

# CARDANO ECOSYSTEM MASS ADOPTION in a New Post COVID-19 Economic & Political Context – An analysis for the Community – version 3 by SteOd

## Reason for this Community effort

In the IOHK website with all the academic papers (<https://iohk.io/en/research/library/>), there are no explicit papers covering the economic and political analysis justifying the Cardano ecosystem. While, it would seem obvious from an investor's point of view, I thought it much more useful and constructive if the community could make a contribution towards development of the Cardano Ecosystem by producing that paper, **not as an academic effort, but as an educational /informational endeavour**. Hopefully, in the process existing investors and potential investors will have a clearer appreciation of the Cardano ecosystem specific perspectives, and potential impacts on the global economy.

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## A general overview on what has already been expressed by Charles Hoskinson, CEO of IOHK through his AMAs, Interviews and ad hoc updates to the Cardano Community

References: <https://www.youtube.com/user/charleshoskinson?app=desktop>;

Charles Hoskinson, as CEO of IOHK the developers of the Cardano Protocol and ecosystem, has repeatedly and laboriously provided the rationale for the unique direction for the development of the Cardano ecosystem. These include the following (**but is not complete**) that I could identify, not in any order of importance or preference:

- 1) A recognition that the current global financial system is broken with a structure that is skewed permanently to benefit an ever decreasing number of super rich, while a sea of humanity is left in increasing poverty or dependent on the "benevolence" of these super rich.
  - 2) The increasing concentration of wealth is also accompanied by increasing concentration of political power which is being used against the vast majority of the powerless, impoverished humanity.
  - 3) The only hope for humanity to stop this road to increasing inhumanity by a few over a vast majority is to introduce a totally new financial system that has no mechanism by which a few financially privileged and politically powerful can control its operations.
  - 4) The fact that two-thirds of the world's population are unbanked, based on the definitions of banking services and infrastructures freely available in the developed world and therefore a viable market.
  - 5) There is, therefore, this vast potential of economic development and empowerment if these unbanked are given a new global financial ecosystem which:
    - a) Is easy to use.
    - b) Guarantees payment for Services and Goods.
    - c) Requires minimum level of education to use.
    - d) Provides proof of identity to secure the assets owned.
    - e) Provides proof of purchase and ownership of any asset.
    - f) Provides a secure and immutable audit trail of transactions from farm-gate, to transportation, processing, manufacturing and finally to the consumer.
    - g) Provides free movement of funds globally without restrictions from any institutions, both private and public.
  - 6) The availability of this vast market of the unbanked means there is no need for Cardano to compete in the over-saturated, over-banked, over-regulated Developed Economies financial markets
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## The Potential Economic and Political Implications for Cardano Ecosystem mass adoption

### Introduction

**PART 1 & 2** below are my initial contributions to towards the Community pooling of opinions and information. Feel free to make comments that will expand the ideas, information or even add a new concept not yet addressed.

## PART 1

### Economic Analysis – Implications and Impacts

#### Let the COVID-19 human toll data speak for themselves

COVID-19 Statistics by Countries, Geographical Regions and by States: <https://www.worldometers.info/coronavirus/>

### Current and Post COVID-19 Economic Reality Context

#### “World will need new financial system after COVID-19

We need to avoid putting current system back together with sticking plaster.

The world as we know it is about to change radically as a result of COVID-19. How we live our lives, how we work, how we socialise and how money moves will change – and profoundly.” Wed, Mar 25, 2020, 01:27

Source: <https://www.irishtimes.com/opinion/world-will-need-new-financial-system-after-COVID-19>

“Investors are repeating the mistake they made all through February and early March. They are again underestimating the immense economic shock of COVID-19.”

“Even if the worst is avoided and there is no secondary financial crisis, there will not be a swift return to normal. Mohamed El-Erian from Allianz said the rescue measures offer liquidity but cannot prevent the slow burn of defaults. Nor can they kick start the economy when companies refuse to invest because they have no idea what is going to happen.

The market has yet to grasp that "we don't come out of this where we went in". Earnings are structurally damaged for years to come. Equities are not worth the same.”

"We need a vaccine. Until we get one, the stock markets are in cloud-cuckoo land," says Professor Anthony Costello from University College London.

Source: <https://www.smh.com.au/business/markets/delusional-investors-are-underestimating-the-economic-shock-the-world-is-facing>

“The coronavirus outbreak has brought the U.S. economy to a virtual standstill in just weeks. Most economists — and bank CEOs — expect the U.S. to go through a depression. The only question is how severe: Second-quarter gross domestic product is expected to drop from 30% to 40% and the unemployment rate is seen rising as high as 25%.”

<https://abcnews.go.com/Business/wireStory/bank-america-1q-profit-falls-45-due-virus>

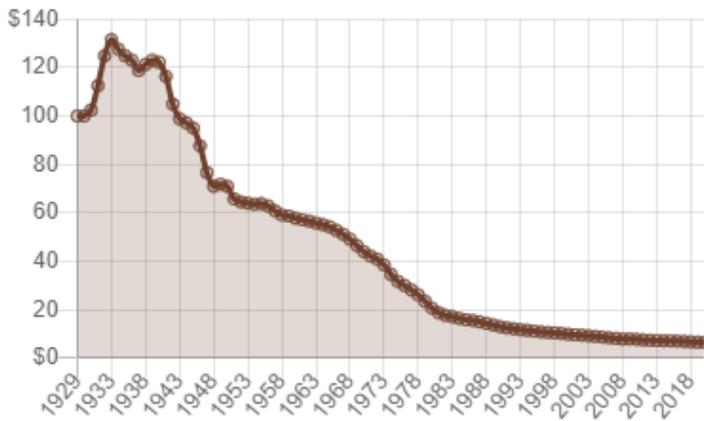
### COVID-19 contribution to uncontrolled growth of Global Debt

