BREAKING BARRIERS: FACTORS IMPACTING LARGE-SCALE BLOCKCHAIN ADOPTION

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Technology, in recent years, has been increasingly getting disruptive and transformational. The advent of the internet, cloud computing and today, the blockchain, has demonstrated the potential of path-breaking innovations in technology to completely transform not just the way organizations go about their business but also the way people go about their lives.

The measure of success in the adoption of such technology has always been a function of its relevance and acceptability to its users. Blockchain technology takes this aspect even further with its groundbreaking concepts of digital trust, transparency and disintermediation and ability to fundamentally transform the nature of transactions. Acceptance and adoption of such transformational technologies is driven not just by availability or feasibility of technology but also by cultural and social perception of such concepts and by economic and regulatory readiness of the environment that the technology needs to operate in.

The success of blockchain as a technology depends on the extent of its adoption. An appreciation of the underlying factors or impediments to adoption of this technology will help uncover challenges that may need addressing.

Regions and countries are driven by different social and cultural behaviours, values, principles and economic priorities. These kind of qualitative attributes have a bearing on the extent of adoption of disruptive technologies like blockchain. It is important to understand these factors in the local context before assessing a society's readiness for blockchain.

We examine some of these critical factors from multiple perspectives - social, cultural, economic. legal and political - and the influence they have on large scale adoption of blockchain in this two-part series.

This article is the first part and looks at social, economic and cultural aspects that influence adoption of blockchain,

The second part of the article will cover legal, political and infrastructural factors that influence adoption.

Social and cultural factors

Familiarity with Technology

The best way to have an initial idea of a society's level of technological familiarity is determining to what extent technology impacts day-to-day activities. Blockchain and cryptocurrencies are complicated concepts themselves, much more so if one is not acquainted with some of the basic concepts upon which they are built. Societies that have already assimilated technological innovations and experienced the value they can deliver are more receptive to new technologies. The intrinsic involvement of technology in their societies has not only made them aware of the value it can bring, but has also helped them evolve into informed critics with greater expectations of the value innovations must deliver.

Conversely, there are societies that have not been able to keep up with technological modernization. Reasons can vary: Cultural resistance, suspicion towards technology or its promoters, view of technology as a threat or lack of infrastructure and policy support. Expecting a smooth and swift integration of blockchain technologies into common culture in a case like this would be wishful thinking.

Another important aspect is the technology maturity of the powers that be. When policy makers and regulatory institutions recognize that society can benefit immensely from an innovation or technology and facilitate adoption, the possibilities are magnified.

Forget Tinder, blockchain seals the deal!

Yes, we are talking about 'getting involved' with technology, while some couples dream about the romantic wedding on the beach. In 2015, a Spanish couple got married at Bitnation, the world's first virtual nation, thanks to Smart Love, the marriage service that Bitnation offers. Couples can arrange pre-nuptials, multi-party marriages, and even the length of the marriage by programming it on a smart contract. The blockchain serves as the medium by which the marriage is registered, and though not legally recognized by any court of law, the Spanish-born couple are Estonian e-residents, making them legally married…on the Internet!

Willingness to experiment and propensity for risk

Once we combine technological comfort with expectations, what we get is a technologically curious society. What follows curiosity is experimentation. Societies with these characteristics are able to appreciate prototypes and a hands-on approach. They are also more tolerant of failures, delays and errors that are to be expected in experimental or early stage technology. This is especially important when concepts like digital currencies are involved, where failures or errors could translate into potential for real losses.

The other side of this coin is the entreprenuerial spirit in society, with businesses willing to take risks and an environment to support them. A thriving startup culture with sufficient venture capital and crowdfunding opportunities to test out new technology can make a huge difference to successful adoption of innovative new technologies like blockchain and cryptocurrency. While blockchain technology has already begun to impact the financial sector, its potential in almost every other sector is huge and waiting to be tapped.

