Social Media, Metaverse & Cryptocurrency

A review of the technology, its monetization and the associated laws

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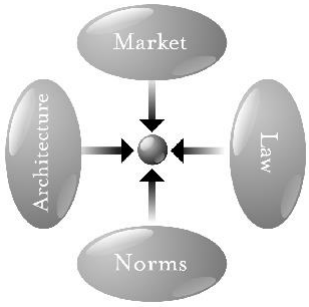
***Abstract*— In this paper, we discuss the evolution of social media, cryptocurrency and metaverse, the scope of their current impact, the challenges posed by the systems and the impact of Larry Lessig's four forces of modality: law, norms, architecture, and market.**

As we started with the selection of topic for this project, out of all the options I had, there was a triad I really couldn't let go: social media, metaverse and cryptocurrency. the 3 of them are massive tec applications that affect our everyday life in ways we never could have imagined. The range of impact obviously calls for a need for a regulation and that, I decided would be my topic: "Social Media, Metaverse & Cryptocurrency: A review of the technology, its monetization and the associated laws". Now that I had this absolute beast of a topic, the challenge was finding a place to start. While I could sense multiple underlying unifying topic, it took a while for me to realize i was essentially studying the interaction of Larry Lessig's four forces of modality on a cyber entity, in my case, the precious triad.
In the course of this paper, we will individually review each of these three entities to understand how the four forces are regulating them and understand the sort of interdependence this has established between them essentially revolutionizing internet to its next stage. In the first section, we start with the overview of Lawrence Lessig's Pathetic dot theory. In Section 2 we focus on social media, in Section 3 on Metaverse and on Cryptocurrency on Section 4 discussing the evolution of these systems, the scope of their current impact, the challenges posed by the system, the corrective actions in demand and those in place.

I. PATHETIC DOT THEORY

The pathetic dot theory/ new Chicago school theory is a socio-economic theory of regulation that discusses how the lives of individuals, the pathetic dot in this theory, is regulated by four forces: the law, the social norms, architecture (technical infrastructure) and the market. While law threatens with action, societal norms enforce by community, the technical infrastructure b limiting what's possible and the market through demand and supplies. Together, these four forces regulate the action of the said dot.



II. SOCIAL MEDIA

Social media simply could be defined as an internet-based form of communication. It allows for users to have conversations, share information, as a business front and to do so much more. But despite all that, if you asked people about it one of the most heard complaints would be about how addicting it is. I'd say get over it, but only if it were so easy. it has tuned us into little dopamine addicts who are constantly gallivanting between the tens of apps on our phones that are constantly vying for our attention. All the data that is being collected about you to "create a better tailored experience" really just selling our data to the highest bidder to push products that you most likely wanted, but never really needed.

The status quo of the social media scene today brings forward many important questions: What exactly is the kind of data that is being collected? What are the restrictions in USA for such data collection? Do the users get a choice in restricting what they'd like to share?

More importantly, what is the impact of these social media platforms on the mental health of its users, to what extent has it exacerbated previously existing issues?

What really is free speech on social media, where do we draw the line? Should there be a regulatory body? to what extent are these social media companies bounded by law? What qualifies as an unconstitutional act on their behalf? As a global platform, can they be committed to national interest?

Most social media platforms today run based on their ad services. When the entire sustenance of the platform depends on it, to believe there would be any real commitment to its user best

interests us naivety, to put it nicely. Today, for a data driven application to be successful, it should either address a very specific problem or be capable of delivering that dopamine hit whenever you engage with it. Hence, in order to keep the end users engaged, these platforms need to keep devising new and effective methods and there's only so much that can be done before the approach becomes "insidious". The effects of prolonged social media usage are layered. At its mildest level, due to the format in which data is presented to us in these platforms, we have effectively lowered our attention spans. We want what we want when we want it. it's gotten to the point that you can't bring yourself to watch a whole 5-minute video. Perhaps at the next level, is the fact of how good it is at noting your interests and provides you with more and more of similar content keeping you occupied for longer. While there's no serious danger out of it, it's more that kind of bad behavior that a person willfully indulges in, although it isn't really in their best interest to do that.