#### USA

- US\$70.2 Trillion in 2018 – Total Public and Private Debt (\$20Trillion more than all Developing nations Total Debts)
- US Federal Debt increased by \$2Trillion in 2020
- US Federal Reserve Bank increased by \$2 Trillion in 2020
- US Treasury Department debt increased by \$2 Trillion in 2020
- US 51 States Level estimated increased debt by \$1 Trillion (eg CA (260Bn), NJ (260Bn)) in 2020

#### Devaluation of, the World’s Reserve Currency, the US Dollar trends since the Great Depression

## Buying power of \$100 over time, 1929-2020



Source: <https://www.in2013dollars.com/>

**EUROPEAN CENTRAL BANK (ECB)** – increased debt by Euro 750 Billion in 2020

**UK** - Government increased debt by GBP360 Billion (US\$450 Billion) in 2020

**Germany** - Government increased debt by Euro 750 Billion (US\$820 Billion) in 2020

**Italy** - Government increased debt by Euro 750 Billion (US\$820 Billion) in 2020

**France** - Government increased debt by Euro 345 Billion (US\$377 Billion) in 2020

**Spain** - Government increased debt by Euro 200 Billion (US\$218 Billion) in 2020

**Japan** - Government increased debt by US\$1 Trillion in 2020

## Global Debt Clock

[https://www.economist.com/content/global\\_debt\\_clock](https://www.economist.com/content/global_debt_clock)

Sample of G20 Economies Debts in 2018

<b>India</b> Public debt: \$1,565,083,060,109 Public debt per person: \$1,254.21 Population: 1,274,786,885 Public debt as % of GDP: 54.2% Total annual debt change: 13.4% <input type="checkbox"/> Close	<b>United States</b> Public debt: \$15,991,183,606,557 Public debt per person: \$50,093.38 Population: 321,909,289 Public debt as % of GDP: 93.6% Total annual debt change: 9.9% <input type="checkbox"/> Close	<b>United Kingdom</b> Public debt: \$2,861,588,524,590 Public debt per person: \$44,671.60 Population: 64,256,612 Public debt as % of GDP: 103.7% Total annual debt change: 7.8% <input type="checkbox"/> Close	<b>China</b> Public debt: \$1,952,591,803,279 Public debt per person: \$1,450.43 Population: 1,353,349,726 Public debt as % of GDP: 17.7% Total annual debt change: 11.6% <input type="checkbox"/> Close
<b>Indonesia</b> Public debt: \$308,680,327,869 Public debt per person: \$1,220.42 Population: 256,113,661 Public debt as % of GDP: 26.0% Total annual debt change: 9.6% <input type="checkbox"/> Close	<b>Germany</b> Public debt: \$2,792,665,027,322 Public debt per person: \$34,197.61 Population: 81,791,311 Public debt as % of GDP: 85.8% Total annual debt change: -0.0% <input type="checkbox"/> Close	<b>Italy</b> Public debt: \$2,325,657,923,497 Public debt per person: \$37,803.87 Population: 61,639,180 Public debt as % of GDP: 122.6% Total annual debt change: -2.1% <input type="checkbox"/> Close	<b>Japan</b> Public debt: \$12,042,805,464,481 Public debt per person: \$96,476.17 Population: 124,882,513 Public debt as % of GDP: 261.0% Total annual debt change: -1.5% <input type="checkbox"/> Close
<b>South Africa</b> Public debt: \$226,101,639,344 Public debt per person: \$4,657.95 Population: 48,191,256 Public debt as % of GDP: 42.2% Total annual debt change: 12.5% <input type="checkbox"/> Close	<b>France</b> Public debt: \$2,520,749,180,328 Public debt per person: \$39,030.22 Population: 64,543,551 Public debt as % of GDP: 102.0% Total annual debt change: 2.5% <input type="checkbox"/> Close	<b>Spain</b> Public debt: \$1,129,600,546,448 Public debt per person: \$24,125.96 Population: 46,817,431 Public debt as % of GDP: 91.1% Total annual debt change: 3.6% <input type="checkbox"/> Close	<b>South Korea</b> Public debt: \$379,396,721,311 Public debt per person: \$7,559.06 Population: 50,286,994 Public debt as % of GDP: 26.3% Total annual debt change: 1.2% <input type="checkbox"/> Close

Total Developing Economies Debt in 2018

US\$55 trillion

Global Waves of **Debt**: Causes and Consequences

**Debt** in emerging and developing economies (EMDEs) climbed to a record US\$55 trillion in 2018, marking an eight-year surge that has been the largest, fastest, and most broad-based in nearly five decades. ([Developing Economies Debt in 2018](#))

**This is the first time in World history when the entire World collectively hit the brakes on significant sections of economic activity as well as people movements.**

Unlike the Developing nations where only 30-40% of GDP is based on Service Industries, the Developed nations "Achilles' heel" in the event of a pandemic has become very apparent. With 60-75% of GDP dependant on the Services sector, Developed nations are likely to disproportionately experience severe drop in GDP growth rates due to COVID-19. Developing nations', largely rural economies are likely not to be substantially affected, except in their export markets segment. Most of their manufacturing is for local consumption, except for those segments engaged in intermediate product component manufacture before re-export to developed economies for final processing.

There is a significant assumption that once the pandemic is over World economic activity will burst out like a 100m Olympic race. There is also probably the overly optimistic assumption that individuals spending will be so pent-up that most of their incomes from returning to work will be spent on consumption so boosting demand for goods and services. However, this is very likely to be proven false, because most people were so **unprepared** for this sudden stop to their lives, and even the most conservative spend thrifts have found themselves desperately short of cash after having run them down during the sudden lockdown. Consumers are traumatised by this shock and with it come heightened fears of the uncertain future with the possibility of this shutdown re-occurring.

Savings rates and debt reduction will most likely be at historically highest levels. The trauma of cash shortage, during the lockdown, will see a very large proportion of incomes being retained in Cash-at-Bank balances at the expense of Credit Cards and/or personal loans, even if Interest rates on Savings Accounts are zero!

