



## **Blockchain Technological Transformation from a Centralized into a Decentralized Ecosystem: BlockCity Is Rising**

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### **ABSTRACT**

Blockchain technology has been considered more seriously in the 21<sup>st</sup> century than ever for some time till eventually it was flourished through evolution of IoT, or Internet of Things, and the first well defined cryptocurrency, namely Bitcoin. Unlike what most people link blockchain technology to cryptocurrency, blockchain technology is applicable to many businesses, commerce, insurance, banking, healthcare industry, etc., as well as cryptocurrency. Bitcoin's extension into the 21<sup>st</sup> century's monetary system was - and will continue to be - remembered as a historical turning point of the medium of exchange, store of value, and unit of account, among other desirable properties of money. The authors in this research paper, given their extensive exposure to both related research sources, activities, and MIT's Intensive Executive Management Program on Blockchain Technology, and most importantly their recent partnership with 369 Smart Chain's BlockCity, are incentivized to provide more clarity to the global community as to this rapidly emerging platform in the world. The authors have concluded that the blockchain technology is another revolution inside the capitalistic ecosystem for imposing its powerful forces in the conversion of centralized businesses into somewhat more decentralized, where competition and efficiency would be more established than otherwise. There will be more reliable information, permanently stored on electronic ledgers, connected to nodes merged with those already accessible through the blockchain platform, operated by entrepreneurs, such as BlockCity, just as an example.

**Key Words:** Blockchain, Cryptocurrency, BlockCity, Centralization, Decentralization

### RECOGNITIONS AND GRATITUDE

We extend our deep appreciations to **MIT** for its top-notch program and **369 Smart Chain Company**, for its supporting information and a grant, provided to the first author for a successful completion of the most precious **MIT's (Massachusetts Institute of Technology's)** Executive Blockchain Technology Management (certification-based) Program, completed by the first author, and together with the 2<sup>nd</sup> author, strived in the co-authorship of this research paper, founded essentially on that course results.

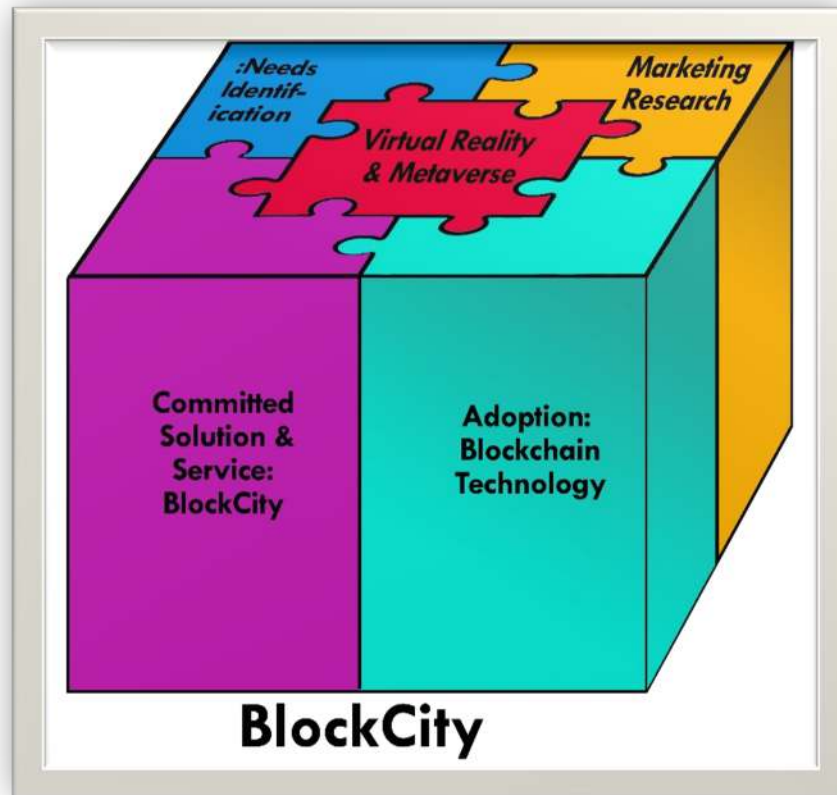


Figure 1. BlockCity

### INTRODUCTION

While most applications of blockchain technology have emerged in the financial sector, e.g., Zcash, [Circle](#), and [Abra](#), its practical applications go beyond finance, because essentially any type of digital asset can be tracked and traded through a blockchain. Many different industries are experimenting in the blockchain space, even though this experimentation is still in its early stages. Examples range from medical records (MedRec and PokitDok) to digital rights and micropayments (Brave Browser, Ascribe, and Open Music Initiative), identity systems (uPort), and supply chains (Everledger and Hyperledger).

