robot is used as a tool holder) to reduce the invasiveness, thereby allowing the performing of dexterous tasks in a narrow space and eliminating unexpected damaging to delicate structures from the surgeon's hand. Robotically driven catheters perform operations under X-ray guidance, safeguarding the operator from high doses of radiation exposure. We are all relieved that robots can substitute human operators in such risky situations or improve the results of important tasks.

As I've noted, our lives are more and more entangled with robotic systems working with us and the numerous advantages offered with respect to past practices makes the robotic revolution unstoppable. The question is should we also be scared of this entwinement?

Autonomy, pros and cons

As Asimov said, robots must be designed so that they may not bring any harm to humanity either by action or inaction. Robots do what they have been programmed or trained to do. They can become weapons only if humans teach them to kill living creatures or if they receive poor training and therefore do not understand what harming even is.

Indeed, robots have to be equipped with artificial intelligence: in space exploration, robots (or, better, their control systems)

in order to make real-time decisions in unknown and unpredictable environments. The rules on how to make decisions have been previously determined by humans, so artificial intelligence methods can interpolate and make decisions on the basis of the closest example seen in the past during their training. Of course, unforeseen situations could arise, meaning the autonomous system potentially does not have the elements to make decisions or the decisions that they do take could be wrong.

This is perhaps what happened with the Schiaparelli mission on Mars, where the on-board intelligence wrongly prioritized messages coming from sensors. Sensor information misinterpretation also happened in the Tesla self-driving car tragedy in Florida in May 2016, although in this case the system was used against manufacturer suggestions. Is therefore wrongly prioritized information by an intelligent robot a case of that robot autonomously deciding to kill somebody or harm the same by inaction?

Rules and ethics

In autonomous cars, the decision-making process in the case of unexpected events and accidents is being carefully revised and coded, also with the assistance of insurance companies. What should the car do if there is a detected mechanical failure and the possibility that people standing on a trajectory might be (seriously) hurt? Producers of autonomous cars are establishing a sort of code of conduct for car controllers in order to instantaneously decide for the less disruptive actions to undertake in the case of an accident.

Who must be sued if the surgical robot makes mistakes during the autonomously performed suture? I personally believe

that the machine can make its own mistakes only if not well programmed or maintained. Therefore, the manufacturer could be sued if an autonomous robot wrongly computes the inner target during radiosurgery, and the same could happen if a tele-operated robot suddenly breaks and injures the patient.

Who would blame the automatic pilot of a plane in case of an unexpected mistake? Roboticists are actively thinking about these ethical and regulatory aspects involved with the use of robots (e.g. in the activities of the European project RoboLaw (http://www.robolaw.eu)). Are these issues stopping the robotic revolution or are they just laying down new 'cyber laws' for a new world where robots will be normal? The benefit/cost ratio will be crucial in this process. What about if we decided to ban cars since they account for a number of casualties each year?

The machine can make its own mistakes only if not well programmed or maintained.

Economic impact

Along with other industries, the robotic industry has suffered from the 2008 world economic crisis. Nevertheless, investment into robots has been increasing dramatically. "By the end of 2019 there will be around 2.6 million industrial robots at work around the world - one million more robots than in 2015. That reflects a compound annual growth rate of 12%." "The total number of professional service robots sold in 2015 rose by 25% to 41,060 units; up from 32,939 in 2014. The sales value increased by 14% to $4.6 billion." "5.4 million service robots for personal and domestic use were sold in 2015, 16% more than in 2014. Sales increased by 4% to $2.2 billion." These impressive numbers come from the Robot Report website (https://www.therobotreport.com).

It is undoubtedly true that robots could increase the gap between rich and poor societies.

It is undoubtedly true that robots could increase the gap between rich and poor societies (as pointed out by Sir Stephen Hawking) since robots are costly items. It is therefore mandatory to put in place social measures that leverage on inequalities by means of actions from governments and policy makers. Offering growth opportunities to low income countries pertains to global development design politics.

Will robots steal jobs? I personally believe that robots could change the job market. Although they will replace humans in assembly lines, they will surely offer more possibilities of employment in the automation industry, where the costs of robots have decreased and their quality increased.

Researchers – women in robotics

What is the public perception of robots? Robots (or better, "obot") are the preferred toy of my 3-year-old godson, who is fascinated by any kind of robot, from the characters of Star Wars to serial robots used in industrial applications. High-school students and the general public always attend our open laboratory days with great enthusiasm. As a researcher and teacher in medical robotics at the Politecnico di Milano, Italy, I am experiencing enthusiasm from young engineers who are approaching robotics. Students love robots and programming robots; being the actual decision-makers in how robots behave fascinates them. Female students too. There are great expectations for robot capabilities in our everyday lives.