Without a vaccine within six months consumer sentiment will become entrenched towards a culture of higher level of savings. Expenditures will only be for essential items such as food, rent, electricity, water, and petrol. The restaurant and entertainment sectors will most likely fail to fire-up because they were not only regarded as non-essential, but indeed people discovered they could do without them by finding alternatives such as takeaways and online music and movie streaming, during the extended lockdown period. Only outdoor recreational activities such in parks, fitness and camping will see a surge as people seek outlets from cabin fever.

The unfortunate reality is likely that even if a country was able to defeat the COVID-19 within its borders, it cannot re-open external borders without the potential high risk of importing COVID-19 leading to another lock-down. This will continue to restrict global trade particularly in the tourism, educational and conferences sectors.

**The global pandemic has forever reset the global economic and financial mindset to rebuild and/or restructure the economies to permanently de-risk or minimise the risks associated with what the World is currently experiencing.**

- There will be a very significant push for a more integrated system of health record sharing so that people movements are not disrupted or delayed due to lack of medical status information
- There will be a very significant push for integration of medical status on Passports in a microchip so that authorities can easily verify through their online systems the true health of the person seeking entry or exit at any International exit such as Airports, Cruise ship Terminals, Cargo Ports, etc.
- The role of the US in providing global leadership on International crises has been permanently diminished having adopted an inward looking "Me Only" stance as nations have suffered deeply both financially and in human life. There is most likely going to be a strong push for the removal of the US dollar as the denominator of most global trade, especially given it is only now 15% of global trade. The US economy, saddled with massive new debt and vulnerable to large stock-market and financial swings, will be unable to its traditional bullying or coercive financial and trade sanctions strategy to stop the collective decisions of other nations to proceed with decoupling of the US dollar as the primary denominator of global trade.
- A new global currency based on a basket of the major currencies (eg Euro, US\$, JPY, Ruble, GBP, C\$,A\$, Rand, HK\$, Won) or G-20 currencies will be created to enable global trade without the disproportionate influence of any one country's internal economic fluctuations on the currency.
- The argument for accelerated moves towards a totally cashless transactions has been substantially increased with the need to eliminate infections from the most durable, commonly transferred hand-to-hand object in the world – **Cash**. This trend

will educate the public towards a substantially reduced mass adoption ramp-up of Cryptocurrencies and Blockchain fintech solutions. The key ingredient being solutions that have seamless user experiences when moving from a Fiat-based to a Crypto-based fintech solution.

### Economic Infrastructure Changes

- There will be an acceleration towards automation in the manufacturing sector to reduce the need for human workforce to a bare minimum, thus eliminating the need to temporary shutdowns due to a medical epidemic or pandemic.
- There will be a significant large move globally towards the delivery of Government Services through online Portals wherever it is possible to ensure that in the inevitable event of another medical epidemic or pandemic, there will be minimal disruption of services
- **The future of Policing during a pandemic or existential Black Swan event**



▲ A police security robot drives on the high-speed railway station platform in Shenzhen, Guangdong province. The device, which patrols public places, warns people when they are not wearing masks, checks their body temperature and identity. Photograph: Alex Plavevski/EPA



*Indeed, the spectre of creeping authoritarianism – as emergency disaster measures become normalised, or even permanent – should be at the forefront of our minds, says Sennett. “If you go back through history and look at the regulations brought in to control cities at times of crisis, from the French revolution to 9/11 in the US, many of them took years or even centuries to unravel,” he says.*

<https://www.theguardian.com/world/2020/mar/26/life-after-coronavirus-pandemic-change-world>

- **The future of postal delivery during pandemics or existential Black Swan events**

## Robots now delivering e-commerce parcels in China

China's second-biggest e-commerce company is now using robots to deliver items for its customers.

JD.com, second only to Alibaba, used the new service on the last day of a two-week-long shopping bonanza that recorded sales of around US\$17.6 billion.

Designed by JD, the white, four-wheeled droid can carry five packages at once and travel 20 km if fully charged.

It can climb up a 25° incline, and find the shortest route from warehouse to destination. Once it reaches its destination, the robot sends a text message to notify the recipient of the delivery. Users can accept the delivery through face-recognition technology or by using a code.

It's the first time that the company has used delivery robots in the field.

JD tested its first delivery robot in November last year. At that time, the cost of a single robot was almost 600,000 yuan (\$115,000).



<https://www.insiderobotics.com.au/automation/articles-automation/Robots-now-delivering-e-commerce-parcels-in-China/>

- Companies will substantially increase their share of Cash-in-Bank Accounts over all other Assets
- Credit Agencies and Banks will significantly skew higher ratings for companies that have higher than Industry Average levels of Cash-in-Bank over Sales volumes or Receivables

### **There will be significant challenges comprehending, quantifying and remediating the outcomes from COVID-19 crisis on the collective human psychology that is currently be inflicted.**

- Depending on how long people are forced to remain isolated, the responses will be very diverse depending on individual's personal financial needs.
- Those who were left stranded without adequate funds will rush out to produce, create and sell their products. There will be increased crime rates as desperate people try to find means of preventing starvation or financial ruin.
- There will be a new social divide between those whose jobs are seen as "**essential**" for economic survival of the Country and the world and those who are "**non-essential**" and easily dispensable. The Social psychological effect could prove harmful to economic diversification in the long-term if the "**non-essential**" sector fails to recover and grow to accommodate the predominantly part-time and casual workforce that cannot be absorbed in the full-time workforce. There will be a more aggressive campaign by these workers for more Government action to promote industries that create full-time work which are insulated from medical epidemics or pandemics.
- The wealthy or well resourced, it would mean unexpected opportunity to acquire high quality assets across all classes at significantly discounted values, as many over indebted asset holders sell to fund their needs and substantially reduce their debts.
- There will be a shift in the type of jobs on demand. In particular, there will be a sharp rise in demand for jobs that can be easily moved seamlessly into online platforms and then back into offices again once an epidemic or pandemic has passed.
- There will be a decline in what are now identified as health risk jobs such as medical, nursing, allied health professionals, mass transport workers (e.g., Bus and Train/Tram drivers, ticketing officers and baggage handlers), social workers, cleaning staff and Nursing home carers. Some of these jobs will be left to the relatively unskilled or new skilled immigrants who have restrictions to safer choices.
- There will be a significant increase in and focus on having cash-in-bank rather than in Shares or property well into the future.
- Should regional towns suffer significantly less than the large cities and metropolises when the pandemic ends, there will be a medium to long term rise in migration to regional towns. As has already been reported that as infection rates rose in cities, many people who have relatives and homes in regional areas, as well as those with mobile homes started to head to