Thinking about our chosen example, BlockCity, a blockchain platform to be launched soon by 369 Smart Chain, in terms of the four specific choices that start-ups face once an entrepreneurial idea has been generated, as outlined in Stern & Scott framework (April 4, 2021):

- Who are the customers?

- What technology is used?
- What is the initiative's identity?
- Who is the competition?
- How do these four choices impact the initiative?

Using these questions, we will see how our selected BlockCity applies blockchain technology.

### **ANALYSIS OF BLOCKCHAIN'S CHALLENGES & OPPORTUNITIES**

The article, "The Promise of Blockchain" (Higginson et al. 2017) addresses the challenge of scaling blockchain technology:

The technology's consensus-based validation mechanism, its continuous replication, and the ever-growing amount of stored data means that the larger the blockchain grows, the greater become the requirements for storage, bandwidth, and computational power. That leads to a risk of centralization if the blockchain becomes so large that only a few nodes are able to process a block.

Given what is learned within the literature regarding consensus algorithms and Bitcoin transactions, and the controversial issues with business production scaling, the authors are presenting an analytical clarification in addressing the following two questions, raised by the MIT's blockchain professor, Christian Catalini (2017):

1. Would a centralized blockchain undermine the technology's purpose as a shared public ledger? And if so, why?
2. How could blockchain technology achieve scale, while remaining decentralized?

The adoption of one out of a series of comparable and plausibly appropriate strategies, most appropriate to the goals of the founders of a comparable start-up, could be one less risky way of selection. Many start-ups tend to subscribe to the first seemingly appropriate and/or easily understandable strategy. The experience shows the cost of correction, after so much of time-wasting activities would be extremely high, as warned by Professor Stern (April 4, 2021). In this research report, while using each of our two-tier professional roles at 369 Smart Chain Company (369SCC) and its Executive Management Consultants, we have used this effort, in line with the entire strategic planning for the company. We are working hard to get ready for launching our operations in the cryptocurrencies market.

### **369 Smart Chain Company's Customers**

The potential customers include, but not limited to, Binance Foreign Exchange Shop, non-centralized foreign exchange shops, various nodes of the blockchain, 369 Smart Chain Company (369SCC), big corporations and businesses, and the public (people). The customer groups belong to digital foreign exchange-based capital markets, private sector, various businesses, individuals in need of storing secured Metaverse data, and closing intelligent contracts, protecting privacy, and the financial sector, providing credit

### **369 Smart Chain Company's (369SCC's) Adopted Technology**

According to its White Paper, one of the 369SCC's products is BlockCity, its soon-to-be-launched blockchain, which itself, is a product of 369SCC's adopted blockchain division 369 and consists of a core and a few Chinese blocks, connecting various capabilities to the network.

Customers can find all their needs in this network. The network's feature is that it can enable the blockchain to be constantly updated through time forever, and any existing specific idea in the blockchain world could be easily implemented in BlockCity. It will be practically a platform for all programs and networks that can be implemented by entering BlockCity.

The network design is based on POS (Point of Sale) algorithm: people place their coins in different designated pools. The people using each pool appoint a leader every hour and 40 minutes; every 10 minutes a block is created. Each leader will be given a piece, and then leaders start approving transactions at this point. After 10 minutes all the various components will merge, but to enhance the speed and efficiency, only the important information is transferred to the main block; not all the information pieces are needed. That block is hashed at this point and another block is formed. This process continues as much as there are transactions in process. To maintain the high speed of transactions during busy network hours, pool leaders may appoint several deputies, based on the capital, approval rate, and total amount of transactions.