Multiple studies have now shown that teenagers now suffer from increased mental health and body image issues from their social media interactions. Social media companies and their experimentations on the unaware public to learn of better ways to groom them is unethical, but not illegal. In addition to the breach of privacy and the unwelcome intrusion its provides a rather shocking insight of their capabilities to shape up our world view and how we feel.

With continuous exposure to homogenized content, you are convinced that this is how the world truly is you feel more and more strongly towards the things you believe in as they continue to take up your time and attention.

Gone are the days when you could say well I know it's true because I saw it with my own eyes. The time we've all spent on these platforms has shown how much data, both numerical and visual can be twisted to fit your narrative. So much gets manipulated that even your rational self is left wondering, "oh, could it be?".

In the First war of Indian Independence or The Sepoy Mutiny (depending on which side of history you are familiar with) one of the primary reasons for the defeat of Indian soldiers was the lack of an efficient communication system. Their old school communications were no match to the well-coordinated system the British had in place. in the recent United states Capitol attack of 2021. this was what social media provided: a means to effectively communicate and coordinate with large audiences. I'm not saying this ability is a problem, but the lack of an effort to check the false information and controversial teaching propagation is where the problem lies. If social media were to not exist, would it have been feasible for something like this to happen? What would you do? Send mass emails with provoking chants written in bold? The point here being, if social is going to facilitate outreach, it must provide for a means to keep that outreach well accounted.

While commercial back-handed exploitation is one thing, social media giants have made themselves an integral part of national politics. The most influential person in United States is not the President of the United States, it's the platforms that can ban him on their platforms, effectively curbing down his social influence.

The efficiency of social media is where the issues lie. When you provide the mass with the means to undertake an otherwise impossible task, you don't just stop at that and say what they do with it limited by only their imagination. You provide for a means of holding people liable for their actions, especially when those actions pose a threat to the safety of people. And to create a wholly sustainable ecosystem, you hold yourself accountable to ensure that.

Even in a strong, well-established democratic nation ,where you have the ability to re-elect your government, the collective acceptance to let social media companies place themselves in a quasi-neo government position that has all under constant surveillance under the pretext of offering a better experience as we spend the better part of our days glued to their screen is really beyond me.

III. METAVERSE

Web 2.0 mostly characterized by social media and the enablement of 1:1 large scale interactions really told the world "data is the new oil". But it also led to some serious monopolies in multiple domains and maybe through iterations of these phases we will reach the state of freedom without anarchy, control without state and consensus without power, the kind of cyberspace the early pioneers of internet envisioned.

Web 3.0 is an idea for a new iteration of world wide web based on the blockchain technology incorporating concepts of decentralization and token-based economics. While some believe we are already at the early stages of this ear, other dismiss it as just a buzzword. That discussion in itself might be worthy of another paper. But despite all that, there's no denying that internet is evolving providing newer applications. The greatest realization of this hit the world when Facebook renamed itself to 'Meta' publicly declaring its commitment to shape and build this new technology.

This rebranding would probably go down in the history of metaverse evolution as a landmark moment(for good or bad, only time will tell). While gaming industry has been toying around with virtual reality experiences for some time now, Meta's plunge into the domain has gained a lot of traction. With major businesses from across the world investing in metaverse assets, that the world has taken this seriously and to tune of a couple million dollars, no less. together with NFTs, this has heralded the new era of web 3.0 according to some. Really, social media walked, so metaverse could run. the general population is still in splits about how it feels towards metaverse. While some feel this is peak capitalism, there are optimists among us who believe that it could really bring people together and has huge potential.

Metaverse, the concept refers to an immersive experience of gaming, online interactions, entertainment and more by using augmented reality, virtual reality, mixed reality and social media. While Meta might have won the highest publicity for its upcoming efforts in the space, not very far behind are Apple, Microsoft and multiple others. The mammoth scale investments these companies are making into this space really speaks of the potential worth they see in its future. But this enthusiasm could only mean further exacerbation that we see in social media platforms today. But right now we are still in such early stages

that there is so much speculation, confusion and apprehensions about it.