these areas. Soon, Regional and State Governments were forced to step in and impose travel restrictions to only the current primary residence travellers. This long-term migration to Regional and Rural towns will accelerate the growth of higher quality telecommunications infrastructure to enable online e-commerce and education.

- Which is **more** important – Personal financial choices to be able to buy, sell and manage our money Vs Personal physical freedom of movement? During this COVID-19 crisis, global communities and individuals have been denied freedom of movement, but not financial choices. So long as one has money and means of moving it, then they can do so.

On the face-of-it, people seem to be able to cope with the freedom for financial choices, because physical freedoms have existential threats associated with it.

During World Wars, particularly in the war zones, people accepted physical movement restrictions and reduced amounts of finances, but they were unwilling to give up, altogether, Personal financial choices. No doubt, some unlikely existential future event, the so called, Black Swan, that will demand that people give up this last freedom that even World Wars were not able to deny. Where basic food and toiletry supplies could be home-made on small scale, then the personal finance through bartering could still go on, even if money and/or credit was not available.

Long-term trends towards high density 90+% urbanisation will, in the future, remove even the ability to barter since the ability for extended periods of home-made produce is eliminated through regulated raw material supply chains in the urban centres.

It is at this time, that the power of Blockchain Fintech will be fully appreciated if these have already been embedded as part of the overall global Financial Infrastructure. Perhaps, it is during such a time as this COVID-19 crisis that the World should sharpen their focus on developing Blockchain Fintech solutions to mitigate against the Black Swan, seemingly inevitable pending Event, in the future.

## **The Blockchain Ecosystem, Cardano Ecosystem in this new Economic and Political Environment**

### **1) Assumptions about the Cardano ecosystem**

- a) It is here to stay and will become an ever-increasing influence on the global financial and political systems into the future
- b) It is solving and will solve real world problems that cannot be solved using existing economic, political and technological infrastructure.
- c) There exists unsatisfied demand for banking and financial services among the majority of the global unbanked
- d) The new global financial ecosystem provided by the Cardano ecosystem will be affordable by a majority of these global unbanked.
- e) The Cardano financial ecosystem can be efficiently and competitively productionised on the existing hardware and software technology stack globally.
- f) To meet an expected explosive rise in demand for the Cardano financial ecosystem it will have the inbuilt capability to rapidly and flexibly scale for an indefinite period into the future.

### **2) Is the world ready for Blockchain and crypto revolution?**

- a) The growth in the number of cryptocurrencies and the total market size since Bitcoin appeared proves the world ready for blockchain and crypto revolution. According to <https://coinmarketcap.com/> as 9<sup>th</sup> March, 2020:  
Cryptocurrencies: **5,167**, Markets: **20,819**, Market Cap: **\$233,576,062,472**, 24h Vol: **\$148,905,054,158**
- b) The growth in the demand and application of Blockchain technologies across all economic sectors shows the world is ready and willing to spend billions investing on real world applications - <https://www.ibm.com/blockchain/industries>, <https://consensys.net/blockchain-use-cases/>, <https://coinswitch.co/news/20-blockchain-applications-across-industries-2019>

### **3) Economic Impacts of COVID-19 on Blockchain technologies and Cryptocurrencies**

**a) Failure of centralised systems to manage decentralised economic/health crises**

For countries that have State/Regional Governments and Federal Governments e.g. USA, Canada, Australia, Britain, South Africa, Nigeria, and European Union, COVID-19 has created logistical nightmares. The vast differences in the rates of infections across each region has led to very different attitudes to the urgency and therefore responses. A centralised approach to take control is struggling to lead coordinated responses. Worse still, the populations of different regions are getting politically caught up in “our region vs their region”, ignoring the fact that the virus shows no regard for such differences. **The underlying issue is lack of trust among different levels of Governments.** This is quite maybe a concern for many, given that Governments are making life impacting choices without the population having a say: *“Though it may seem crass, the [US] federal government actually has long made a calculation when imposing regulations, called “the value of a statistical life,” that places a price tag on a human life. It has been used to consider whether to require seat belts, airbags or environmental regulations, but has never been applied in a broad public health context.”* (<https://abcnews.go.com/Politics/wireStory/trumps-push-open-economy-cost-lives>)

Blockchain ecosystem solutions could bridge the significant inter- and intra-Governmental trust gaps by providing the immutable and secure management of information from source/origin to all levels of Governments significantly reducing mistrust among Government Institutions on the one hand, and between Governments and the governed, on the other.

**b) Post COVID-19, the high probability for a massive transfer of wealth from the middle- and lower-income groups to the fewer already rich and powerful**

If the pandemic prevention economic activity lockdown extends for several months, it is anticipated that it is very highly likely that many Businesses will use this unfortunate COVID-19 event to initiate significant and permanent company restructuring leading to permanent job losses across all layers of the company’s structure. This will be justified as required in the vastly changed economic environment where online delivery infrastructure has become embedded and both Supply Chains and Consumers are now adept to these technologies. So, why go back to the old, expensive systems when these new technologies will substantially increase returns on capital as well as higher shareholder wealth generation. Needless, to say, it is the significant owners of shares who then increase their wealth through dividends, stock-options, etc., while significant numbers of employees will never be re-hired once the pandemic is over.