We have also adopted the three-tier oracle, software oracle, hardware oracle, and human oracle, if needed, at the end, as the second blockchain, attached to our blockchain core, which has reduced our cost and efficiency by needing no other networks in using Oracle data indirectly.

### **369 Smart Chain Company's Identity**

It is clearly now an expected culture at the company to foster its universal loyalty to customers, its highly educated staff, and it has already invested in utilizing legal experts' consultation to guaranty a tight and sustainable compliance with the universal rule of law governing at all levels of government. Commitment to the enhancement of the ethical value system, all and all conducive to shifting the nation's welfare level, as an urgent need for sustainability and real growth.

In its White paper, through a 9-section Business Model Canvas (BMC), the key activities, the key partners, customers, proposed value enhancement factors, the key resources, marketing channels, sustainable customer communications, cost structure, and income-generating processes, are all discussed.

As a start-up, 369 SCC has successfully passed an intensive period of hard work within the field of Virtual Reality (VR) and Metaverse for 4 years and was established as a metaverse business enterprise. The founder has succeeded to earn two registered invention patents in that field.

Marketing research on needs and possibilities was its next task to fulfill. Finally, they started to focus intensively on the blockchain technology, as a third phase of a five-phase integrative and strategic planning, demonstrated schematically below:

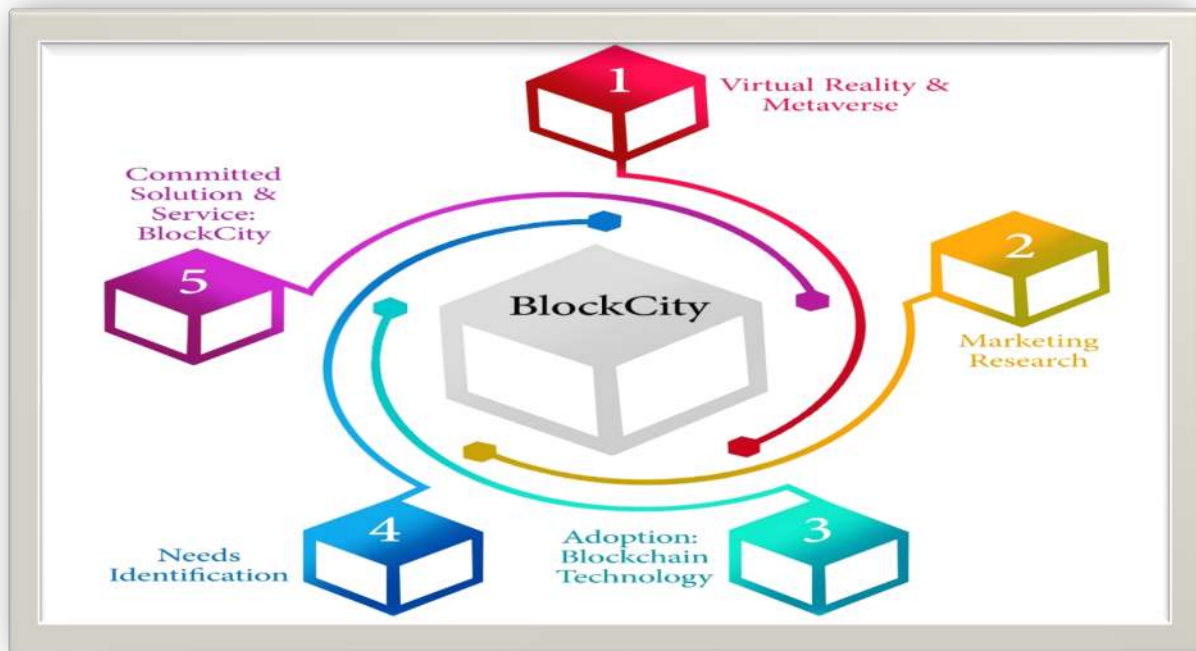


**Figure 2: The Five Elements of Blockchain Platform: BlockCity**  
**Source: BlockCity's White Paper (2022); the authors' infographic demonstration**