The willingness to experiment and tolerance for risk also extends to the policy environment and policy makers. Sponsorship by governments and enabling policies have proven to fuel mainstream adoption of blockchain in certain countries.
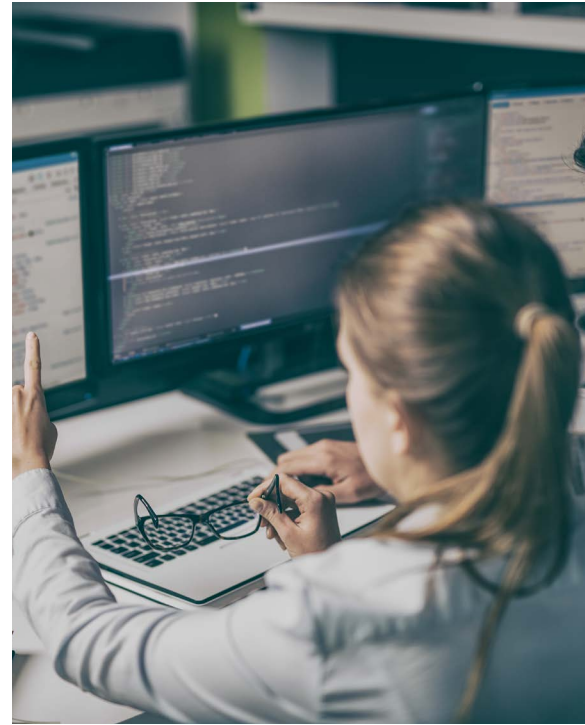
Power dynamics

Blockchain proposes a distinctive framework where no one person has the capacity to control what happens on it. Every node is equally empowered. The peer-to-peer network regulates itself by consensus removing the need for a central party being in charge.

Some cultures will be comfortable with this scenario, while others more used to the concentration of power or more unbalanced dynamics might reject it. Democratic societies, on the other hand, accustomed to autonomy and power, will embrace this aspect of the blockchain with little or no difficulty.

One of the classic cases of blockchain application could potentially be in the American public healthcare system. In spite of rapid advances in technology, the biggest impediment for the majority of hospitals is their inability to safely share their data, making doctors spend more time typing than talking to patients.

Blockchain adoption has shown initial promise in this space what with patient prescriptions showing a continuous record of medications being prescribed. Imagine if a government were to take initiative to standardize this adoption across the entire healthcare system. The benefits could be immense.

Democracy on bits and bytes

An Argentinean non-profit organization called Democracy.Earth is developing a blockchain based platform that will allow votes to be cast on the distributed ledger. Capitalizing on the benefits this technology offers, the organization has created an open source platform that can be used to debate on matters and later vote on them. Votes are cast as Bitcoins, where one vote equals 0.00000001 Bitcoins, one can even delegate his voting decision to whoever he entrusts with that power. Opening democratic decisions to the distributed ledger can signify giving the populace more democratic power than ever before. As mentioned before, though democracy and equal rights are sought values, not every society abides them.

Information flow and privacy concerns

An important attribute of Blockchain that also brings much of its value is transparency of information. However, this may cause some to view the technology with a degree of suspicion. The information people are willing to share, and to what extent, depends on their culture, values, and interests. Some of blockchain's characteristics may be in contradiction with these principles, making people concerned or jittery.

Technologically engaged societies in recent years have witnessed a rise in people's awareness of the amount of personal information they share online.

However, some societies may be suspicious of the high level of transparency of the information on the public ledger, especially where it relates to personal information or transactions. This may be due to concerns about possible surveillance by authorities, fear of misuse of the data or fear of the information falling into the wrong hands that might use it for illegal purposes. While transparency may be seen as a sign of openness and hence trust by some societies, others may prefer privacy in their transactions. Sharing transaction history with every node does not strike them as desirable.