**c) During and Post COVID-19 mis-use and/or mis-appropriation of Economic rescue funds for powerful and privileged special interest groups**

Post COVID-19, without vigilant, eagle-eyed supervision and oversight of the trillions of dollars being handed over to Governments to spend to save Businesses, jobs, and the unemployed, it is highly probable a significant amount will be diverted for other than its intended purposes. As has happened after every major financial crisis before.

This is, perhaps, the area where Blockchain technologies would have the largest “Public Good” value-add. While this, for practical purposes, should be understood as a long-term proposition, it will become imperative as the public is left fuming at, yet again, the squandering and swindling of public funds to line the pockets of powerful and privileged special interest groups.

Blockchain ecosystem solutions could be built into Financial Institution regulatory systems to monitor the movement of every dollar from source to final spending with a transparent accounting for the public scrutiny.

**d) An entrenched demand and accelerated use of online technologies to deliver goods and services that once were largely based on bricks & mortar**

If the pandemic prevention economic activity lockdown extends for several months, Post COVID-19, the market for online delivery of goods and services will have become entrenched in some industries. In particular, some Educational institutions will have achieved their much longed-for desire to move their Students permanently into the online teaching thus freeing up large lecture theatres for hands-on joint research facilities and practical training courses with Businesses and Government Institutions. What’s the point of going back to physical face-to-face lectures after the embedded online culture?

The net result will be fewer jobs for teaching and support staffs. In Technology based industries, it would mean permanent reduction in office spaces as employees are made to work from home permanently. The excess office spaces will be leased out or Buildings sold as various on-premise staff are consolidated into few buildings.

Blockchain ecosystem solutions would provide these newly restructured companies with the means for end-to-end

assurance of the quality of their business processes while enhancing their profitability.

**e) Massive increase in cyber-crimes and espionage because of the massive skewing of dependence on online technologies for daily life existence**

There are already reported spikes in the number of fraud and scams associated with COVID-19. These include redirecting people to fake websites to claim Government Benefits, Charitable help or make donations to desperate causes. There will be new educational and social websites offering services that unsuspecting users will be asked to make payments for that turn out to be fakes.

Millions of the desperate unemployed will be rushing to develop new products across all areas of economic activity. Some of these unsuspecting people, who for the first time are forced to enter the online industry, will unfortunately suffer at hands of sophisticated cybercriminals both private and Institutional using phishing, website hijacking, disinformation and illegal private data gathering tool.

Blockchain ecosystem solutions could become the go-to solutions for securing personal and company data as well as providing the assurance that all transactions source and destination.

**f) Unexpected massive shake-out of some Global Corporations and Industry leading companies should key personnel not survive COVID-19**

The current absurd movements of stockmarkets seem to ignore, the fact, that COVID-19 has no regards for powerful Business titans. This fact alone could fundamentally change the future prospects of some iconic companies. COVID-19 is the “social strata equaliser pandemic” which means this economic depression is like no other. It will never be a return to the old normal. Unexpected casualties across all strata of society could mean the collapse of some iconic brands. In particular, those that have relied on the cult personality of their elderly Leaders and members of their Boards. Moreover, many of these Board members are on multiple high-profile companies. Their sudden departures could shock Investment Analysts into having to totally re-evaluate the prospects of the company. If their share prices and sales figures were implicitly based on their social cult leaders rather than a market assured succession plan infrastructure, than catastrophic decline in marketcap may occur.

Just as Investment 101 encourages diversification and movement into safe assets during uncertain times, so it maybe that Cryptocurrencies, and Blockchain projects may become attractive investment options, especially if they are responsive to the changing market. This is where Cardano ecosystem with is comprehensive financial infrastructure vision will drive it to easily become the most valued Blockchain project in the world.

**4) Current and Potential constraints on the world’s readiness for Blockchain and crypto revolution**

**a) Transaction Speed Per Second (TPS) –**

The ability to offer, at the very least, comparable competitive transactional functionality compared to fiat-based systems is critical if mass adoption is to be achieved. The existing benchmarks are those of Credit Card processing such as Visa at 25,000 TPS. With the availability of thousands of credit cards, any offerings claiming revolutionary capabilities must not only match existing competition, on top of new and unique services that the market has unfilled demand for.

[https://docs.google.com/spreadsheets/d/1wcuIUdLaRt37zI0m81eJdo6hE-CIZ\\_gINBOOFHvTE/edit#gid=0](https://docs.google.com/spreadsheets/d/1wcuIUdLaRt37zI0m81eJdo6hE-CIZ_gINBOOFHvTE/edit#gid=0)

Mcap Rank	Coin	Max current TPS	Caveats + future expectations	
1	Bitcoin	7	Improvements expected with lightning network	Note: Visa max tps is 25,000, 2k is current average
2	Ethereum	25	TPS in the thousands expected with current sharding spec according to Vitalik	
3	Ripple	50000		
4	Bitcoin Cash	57	Improvements expected with adaptive block size limit	
5	Litecoin	56	Improvements expected with lightning network	
6	NEO	10000	100,000 TPS expected by 2020	
7	Cardano	7	Expected to be absurdly large when production ready	