### 369SCC's Competition

While the 369 Smart Chain Company's competitors are listed below, each time a feature is added, the competitor is identified, accordingly. Hence, once competition starts step by step with any rival, there won't be any reason to challenge competitors in the third or fourth stage. Therefore, with the addition of each feature to 369 Blockchain main network, to make it more credible, all potential rivals are dropped one by one. Despite that, 369 Smart Chain Company always watches competitors' strategies.



| 369 Smart Chain-BlockCity's Competitors                                                      |                                                                                              |                                                                                              |                                                                                              |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Categories  | Competitor  | Strengths  | Weakness  |
| Smart Contract                                                                               | ETH                                                                                          | Great community-public acceptance                                                            | High transaction fee-low transaction speed                                                   |
| Oracle                                                                                       | Chain link                                                                                   | -----                                                                                        | -----                                                                                        |
| Data Storage                                                                                 | Filecoin                                                                                     | Launched on the Binance Smart Chain                                                          | Low speed                                                                                    |
| Defi                                                                                         | Terra                                                                                        | Launched on the Solano Network-High transaction speed; low transaction fee                   |                                                                                              |
| NFT                                                                                          | Decentraland                                                                                 | Launched on Polygon                                                                          | too simple system                                                                            |
| DApp's                                                                                       | Cardano                                                                                      | High transaction system – good road map                                                      |                                                                                              |
| Metaverse                                                                                    | Decentraland                                                                                 | Launched on Polygon                                                                          | too simple system                                                                            |
| Dex                                                                                          | Uniswap                                                                                      | Launched on the Binance Smart Chain                                                          | No ability to trade futures                                                                  |

**Table 1: 369 Smart Chain-BlockCity's Competitors**  
**Sources: 1. 369 Smart Chain, BlockCity, unpublished White Paper, 2022.**

2. Gans, Joshua; Erin L. Scott, and Scott Stem. May-June 2018. "Strategy for Start-Ups." *Harvard Business Review*.

The solution to "the last mile problem" (LMP), some deviation between the online activities that are recorded (on the blockchain ledger" and the actual offline trace of activities, would be the focus of this component of our report.

The major business activity, as indicated above, to adopt here is launching our **369 Smart Chain Company's (369SCC's) Blockcity** in the upcoming months, which is the company's blockchain division 369. 369SCC would let various individuals and businesses be connected to its blockchain for their transactions of cryptocurrencies, insurance activities, and various other businesses, such as restaurants, food supply vendors, hospitals, even financial businesses, etc. To be successful, any blockchain operators must be concerned about various costs, which could slow down their functioning, and earning. The double spending problem is controlled by requiring wallets and digital assets. That would primarily involve adoption of smart contract, mixed or complemented by the potential presence of one or any combinations of the software, hardware, and human oracles, as necessary, which would enable the public to take advantage of an essential linkage/coordination (a "bridge") between the offline and online activities - accurately and permanently registered online through distributed ledgers. That would facilitate a consensus on costless verification, cost efficiency is automatically implemented through the artificial intelligence (AI) within smart contracts and oracles, in which the transactions' high speed and low cost are materialized. Hence, public access to the ledgers would facilitate costless verification, leading to an easier and speedier identification of any problem.

According to Cathy Barrera (April 2, 2018), the public usage of blockchain technology, would expose them to a compilation of useful transparent and verifiable records, leading to their consensus on the issue of credibility, hence costless identification seems to be a clear advantage. Yet, Catalini and Gans (2017) warn that the extent of verification-cost efficiency has not necessarily been equally experienced in all transactions, which would keep us alert in minimizing any remaining elements of LMP.

As for a comparison among various industries' adopted applications of cheaper settlement and reconciliation, **bitcoin**, through its adopted blockchain tech, has been trying to boost extensive margin in the financial industry by solving LMP, emanating from so much of less efficient electronic payments implemented by traditional depository and non-depository intermediaries.