Currently, more work is being carried out on transaction confidentiality, identity management, and security of blockchain. Nonetheless, it is important to bear these factors in mind when thinking of a blockchain implementation.

The extent to which people are influenced by popular media versus being educated about technology is another factor that decides the level of acceptability of a technology like blockchain. Given the nature of blockchain and particularly bitcoin, if any negative news in the media creates a fear psychosis or panic in the populace, that can quickly impact the level of common acceptability of the technology. On the other hand, efforts by governments or public interest groups to educate people about the technology and create a discerning public can help stem the impact of negative news.

Economic factors

Level of cashlessness and comfort with non-physical currencies

Economies where electronic and card payments prevail over physical money and cash, benefit from a higher level of transparency, lower costs, and less tax evasion. Blockchain networks represent a secure, transparent, registered, peer-to-peer medium for currency exchange with lower transactions costs. It enhances current electronic payment systems by taking them to a whole new level. Countries and people already used to transactions with digital currency will be much more open to adopting blockchain based digital currency (regardless of the cryptocurrency used on the blockchain), as they are already familiar with the notion of transferring and managing monetary value that cannot be held in hand.

This kind of economic environment requires a structure built upon formal, regulated markets. On the other hand,

economies operating largely on cash will have greater challenges with adoption of digital currencies. Today, millions of people living in developing countries make payments over-the-counter and are completely off the financial grid. A blockchain payment implementation would not only mean expanding the financial network by bringing in hundreds of new nodes, but drastically changing the way people have done business for years. Organizations targeting countries with important, informal markets must recognize that this involves not just technological implementation but also a cultural shift that can be harder.

India goes cashless overnight

On the evening of 8 November 2016, the Government of India declared all 500 and 1000 rupee notes null overnight. The objective of this demonetization process in India, where over 95 percent of its economic activity is conducted in cash, was to reduce black market transactions and corruption. Those who had stashed large amounts of cash found the worth of their hoard reduced to the value of the paper they were printed on. The move has forced a large part of its population towards electronic payment methods and e-wallets with the government taking measures towards creating a cashless society. While the abrupt move affected the lives of millions due to the robust informal markets that the nation nurtured, it has spurred the move towards a more digital economy that can leverage technologies like blockchain to foster inclusive growth.

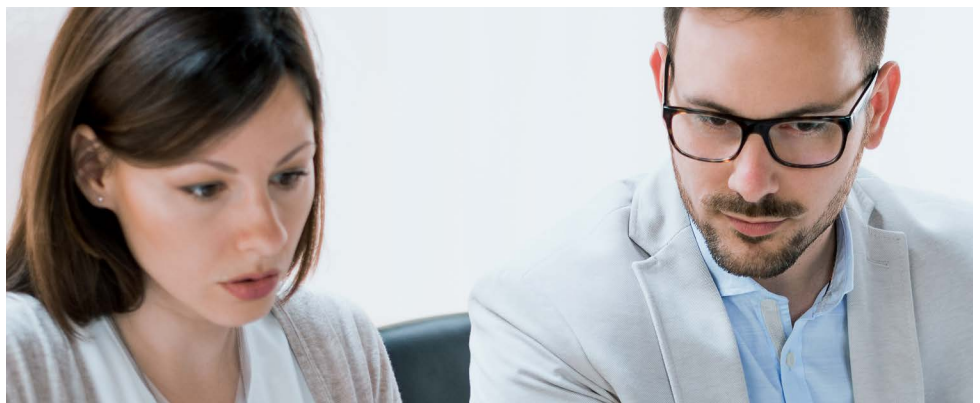## Ability of technology to foster inclusivity and level the playing field

Inequality is one of the world's biggest economic issues of today. Recent reports state how the eight richest people in the world have as much money as the poorest 50 percent. This inequity also inhibits active participation of the disadvantaged sections in the economy and their access to capital, exacerbating the problem further. Technologies like blockchain that break down barriers for participation for even the smallest of players and help level the playing field are likely to see greater interest from governments and economies working towards inclusive growth. In fact, this aspect can even drive economies that are behind the curve to skip contemporary ways of conducting transactions and leap frog into using a technology like blockchain that enables the transformational changes required to bridge the divide.