8	Stellar	2000		
9	Monero	1700		
10	EOS	25	Just an ERC 20 token right now, 100,000 theoretical	
11	IOTA	1500	Capped by coordinator, infinite theoretical	
12	Dash	28		
13	NEM	4142		
14	TRON	25	Just an ERC 20 token right now, 1200 flaky prediction	
15	Ethereum Classic	14		
16	VeChain	25	Just an ERC 20 token right now	
17	Tether		No data	
18	Nano	7000	Theoretically infinite	
19	Lisk	25	1000 with side chains	
20	Qtum	70	20000 with improvements	
21	Bitcoin Gold	7		
22	OmiseGO	25	Just an ERC 20 token right now, 1,000,000 theoretical with plasma	
23	ICON		No data	
24	ZCash	27		
25	Steem	100000		
28	Bytecoin	500		
29	Stratis	20000		
30	Verge	100	2000 with RSK technology	
32	Waves	100		
35	BitShares	100000		
39	Decred	14	Improvements expected with lightning network	
46	Zilliqa	2488	Team aiming for 10k minimum with sharding	
53	Ark	50		
57	DigiByte	560	280,000 by 2035 due to halving block time every 2 years	
66	PIVX	140	Improvements expected with elastic block size limit	
123	NAV Coin	1120		
183	XTRABYTES	280	10000 tps expected in future	

b) **Interoperability/Peer-to-Peer exchange between cryptocurrencies without the need to go via an Exchange**

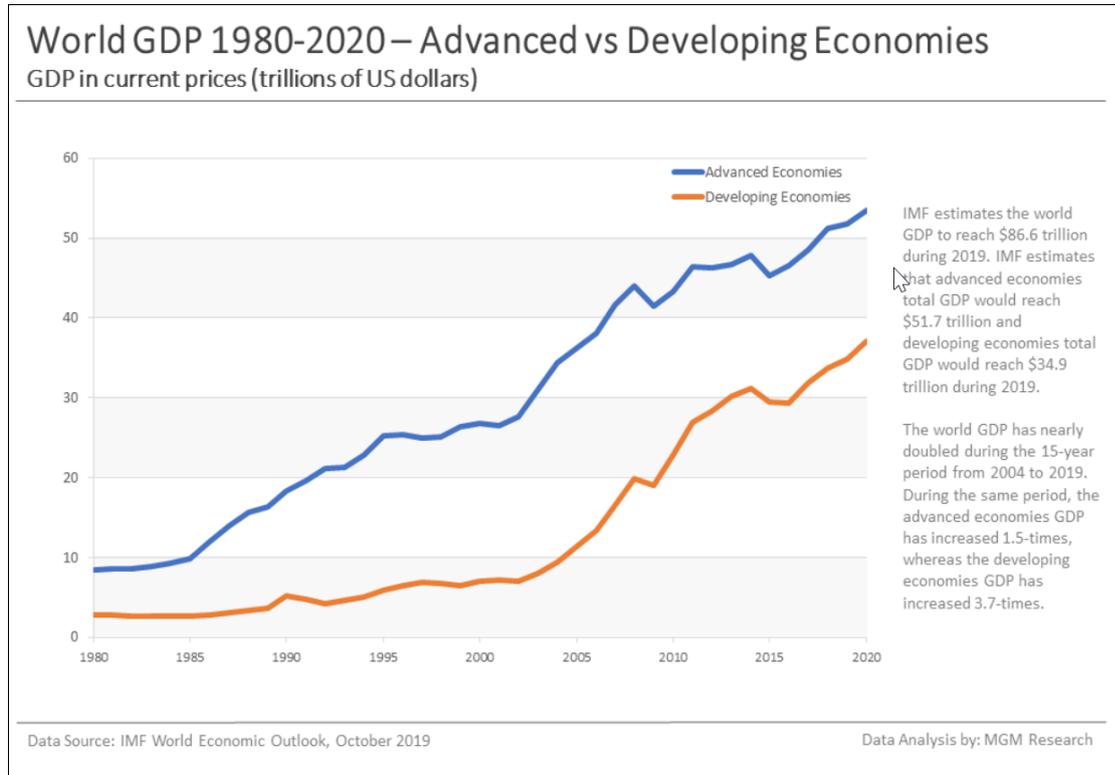
The ability to provide interoperability or peer-to-peer conversion between cryptocurrencies without using a cryptocurrency exchange as the intermediary is significantly important for mass adoption. To engage the unbanked who have little education and even less understanding of the complexity of exchanges requires a user-friendly peer-to-peer exchange available on the mobile phone. This would follow the widely accepted mobile peer-to-peer payments systems.

5) **Potential global market size:**

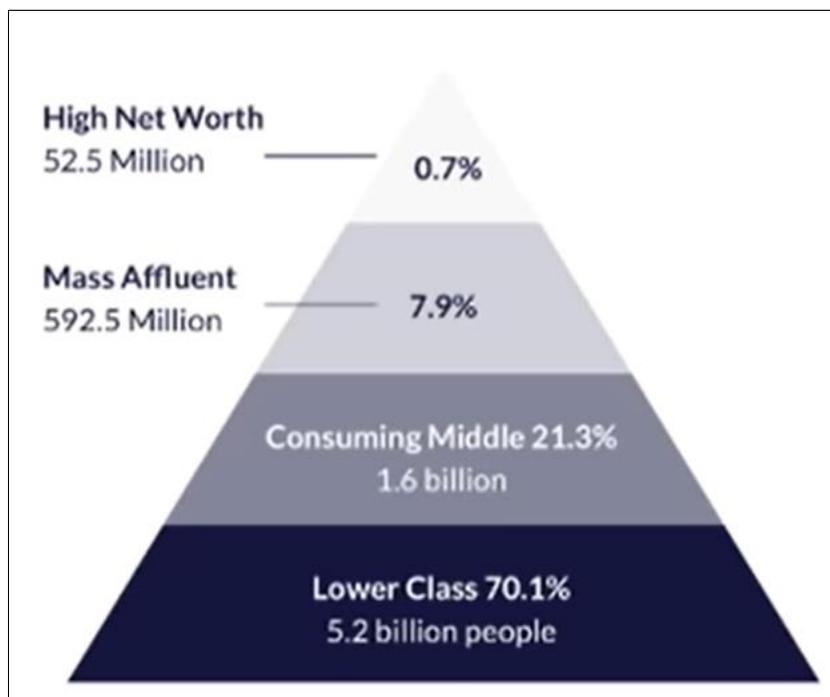
a) \$90 Trillion for 2019/2020 <https://www.statista.com/statistics/268750/global-gross-domestic-product-gdp/>