#### **BUSINESSES' OPPORTUNITIES: BLOCKCHAIN PLATFORMS' LEVERAGE**

Other kinds of common transactions among big institutions, would characterize their attempts to reduce verification costs through an alternative improvement of intensive margins. **Digital Asset Holdings (DAH)**, has been using blockchain tech in its supply of distributed ledgers to regulated financial industry, including settlement facilitations, involving digital and traditional currencies. It has considered the settlement and reconciliation processes as seriously disruptive. Hence, it has managed its secured data and shared processes services for financial institutions, "on a need-to-know basis", which has liberated them from any noticeable need for a reconciliation process. Settlements and reconciliations were done much more efficiently. (Digital Asset Holdings, White Paper)

**IBM Food Trust (IFT)** has also adopted blockchain tech to overcome the LMP problem, by creating a largely inclusive network of stakeholders, who are collectively connected through an enhancement of transparency, accountability. They have all been approved permanent access to shared processing, shipment, and food origination data. The last mile problem to verify and solve by **IFT**, as applied to, e.g., Walmart, is whether food items and their records on the blockchain match, which is checked by application of barcodes or QR codes. So, customers may

use the QR codes and verify the critical food data. This blockchain application is predicted to be used in the future for enhancing the needed transparency, including safety, and the way food is produced, processed, etc., in compliance with environmental and healthier ways of providing food, given all production stages, involved to bring food into the retailers' shelves (IFT White Paper).

**Aid:Tech** (White Paper), has used blockchain technology to prevent fraud, and recommending the role of profit making and entrepreneurship, in engagement of humanitarian projects that serve two purposes of self-interest and social responsibility. One major issue was lack of enough attention to what technology would make distribution of assistance to the needy people in some understandable ways as to how and when to get it. That was one element of LMP, in addition to the cited business structure of NGO or charity organizations, driven mainly by purely good will, in which some elements of profit incentive and entrepreneurial skills, mixed by social change missions, could improve the operations better and more efficiently. Tokens are prerequisite to trade, which are used along with actual fiat money.

**Abra, CryptoKitties (CK, White Paper):** CK is an early game made on a blockchain medium, which is about purchasing, breeding, and selling digital cats, very similar to other cryptos but, they are crypto collectibles, traded among interested collectors. Like Abra, they are digital assets, both requiring digital wallets, and create digital asset ownership which can solve the double spending problem, like bitcoin. Counterfeiting is a serious problem: any digital copy of a digital medium is identical to its original one. The LMP is treated like how Bitcoin adopted its solution to the double spending problem.

**ACME Music (ACMEM)** is currently applying a **DRM**, a sort of centralized platform, protecting the company's content rights via a mobile app available to its users. In this model, users pay in either a monthly fee, centrally determined by the seller, and/or partially money, and partially disruptive time of unwanted advertising. In both cases there are higher social costs, maybe even some breaking through the system by some, and lack of incentives and rewards (ACMEM and DRM White Papers).

If **ACMEM** decides to adopt blockchain technology (**BCT**), and actually uses its token, **ACMEcoin**, there would be a replacement of trust in **ACMEM** and **DRM** with the trust in the **ACMEcoin**, which would decentralize its market/business structure, conducive to reductions in the costs of identification, verification, settlement, and reconciliation, yet more security, improved incentives and rewards, through the growing bootstrapping, would lead to sales growth for the company. The rewarding opportunities, from a cryptoeconomic perspective, would depend on how, and with what smart contract, if any, that coin is programmed. To enjoy more capitalization for its further growth, offering **ICO** would be most useful, especially in the early months of minting.

**ACMEcoin** could be programmed like **Filecoin**, which offers a decentralized storage opportunity, with no need to have access to a large block of storage space on the internet, which could similarly attract a larger crowd. Having a mobile device would enable one to have the option in providing storage room and be rewarded with **ACMEcoin**. People could be offered to earn cryptocurrency in exchange for their extra storage space. Users of the platform have a flexible option in optimizing the balance among storage redundancy, retrieval speed, and the

cost. **ACMEM** would incentivize users by giving them its coin in buying more music and giving it more attention in listening to their advertising. There would be so much of bootstrapping benefiting **ACMEM** and its growth.