How many of our issues are technology specific? How many issues are platform specific?

Centralized metaverse basically more data collection, more ways for these tech giants to insert themselves in our daily interactions. But it would be interesting to see how content creation would evolve for these platforms. The possibilities of course seem limitless and new unexpected form of microeconomics might emerge out of it. On the other hand, we have decentralized metaverse, with their own cryptocurrencies that can be exchanged on cryptocurrency exchanges for other currencies. these platforms take advantage of the block chain technology to provide users an experience where they are resistant to censorship and interoperability with other platforms. Here they are allowed to own their assets and land by tokenizing them as NFTs giving their users a sense of traditional ownership that holds worth outside these universes.

The kind of approach that will be taken by the new players is not yet known. But with the kind of publicity that their entry has given to these virtual universes, we can surely expect an increase in the interest towards these platforms. There's so much to be known about the decisions to be made. While its highly unlikely for any regulation to be put in place at this stage for these experiences, an important concern is the regulation of user behavior and that of user data collection.

Since there is an additional element of involvement in these platforms, there is so much larger threat to you so privacy. Based on the past behaviour, seems like Do you think it is easier to beg for forgiveness then ask for permission. Regarding regulation of user behaviour, within a couple of months of becoming mainstream popular, to happen multiple reports of verbal and physical (meta-physical?!) assaults on this platforms. To a large extent, these problems cannot be attributed to these immersive experiences, like they couldn't be attributed to social media, but there is still a need to restrict it. It's hard to really what quantifies as physical assault in such scenarios. It could just be fear based apprehensions that really are not deal breakers for this technology, however that does not mean it's all hunky dory.

Have you ever visited a beautiful place where seeing hundreds of beautiful photographs of it? Have you felt that time of underwhelming disappointment when you saw the place because it wasn't exactly that perfect shot that you saw? Don't lie, yes, you have. So, think about it, a person who has an opportunity to spend time in his own version of idealised universe, what c incentive will he find to return to their actual mundane life? While that's not the problem of any platform or technology, it's a problem nonetheless.

Take that and combine it with the behavioural science furled by the commercial interest to keep users there for a long as possible, it's anybody's guess what happens next.

People don't always act in their best self-interest, at least not when they are manipulated against it. We've all witnessed the repercussions of painting caused by social media. So it isn't too sceptical to be hesitant of being a part of an experience whose every aspect is engineered to meet a specific goal what might not always be what it seems.

Ultimately, some of the important questions remain: is the legal system equipped to handle the challenges these digital universes bring? Is it too much of a stretch to imagine that could be second life alike experience out will it be an extension of our life where our experiences and communications are enhanced by the technology? Will it be capable of delivering us our need of humans and social interactions?

Based on everything we've seen so far, it isn't extreme to hope and want a more decentralised version of Metaverse become a reality. At this point, when reviewing the regulating forces affecting this cyber entity we see that it's technical application possibilities together with a community's need for alternate way of doing things incentivised by huge market potential is regulating the growth of Metaverse.

IV. Cryptocurrency

The final component of the triad we're reviewing in this paper is cryptocurrencies. The review of this particular entity was of much personal interest to me as I had minimal information on it as I started this project.

To gain the required understanding for this topic, I started with the most fundamental question, "what is money?"

While there differing views on this matter with one based on barter system and another one being ledger based, the latter seems much more likely as the probability of the people involved in a simple transaction always possessing items of equal worth seems little less likely. Some of the earliest records of money is that of scarce materials (flattened metallic chunks) minted with an unique symbol dates back to 800-1000 years. The next step along the way were hand written papers that verified they were worth the said value. Asking this process of evolution there were some failed attempts too. One worthy of mention was when Muhammed Bin Tughlaq, a sultan at Delhi minted leather coins. This led to people mounting their own currency wreaking havoc on the state's economy. Not very long ago, people in Kenya started trading their mobile minutes arms a form a currency scutch led to M-Pesa. Surely, there are many more examples along the same lines, but the point I'm trying to make here is, collectively as a society, we've experimenting with what's established as currency, come to accept free and moved on from the ones that didn't work out. So why is there so much hype around cryptocurrency and what category does it belong to?