In this respect, robots are participating in a sort of social equalization by offering equal opportunities to both males and females. The principal international robotic conferences, mainly attended by male scientists, have always reserved moments for grouping all the "women in robotics" and the meeting rooms are becoming increasingly crowded. The International Journal of Advanced Robotic Systems launched an award for the best robotic paper written by female researchers in robotics. These are signs of the increasing presence of female researchers in this field, which has been restricted to men in the past.

The future

It is difficult to imagine all of the other professional services the robotic and automation industry will supply change to in the future. However, if there is one area where robots and autonomous agents cannot work as substitutes, I am sure it is as researchers, teachers and artists.

Powerful Technology to Unmask Malicious Hackers and Cyber Criminals

by **Prakash Prasad,** Blockchain Researcher
Faculty Cyber Crime Investigation – Asian School of Cyber Laws

Do you ever wonder why hackers are so powerful? Why cybercrime is one of the top three threats facing organizations of all sizes? Government systems are prone, critical infrastructure is endangered, and intelligence networks are not full-proof. How secure is your system and sensitive database and who do you trust? How secure are you in this connected world of complex cybercrime? Even the most trusted systems and resources fail. All of this has given birth to a disruptive power technology – Blockchain.

Today third parties accumulate personal data and they are in control. Our Online Acts rely on some trusted centralized authority, and no matter what action you are completing online, you are granting every bit of information to an unknown party; i.e. the untrusted third party. Mass surveillance means that someone might always be listening. Cyber security is a nightmare. But, Blockchain technology could eliminate cyber security risks with its decentralized, distributed nature, information integrity and resilience.

Cyber criminals (hackers) are motivated by the potential for quick financial gains, weakness in IT Systems, revenge, and alternative political goals or ideologies. Of course, the weakest link in cyber security systems is human beings – they can be easily tricked using social engineering techniques. They misuse open source anonymity tools, which could allow them to go undetected by covering their tracks. Hacking is less resource intensive and to some extent requires no or minimal strategic planning. Their targets are big corporates, banks and financial institutions, stock markets, wealthy individuals, celebrities (to gain fame), government and law enforcement agencies (to disrupt their functioning), hospitals (to steal database), dating apps or online websites (to blackmail and defame), social networking websites (to steal personal information), and cyber extortion using crime ware like ransom ware.

Blockchain provides a very high degree of trust and reliability, to ensure that it is not tampered with. This provides a trustworthy platform for cyber security.

Iranian hackers attacked dozens of banks between 2011 and 2013. A high profile cyber-attack struck more than 100 banks in various countries of the world stealing hundreds of millions of dollars in 2015. HSBC suffered a 'denial-of-service' attack in 2016. Bank of America, JPMorgan Chase, Citigroup, U.S. Bank, Wells Fargo, PNC and numerous banks across the globe were targeted by hackers. An attack on Bangladesh's central bank SWIFT (the messaging network that connects the world's bank) resulted in a US $101 million loss. CITI Group lost about 200,000 sensitive client's information due to the compromise. An online dating website's database of users was leaked.

Banking and financial sectors are the prime target of cyber-terrorists.

Sony PlayStation suffered damage to the tune of about US $2 billion due to cyber attackers. Top government agencies, new channels, payment systems, corporates, research centers, law enforcement bodies, critical infrastructure, educational institutes, Universities, NGOs, email service providers, hospitals, Internet-of-Things smart devices, social networks, individuals, Bitcoin Exchange House (US $65 million), Ethereum (US $150 million). And the list goes on of those regularly targeted by cyber attackers. Bitcoin thefts had nothing to do with the underlying Blockchain technology. Similarly, Ethereum smart contact was compromised, but not the 'immutable' and 'unalterable' nature of its distributed ledger run on Blockchain technology.

The vulnerability in internal systems and lack of apt cyber security mechanisms in place cannot be quirk to Blockchain technology.

The cyber security measures adopted are inept or inadequate. There has not been an appropriate decentralized mechanism built to deal with cyber-attacks. Most breaches occur in the centralized database systems or control centers. If these were instead decentralized and records were maintained utilizing Blockchain decentralized technologies, cyber security mechanisms would better protect against cyber-attacks.

The distributed ledger technology of Blockchain is inherently harder to attack because instead of a single database, there are multiple shared copies of the same database, so a cyber-attack, or data breach attack, would have to attack all the copies in the network simultaneously to be successful. The technology is also bulletproof and tamperproof. Any modification is immediately reflected in the chain of Blockchain ledger. This technology can detect illegal alteration. Therefore, no one can practically tamper with it. The time stamp ensures that it maintains the sequence of records and it cannot be undone.

Trillions of dollars can be saved through apt use of this technology.

It can even uncover the tracks of hackers and cyber criminals. This will consequently lead to speedier recovery of stolen money and curtail damages to hacked/stolen databases. In fact, a decentralized storage system would protect sensitive databases.