BAT, an Ethereum blockchain-based design, is another appropriate type to be considered by **ACMEM** for its token (**ACMEcoin**), which offered its own token, BAT, in May 2017, and is partially like Earn.com, with a main business task for the token in providing value through advertising space – that **ACMEM** could also consider- as well as attentions by users to advertisers, publishers, fashion products, and their corresponding users. The incentive to users would be in giving them **ACMEcoin** for more use of services and advertising.

**BAT** develops its smart contracts, through its own designed browser, **Brave**, which accommodates its “monitoring and measurement of users’ attention” in such a way as possible for effective compensation of users and publishers, while securing their privacy through increased control in the ways their data are used, and by blocking all intrusive advertisements and web abusers.

**BCT** would reduce the cost of verification, trust, and networking that intermediaries would impose on society and customers at all levels. The Internet type connections would provide a “trustless” and a linkage of decentralized network for verification of sensitive data and the relevant transactions. The need for intermediaries would gradually decline. Costs saving would involve the costs of verification and networking. Depending on how much of its platform’s activities are being linked to **BCT**, **ACMEM’s** prospects of structural decentralization limitations could be variable.

We must be alarmed that even with blockchains, things may go wrong in replacement of, e.g., centralized intermediaries. Market power is not always a binary variable in its existing in a market or not. Market power when the blockchain platform is itself a central platform, must be also decentralized through creation of more blockchain.

Incentive, as an agenda item for purposeful coding, written on the top of the token, is now to be considered: What and how much rewards must be targeted. Cathy Barerra proposes the following three elements in the ingredients (April 2, 2018):

- the objectives of the firm/platform - more music sales, advertising, or both, in this **ACMEM’** case
- the measurable and tangible things that smart contract should cover – (here: hours of advertising per week: bits of storage, and coins to be given as a rewarding tool for more searching and purchasing activities)
- the actions that can be taken by participants or potentially benefited employees.

At the time one tries to reward behavior, there could appear problematic dis-coordination among those elemental aspects.

Smart contracts (SC), to be adopted and written on the token, like any other exciting things, are not free of challenges and at times are tough to program; it is easy to make mistakes. Yet SC are computer programs that are run automatically and are written in certain clauses, directing the way funds are intended to be transferred & run on all nodes of a blockchain, if smart contracts

are being used for ACMEcoin. Ethereum is the most distinguished cryptocurrency for supporting smart contracts. Being computer codes, SCs have been reported to have caused some problems.

### ANALYSIS OF TWO SELECTED WHITE PAPERS

To clarify the understanding and nature of White Paper, we are selecting two of the white papers, Kin, and Ambrosus, and evaluate each of them concisely according to the following criteria in the following table:

- Business idea
- Team
- Four choices for entrepreneurial strategy
- Legal issues
- Use of tokens
- Reduction in cost of verification
- Solutions to the last mile problem
- Investing in the initiative: Would you invest in this project? Why or why not?

**Table 2: Analysis of Kin's and Ambrosus's White Papers**

|               | <b>Example 1:<br/>Kin</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Example 2:<br/>Ambrosus</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Business idea | As a leading innovator in the chat space for many years, Kik, preferring to be a participant, as opposed to a landlord, also started to adopt a kind of digital currency, Kik points throughout 2015 and 2016.<br>It has been exploring for the possibilities leading to development of a fair and open decentralized sustainable monetization model, in which users' experiences or privacy would not be compromised. That was meant to be a user-first digital service provider. The new cryptocurrency, Kin was adopted, while Kik users could buy products, services, and valuable assets from merchants by paying in Kin. | Introducing Food Supply Chain2.0, a blockchain platform, as an innovative & decentralizing solution to the sophisticated food chain management. The food supply management has been already lacking any confidence from all stakeholders, except few big intermediaries & corporations. Few big intermediaries have taken disadvantage from existing lack of transparencies, market fragmentation, lack of food ingredient as well as environmentally health reliable data, resulting in chaotic market conditions.<br>By investing and getting support from many institutions, they are working hard to tokenize and decentralize the industry by using <b>Amber</b> , their token. |
| Team          | A 27-member Kin core team, including 7 advisors are the team members, whose websites I double checked, seem to collectively possess a good combination of vital experience and education in all necessary fields, as their jobs would demand. Software engineers, anti-fraud engineer, blockchain engineers, etc.                                                                                                                                                                                                                                                                                                              | Ambrosus is led by probably one of the most qualified, educated, professionally experienced and largest teams in Blockchain establishment around the world. The 22-members of the predominantly European "Ambrosus Builders" are mostly scientists, PhD holders, professors, with impressive                                                                                                                                                                                                                                                                                                                                                                                         |