**Unbanked global market that is being targeted by Cardano:**

<https://mgmresearch.com/world-gdp-ranking/> - IMF estimates the world GDP to reach \$86.6 trillion during 2019. IMF estimates that advanced economies total GDP would reach \$51.7 trillion and **developing economies total GDP would reach \$34.9 trillion during 2019.**



b)



<https://www.youtube.com/watch?v=KIJZIER4nss&feature=youtu.be&t=43>

6) **Best market segments for adoption/ use cases for Cardano**

- a) Business Registrations and Asset Custody - <https://bitcoinmagazine.com/articles/blockchains-greatest-impact-will-be-developing-countries>.
- b) Financial Services, Remittances, Peer-to-Peer energy trading, Supply Chain, Land Registry, Identity, Fund Tracking - <https://www.devex.com/news/opinion-7-ways-to-use-blockchain-for-international-development>.

**7) Main competitor platforms focussed on or could compete in Developing Economies**

- a) Ethereum smart contracts.
- b) Tezos for Proof of Stake.

**8) Major potential hinderances to mass adoption**

- a) Transaction and/or Service fees must be equal to or less than existing mobile services fees and charges.
- b) Data transfer rates must be equal to, or better than for existing Mobile Apps.
- c) Services must be responsive to unreliable Internet and Mobile networks.
- d) Data storage on Mobile phones must be competitive with existing majority of mobile storage limits in Developing countries.
- e) Scalability of transaction volumes to avoid crashing the Cardano platform and/or the networks/servers available/accessible in the Developing Countries.

**9) What is the significance of the Cardano Community in the development and promotion of mass adoption?**

- a) Validators of the useability, and capability of the Cardano technology to meet its stated deployment aims.
- b) Educational contributions through Social Media posts, News media, articles in Community and Professional journals
- c) Development of real use case DApps on the Cardano platform demonstrating its efficacy.
- d) Acting as redirection channels for Investors and Developers to the source of truth and development tools they need to meet their specific requirements.

**10) What incentives must be used to promote and achieve mass adoption?**

Based on the experiences from the Incentivised Testnet as well as what is practiced in the IT industry, they include the following, but it is not complete:

- a) Staking incentives – ADA Rewards, Cardano Foundation Online Newsletter.
- b) Pool Operator incentives – ADA, Discounted Cardano Conference tickets, Cardano Foundation Online Newsletter.
- c) Ambassador incentives – ADA, Discounted Cardano Conference tickets, Cardano Foundation Online Newsletter.
- d) DApps developer incentives - ADA, Joint-Development and/or funding, Discounted Cardano Conference tickets, Cardano Foundation Online Newsletter.
- e) Conference and Marketing Events organiser incentives – ADA, Cardano Foundation Online Newsletter.

**PART 2**

**Political Analysis - Implications and impacts**

A revolutionary idea with global economic impacts will inevitably draw political interest and eventually political interference both positively and/or negatively. Ideas that impact citizens of any country will force the authorities in the countries to examine what are the benefits and risks of this new idea. The Cardano ecosystem when fully implemented, and in particular, when fully commercialised with mass adoption will draw responses that may seek to both promote and also inhibit its growth and development.

As investors, particularly with a long-term perspective, the political impacts on the Cardano financial ecosystem should not be underestimated if its vision gains significant traction to the extent that Governments sense a loss of economic controls. Below are some of the questions that come to mind, that Investors must consider.

## 1) What is the current global political climate for Blockchains & Crypto ecosystems?

### a) Post COVID-19 - Lack of trust in Governments and Institutions to provide trustworthy and actionable instructions

The 'slamming of the economic breaks' and sending millions into Economic and emotional Depression as well as the carnage of thousands of deaths from COVID-19 will have profound impact on the population's trust of their political leaders and institutions. There is and will accelerate a search for an alternative form of governance and information systems that will substantially increase truth telling by political leaders and Institutions.

Blockchain ecosystem solutions potential to make a very significant contribution could finally be realised. If current blockchain ecosystem DApps and infrastructure solutions can respond quickly, efficiently and most importantly de-risk and destigmatise the existing scepticism towards existing blockchain products.

### b) Post COVID-19, Governments may have succeeded in convincing their populations to cede their intimate private profiles, to the State as entirely acceptable and necessary, but it will be permanent

This has already occurred many times during periods of natural disasters, war or terrorism acts where the public willingly agree for the Government to deny them their civil rights and privileges. The current COVID-19 pandemic is no different in that sense. When its over, people will again begin to re-assert their Constitutional rights. No doubt the Governments in the Western democracies will accept this reversion to the accepted norms. However, if this COVID-19 pandemic lasts for 6-12 months then most of the populations would have provided intimate details of their personal profiles to the State databases via Hospitals and other allied medical facilities. A necessity if they have to enter medical facilities or carry out medical tests. Those who may have previously avoided providing intimate private details about their genomes, medical history, family and social networks will need to provide these in order to facilitate treatment for the broader community. This data will now become State property and their true identity will forever be traceable.

In this socially tumultuous scenario, Blockchain technologies would be keenly sort by both Governments and individuals. There will individuals who will be fighting for the right to have their intimate private profiles to be deleted from the Government systems and placed in a blockchain encrypted system of their own choosing, presumably in some cold storage medium.

For Governments, Blockchain technologies would provide the Gold Standard Security Assurance solutions for this highly sensitive vast newly created data and metadata which, incidentally, was **freely** provided without the coercive approach of totalitarian regimes of centralised Governments such as Russia, China or North Korea, etc.