that are quick to spot the potential that blockchain opens up and are eager to sieze the opportunities to create locally relevant applications help in generating interest and new possibilities. They become the principal innovators, catalyzing change via blockchain-based solutions. When this is

in alignment with the larger interest of the region and is supported by an encouraging government with sponsorship and supportive policies to elicit the value of blockchain, large scale adoption becomes a real possibility.

Eagerness to take advantage of opportunities

The Bitcoin network is exceptional in that it has opened up the gates of money exchanges across the globe – anybody with a computing device and access to a network can transact on the network across international borders bypassing regulatory boundaries. More technically savvy people, particularly in urban areas have been quick to sense the possibilities and adopt the network as users. Businesses and the technology community

Innovation paradise

Israel is a middle-eastern country of highly educated people, with a population of just 8.2 Million and GDP of almost US $320 Billion. Their technology sector accounts for about 16% of the GDP. Startups contribute an unusually large portion towards these numbers, and lately, this trend has seen a spurt of many bitcoin and blockchain companies. A Deloitte report paper on the Israeli blockchain business space lists about 40 of them. It also mentions that 150 to 230 businesses in Israel accept Bitcoin, including many brick-and-mortar stores. Two of four Bitcoin ATM machines in the country are located in the downtown Bitcoin Embassy, a hub for the community and entrepreneurs. Informally referred to as "never ending meetup," the embassy provides a meeting environment for collaborative work on blockchain-related projects. The reasons quoted for why Israel has such a rich environment for blockchain startups include high levels of education and a thriving investor and venture capital market.

Cooperation among market participants, regulators, and technologists

Blockchain is a technology that particularly calls for such cooperation for two reasons. One, blockchain has the ability to remove the need for trusted intermediaries, some of whom are deeply entrenched in the current systems and processes and are an essential part of the regulatory fabric –changing this calls for technology vision, willingness to allow and make regulatory changes, and the incentive and push to undertake these changes from the market participants.

Two, blockchain is a technology that delivers great value when multiple parties across trust boundaries participate in the blockchain network, enabling possibilities not imagined before. This again calls for collaboration among organizations and competitors.

A classic example of creation of a favorable environment from regulation is the Payment Services Directive (PSD) in Europe. While the initiative is aimed at ensuring that payments across the EU are secure, the spirit of the directive is aimed at promoting and including non-banking payment innovators in the payment ecosystem.


Aloha blockchain

The American state of Hawaii has recently filed a bill with the aim of promoting tourism, enhance public sector operations, and private industry capabilities by leveraging the use of blockchain technology. The idea is to create a team that will bring together people from private and public sectors with the objective of analyzing the best ways that blockchain can add value. If passed, the project will affect local industries as much as residents by advocating for and educating about blockchain. A successful outcome could considerably impact the views of the government about blockchain and trigger other implementations across the country.

Conclusion to part 1

So it's 2017, the year in which everyone believes blockchain will finally become real and emerge from the prototypes domain. Such a paradigm shift in business, technology and user mindset coupled with limited mainstream implementation use cases can create multiple barriers that need to be overcome before the tremendous value of blockchain can be realized.