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|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          |                                                                                                                                                                                                                                                                                                                                                                                  | records of publications, etc. <b>Their regular meetings are not verifiable, though.</b>                                                                                                                                                                                                                                                                                                                            |
| Choice of customers      | Users of all kinds, founders, creators, consumers, and investors within the ecosystem would be the choice of customers. Kik and Kin, will have brought users of the Internet and blockchain platforms into the most efficient and evolving ecosystem, which should benefit all with value and governance shared among all participants.                                          | Customers include a large group of beneficiaries: entrepreneurs and food factories, who have been seeking store proof of origin, product certifications, shipment, and delivery details, such as <b>VERES, YARO, Street Soup, FRUITS, Octopod</b> . Indirectly investors, consumers, operators, and supporters are all a major part of their stakeholders.                                                         |
| Choice of competition    | Competition would include centralized intermediaries, and some rival blockchain platforms, which would augment the feature of decentralization even more. This latter rivalry would create more value to the ecosystem and stakeholders. Having alternative competitors in providing similar online digital assets, would lead to the enhancement of efficiency and cost saving. | big companies in the food and agribusiness, who have benefited from opacity & fragmentation, prevailing in the food supply chain industry are the main competitors. The secondary competition could be felt among the similar initiators, applying blockchain technology, with their even further positive effects on decentralization of the ecosystem.<br>Ambrosus had 51,888,333 transactions as of 03/21/2022, |
| Choice of technology     | <b>Ethereum</b> , the industry standard blockchain for digital asset issuance, on which Kin will be operated on, with its adopted <b>ERC20 token</b> , plus the development tools, wallets, and exchanges, efficiency would make them shine. Given the tech complexity, there will be a winning step for its adopted <b>trustless</b> smart contracts.                           | Stationary and mobile sensors, Ethereum-based blockchain, smart contracts, easier software for consumers and farmers and more technical ones for entrepreneurs, and developer tools, both legacy and in-house-developed hardware, & their adopted token (Amber), have all and all been structured and optimally mixed to benefit all (including available labor).                                                  |
| Choice of identity       | A combination of digital & crypto currencies, which in the long run, the <b>Kin Foundation</b> will implement the transition of the Kin from a complementary crypto (for the digital Kik that it is now) to a 100% decentralized ecosystem, capable of operating with no assistance from Kik or any other entity.                                                                | 1) Substandard individual items 2) Loose reliance on the central authority, not enough of insight into products. 3) Smaller yet those with actual more social responsibility and quality commitment are pushed out. 4. Lack of proper & complete information on the labels. 5. Fragmented supply chain and its opacity, lack of tokenization.                                                                      |
| Legal issues/ Regulation | Appropriate decentralization is more of blessing factors for founders in the sense that lower cost would be more welcoming than restrictive by regulators, despite initial doubts. Economies of scale, better product or                                                                                                                                                         | Given the Covid issues in the last 2-3 years and the supply chain fiasco, government agencies are so worried, and all kinds of managing the case is waving. A good combination of                                                                                                                                                                                                                                  |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | technological differentiation will be winning cards in regulations' eyes, seeing well-achieved Kik & Kin + other tech combinations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | technology and brain power together, would minimize the need of regulations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Use of tokens                      | <p>Total supply of Kin (Token): <b>10 trillion</b></p> <p>To be sold: <b>1 tr.</b> The proceeds to be used to fund Kik operations and the deployment of Kin Foundation, which would pay for fund execution, leading to additional feature planned for the actual integration of Kik and Kin.</p> <p>Under purview of the Kin Foundation, locked under the Kin Rewards Engine schema: <b>6 trillion units</b> used strategically to grow the Kin ecosystem and fund the operations of the foundation. The Kin Foundation's allocation will be used to administer the Kin token supply and Kin Rewards Engine, for marketing, and operational costs. Kin Foundation will get the <b>20%</b> of remaining reserve annually.</p> | <p>Through a sound &amp; solid technological design, the choice of Amber, "the world's first bonded token" is made, due to its assigned storage of registered records of quality, safety, and origins. It is applied as Ambrosus ecosystem's fuel to run the entire platform, which has provided the first worldwide "publicly verifiable and community-based system." Such token is prepared to provide peer-to-peer marketplaces supply chain management tools, powered by smart contract. It is a quality-oriented commodities exchange platform, which has also presented consumer mobile apps for checking the food quality. It seems to be a pretty feasible use of tokens.</p> |
| Reduction in cost of verification  | Moving from a digital money into a cryptocurrency would require one to have a wallet. Through the wallet, and integration of Kik and Kin, one is going to have a Kin wallet. Once that happens, challenges of transaction fees, private keys, and alphanumeric addresses, which would be serious and a barrier for the users, now are being removed. Kik will come to the rescue in reducing the frictions noticeably. As expected from any successful blockchain platform adoption, both verification and networking costs savings would shine as the highlights.                                                                                                                                                           | The innovative use of blockchain, tokenization, and all other supplemental technology has created an integrated system of quality protection through reliable data recording sensors, in which food history from "farm to fork" would be utilized dynamically to bring the cost of verification to a minimal level. Given that the token would carry all the information placed on the top of it, and available through customers' checking through the blockchain, verification of any problems and any sensitive claims and data, would be almost costless. Smart contracts would be essential in facilitating governance of food automatically.                                    |
| Solutions to the last mile problem | Once users desire to do some cross trading between Kin and Kik, through the public Ethereum platform, that would facilitate the process as the "currency's decentralized settlement layer". The real advantage of all that will be in overcoming the blockchain scalability restrictions, feeless                                                                                                                                                                                                                                                                                                                                                                                                                            | Any deviation discovered between what was promised by Ambrosus, registered on AMB, token, or declared in its white page, and then the reality to be seen. It is possible that due to good technology mixture used by Ambrosus, including blockchain, smart contract, and tokenization, there would appear some                                                                                                                                                                                                                                                                                                                                                                        |