### c) Globalisation of Centralised data on each countries state of health of individuals to enable infection contact traceability

The undisputable reality of success of countries that implemented infected person **Identification, Tracing** of all person-to-person contacts of the infect person, and **Isolation** of both the infected person and their contacts during the very early stage of the COVID-19 spread will have a profound strategic impact on individual privacy. All the current data that is being mandatorily collected will be retained permanently and will most likely be shared across International borders. Currently, there are studies still trying to understand the long-term health impact of COVID-19 on patient health which will justify sharing of specific cases between Laboratories across the globe. It is unlikely thousands of individuals will be told that their health record is being shared. The potential legal push-back through class action or financially equipped individuals would slow down the research process, and urgency is the imperative.

Also, very importantly, Governments and their Agencies will want to be highly proactive to carry out the Identification, Tracing and Isolation model for any future potential contagion. They will also use the current data to develop profiles of different categories of levels of at-risk individuals so that they can be isolated as a pre-emptive action to avoid the current death rates among them.

Governments will most likely introduce laws that strengthen their powers to share these medical data without requiring individual approvals, even in the face of opposition from the public. These laws would be considered as matters of National Security and existential threat prevention initiatives.

### d) Political power is threatened: Blockchain ecosystem could lead to perceived loss of power to control all aspects of individuals lives, weakening Taxation capabilities, introducing Commercial practices that cannot be censored or monitored. The Political institutions response solution to this threat is introduction of Regulations

(<https://cointelegraph.com/news/us-congressman-introduces-crypto-currency-act-of-2020>) to protect the

status quo until the Institutions have developed sufficient depth of understanding of the technology such that they are assured that its long-term direction will not lead to the current political systems overthrow -

<https://www.publish0x.com/g4g-crypto-training/the-political-economic-and-social-impacts-of-blockchain>

## 2) What specific political impacts will Cardano ecosystem solutions have?

### COVID-19 Related:

The availability of Cardano blockchain solutions for the protection of privacy of individual data while being able to share these for specific medical uses could enable community push-back to Government attempts to use personal medical records without assured safeguards that satisfy individual sense of security.

### PROs for democratic process assurance:

- a) Reduce the need for vote recounts, eliminate questionable voting results, and increase public assurance that each vote counts and cannot be altered thus, strengthening democratic institutions.
- b) Enable certified online voting and real-time publishing of voting result for each poll booth rather than for each voting centre.

### CONs for existing vested interests:

- a) Deployment of Cardano ecosystem solutions in the political voting process as well as Identity certification during voting will significantly weaken those interested in continuing to manipulate the voting eligibility vetting process and voting system to gain or maintain political advantage.

## 3) What are the political risks at present for Cardano ecosystem?

- a) Blanket bans by Financial Institutions, in some countries, of solutions built on the Cardano ecosystem similar to bans on Cryptocurrencies and Crypto Exchanges. The global political reality of Governments and their Institutions capacity to collude and collectively impose punitive restrictions, not only on any new ideas but also on those who promote those ideas is well established.
- b) The legitimacy of those Regulatory imposts could, directly, be initiated and strongly lobbied for by influential Investors, Businesses, and Organisations that can clearly see they would be decimated by the implementation of this new ecosystem ("The Empire Strikes Back"). The actions of Central Banks as well as Banking and Finance Institutions whose roles would be replaced by Blockchain and Cryptocurrencies created without the need for Banking Licences and money transfer licences led to the politicising of the Blockchain and Cryptocurrencies developments. The result contributed to the sudden slowdown in the crypto space and the departure of many Start-ups.
- c) There could be onerous legal requirements imposed by Regulators in an attempt to force the Cardano ecosystem to work within existing understanding of Financial markets and infrastructure similar to the onerous New York BitLicense application (<https://en.wikipedia.org/wiki/BitLicense>) and as well as the threats to Facebook's cryptocurrency, Libra.

## 4) What are the political risks in the future for the Cardano ecosystem?

- a) Even if the Cardano ecosystem is initially allowed to flourish, however, a rapid growth in demand and use of the Cardano ecosystem could create a climate of anxiety among Government officials who may see it as a rapidly growing threat to their political and economic control. This could lead to either restrictions or increased supervisory demands over the internal workings of the Cardano ecosystem.
- b) If Cardano was to become as dominant in the blockchain ecosystems as Facebook, Apple and Google are in their ecosystems, the Government attitudes could change to be positive, if it strengthens and expands existing business environments and/or creates a whole new industry like the Internet did for global online businesses.

- c) Cardano ecosystem's Institutional mass adoption could be ensured, in particular, if Governments and Institutions, that are most vulnerable to the Cardano ecosystem find that, in fact, their capabilities to even more tightly control and manage their citizens and their international business associates are substantially enhanced.

#### **5) Does or should the Cardano Community even care about the political risks and imposts?**

- a) Some might casually say "Meh!, we'll deal with them as, when or if they happen. Not much to see here at the moment".
- b) Long-term Investors have probably been grappling with these vexed issues as they see how Governments and Regulators have separately and jointly smashed viable Crypto Start-ups over the past 18-months with the stroke of a pen or a Twitter feed.

To soldier on, through the current Crypto Winter and Political assault, requires the belief that in the end, the will and demand of the majority will win. But will that require some compromises as has occurred in the development of the Internet, which has controls imposed on it through the globally centralised registration and regulation of Internet Address?

- c) It is one thing to have Quantum resistance for Blockchain ecosystems, but it is quite another to have effective Political influence resistance or independence in the globalised world with institutionalised vested interests and legally enforceable frameworks. The capabilities of the decentralised Proof-of-Stake (POS) will no doubt be tested for its robustness against global Institutional power collusion to reign it in, within its unquestioned powers and domains of control.

#### **OTHER REFERENCES**

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#### **VERSION 2**

Cardano Ecosystem Mass Adoption: Economic & Political Analysis for the Community -

<https://forum.cardano.org/t/cardano-ecosystem-mass-adoption-economic-political-analysis-for-the-community-version>