Digital cash is actually an idea that's been around for some time now. Multiple attempts were made much before even 2008, but none of them lasted due to multiple reasons. Some of the main ones being lack of merchant adoption, no consensus, all these solutions were centralized and did not solve the problem of double spending. Most importantly, they failed to solve the problem of how to send value peer-to-peer without any trusted central intermediary.

And this continued until 2008, when Satoshi Nakamoto put forth the blockchain system with its native currency that aimed to remove a central authority for issuing currency, transferring ownership, and confirming transactions. The key design features of this initial cryptocurrency were cryptographic hash functions, time stamped append-only logs, block heads and Merkle trees, asymmetric cryptography and digital signatures, addresses,

condensed through proof of work, network of nodes, native currency, transaction inputs and outputs, unspent transaction output (UTXO).

From those early days to now, cryptocurrencies of different forms have gone to be widely accepted and gathered much public interest. Today, the global crypto market cap is around 2 trillion dollars, a small but non negligible part of global worth. But for the share it holds, it sure is populate behind that share. The primary reason for it could be some of the chambered the traditional finance sector poses which cryptocurrency offers to solve. Done of the primary ones are repeated crisis on global scale and the ripple effects of the instability caused. A a result of unsound policies, first currencies tend to become unstable. Centralized intermediaries, concentrated risks, economic rents, and the legacy payment systems of the central bank have basically made the endorsement for why newer, sleeker, efficient financial system is needed. Furthermore, a significant global population is still unbanked and there's not much happening to change that. So out of these reasons, arise the wide growing public acceptance of cryptocurrency. But, as groundbreaking that may be, it comes with its own set of challenges.

While the government in the USA has no monopoly over currencies that are taxed in the country, anything that acts with the properties of one must be complicit with that laws that guard it against illicit activities. These "currencies" must be compliant with the Bank Secrecy Act that expects the financial institutions to cooperate with the government to help detect and prevent money laundering, and laws against terrorism financing and tax evasions.

But other than these expectations, one of the major challenged associates with cryptocurrency is interoperability. Especially, with the onset of Metaverse, where interoperability between multiple digital universes may become commonplace and a requirement, this becomes a critical task to be solved. Furthermore, commercial use cars need to be better defined and government stance on its inclusion to current financial eco system needs to be better addressed, so that governance is more clearly defined. Privacy and security are also another key area where its strength is also it's weakness. Another critical challenge for cryptocurrency is forming public policy and legal framework to account for financial stability in larger economy and protection of investing public. But the biggest of all challenges though is that of performance, scalability, and efficiency. Mining for cryptocurrency is an extremely entry expensive process whose Carson emissions are on scale with that of a multi hour transnational flight. The source of the electricity thus used is not always from the right sources and happens in unethical mining farms. Widespread usage of cryptocurrencies in its current format poses a serious environmental threat.

In addition to all these, an important point to be noted is how the majority of cryptocurrencies are held by few entities. Such concentration poses a serious restriction to widespread acceptance of the currency.

Many countries today consider cryptocurrency as a legal asset. Although a god section of general population now dabbles in cryptocurrency, it's considered more of an investment option than as a currency. To consider it as a viable currency option, I'd volatility poses a serious challenge.

Further, for a Fiat currency that is backed by a governing body, there's an authoritarian body recognizing it's worth. But without such a backing entity, with its worth coming from people's collective attribution, is worth studying the probability of an economic crisis it could lead to.

For future work, along with the study of decentralized cryptocurrency, it might be interesting to study the challenges in the shift of global market cap into the cryptocurrency sector.

At its current stage, cryptocurrency is only limited by its technical limitations as its overcoming societal norms of regulation. The market has pushed its growth as law is trying to insert itself into the framework.

ACKNOWLEDGMENT

Thanks to Dr. Bonacci for offering constant guidance and ideas along the course of this project and encouraging the class to engage in analysis of technology from the perspective of societal impact.
Special thanks to Gary Gensler and his course on cryptocurrency, a man so brilliant he can explain the most complicated concepts in the easiest of the terms with his subject matter eloquence.

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