We have identified some of the key factors that influence the mainstream adoption of blockchain technologies and bring out the difference between the entities that thrive on the adoption and the ones that are left muddled in self-doubt. We will explore more such factors covering legal and infrastructural barriers in Part 2 of this article. More importantly, this point of view seeks to emphasize the necessity for a measured sandbox approach by building prototypes through the power of design thinking. Building a layer around these prototypes comprising of experiences, adoption factors and most importantly, successes along the way can make them become tomorrow's path breaking innovations that can help realize the potential of blockchain.
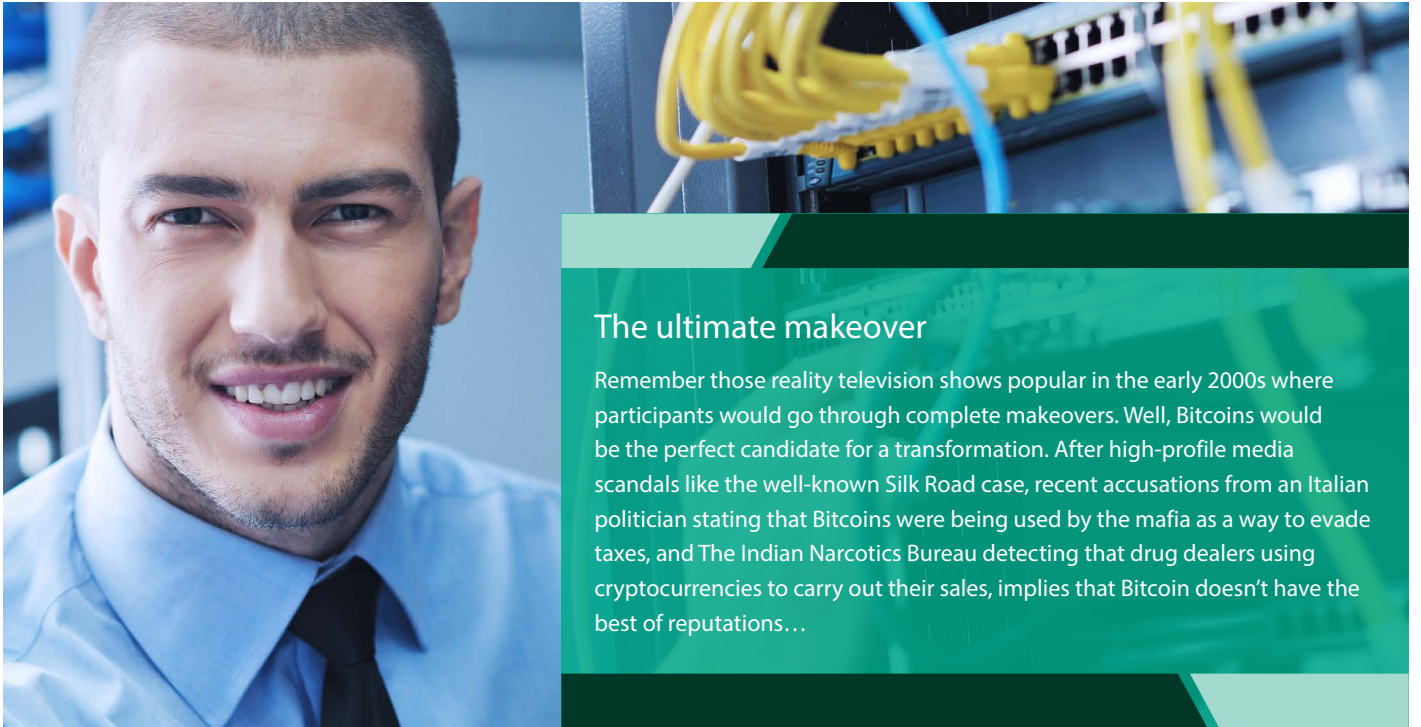
The ultimate makeover

Remember those reality television shows popular in the early 2000s where participants would go through complete makeovers. Well, Bitcoins would be the perfect candidate for a transformation. After high-profile media scandals like the well-known Silk Road case, recent accusations from an Italian politician stating that Bitcoins were being used by the mafia as a way to evade taxes, and The Indian Narcotics Bureau detecting that drug dealers using cryptocurrencies to carry out their sales, implies that Bitcoin doesn't have the best of reputations…

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