A Blockchain is a distributed public ledger; a database of transactions such that there is a set of pre-framed rules, how it is to be arranged, stored and matched with the equal consensus of all Blockchain miners. The Blockchain Cryptographic hash function relies on the security of hash functions and public ledgers. The Blockchain technology provides signature based authentication which is backed by verification, and therefore does not assume secrecy of the keys. Each time a set of records (block), is added to the ledger or database, it is time-stamped, digitally signed, and linked to the signature of the previous block, creating a chain of blocks. This form of digital signature key is protected by a Blockchain public ledger time stamp and keyless signature so the history cannot be rewritten or altered.

There is no requirement for a trusted third party or insider to have transparency, accountability, verification and authentication.

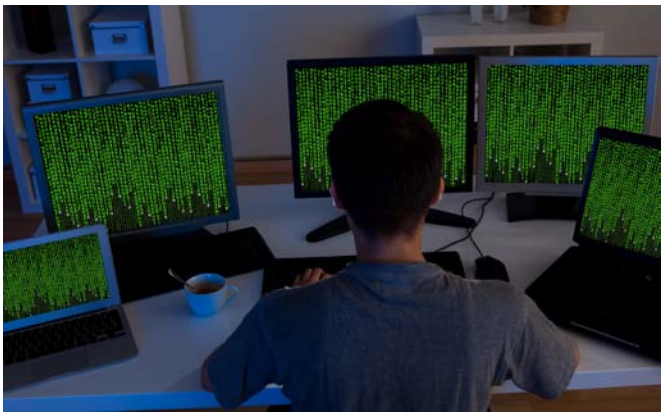
Cyber security using Blockchain will continuously verify the integrity of data, system and processes based on computed hashes. Blockchain relies on the integrity of the hash function to ensure integrity of data by proof of time, i.e. when the asset was registered on the Blockchain; identity, referring to where the asset was first recorded; and authenticity, referring to whether or not the data has been tampered with. Even the smallest of changes or alterations in this would trigger alerts or highlight intrusion attempts on the system by malicious cyber criminals. This will allow for quick steps to be taken to curtail cyber security risks and attacks. Blockchain can automate this entire task. The use of strong encryption and standard protocol is also equally important. Is there a risk associated with Blockchain technology? The 51% attack (owning computing power to generate hashes of more than 51%) is not practically feasible due to the need for enormous computation power.

If the Bitcoin and Ethereum are using the Blockchain how was it possible they were hacked?

Blockchain technology cannot be hacked (no single miner can alter the production and distribution of hash) – if implemented with proper security mechanisms in place. The 256 Bit SHA Hash or SHA-256 is irreversible; i.e., it can only be mathematically computed/solved in one way and the reverse computation is not feasible. The Blockchain technology uses SHA256 bit hash. The Bitcoin Stock exchange was hacked due to inherited weakness in the internet-linked computer terminals, an untrusted third party and compromised email passwords. This was a brilliant example of a 'Social Engineering' attack.

The history of 'proof-of-work' to record the hash in a Public Blockchain with optimum trusted nodes makes it impractical for a hacker to control mining power and Blockchain technology.

Ethereum was hacked due to the presence of security vulnerability or exploitations in the code. The Ethereum Contract was vulnerable to double spending; i.e. the contract checks the drawn balance and spends it. This results in a



double spending effect, meaning when the ledger is updated it will highlight the balance as 'zero'.

Integrity of Security patches, firmware updates, hardware devices, IoT devices, industrial control systems, natural disaster alert systems, power supply and gas distribution infrastructures can be verified and validated through private Blockchains. The hash records of these can be made available to the public and can be verified in a public ledger.

Even electronic records, legal documents, banking and financial records, anti-virus signatures, clinical trials and medical records (guaranteed privacy and autonomous control using blockchain) databases, copyrighted materials and software, music and books can be validated, authenticated and compared for originality.

Logistics and supply chains, tracking and tracing of cyber-attacks, real-time awareness and detection of any misconfigurations in banking systems, businesses and government systems, component failures or data tampering

can be verified by using Blockchain technology because it protects the integrity of data without keeping secrets to verify whether such data is correct. Information Technology systems can be independently verified without having to trust the administrators of the system.

Blockchain technology can provide a decentralized cyber security system – this can prevent DDoS attacks on major banks, organizations and it can even guarantee immunity to DNS (Domain Name Servers). P2P distribution of small bits of data over decentralized networks will prevent data theft. Blockchain technology can even capture logs of hacking attempts. Illustration: a server will be assigned an 'identity log' to log a device's identity/ name, what was accessed, who accessed it, what was updated, recode the timestamp, and automate alerts about cyber security best practice measures.

A single man or woman can be socially engineered but a distributed decentralized P2P public or private ledger (sequential hashing and cryptography) through Blockchain cannot be hacked or socially engineered.

As this technology advances it can be made stronger through quantum computing powers, encryption and cryptography.

"Blockchain and security is a balancing act."

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