|                          |                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | transactions, more speedy transactions, and the private key issues. It is strongly predicted that Kin will grow enough alongside the blockchain technology development in such a way as all the features will be implemented in an increasingly decentralized direction.                                                                                | tight compliance. In the case of food purchases, consumers are convinced that merchandise (food) would be purchased and ordered to be received at home free of charges. Ambrosus have started to find other vendors in the network to provide lower delivery costs. A great solution.                                                                 |
| Investing in the project | With all studied deeply, this investment is solid. I seriously go for it: The team's needs of expertise, after checking the individual's website info, their use of technology, their impressive experience, business philosophy, & background, positive regulatory factors, I feel confident. Regular team meetings could be explained better, though. | I would invest in this this investment is solid. I seriously go for it: The team's needs of expertise, after checking the individual's website info, their use of technology, their impressive experience, business philosophy, & background, positive regulatory factors, I feel confident. Regular team meetings could be explained better, though. |

### SUMMARY OF THE STUDY

This integrative report is meant to be about (the **identity**) a blockchain technology to be soon launched by an Iranian Metaverse-specialized group of innovators, achieving in their first years of business activity 3 registered inventions. The founder, Mr. Saeed Valikhani, capitalizing on his Metaverse success, has been most enthusiastically investigating the Iranian business environment, the extent, and the possible speed of Metaverse adoption, and on that route, he has been most attracted to cryptocurrencies and blockchain technology to the extent that he has been an enthusiast in the field. He has brought his highly educated and specialized professionals together and his new blockchain enterprise, **369 Smart Chain's (369SCC's) BlockCity**, its prospectus and white paper are ready and in the final stage of launching soon. He and his expert group have decided that their capitalization will be fulfilled mainly through distribution of ICO, through selling their BlockCity's coin, symbolized by TSN (standing for three six nine).

This report, summarizes the **6 background problems** to incentivize the deployment of BlockCity and in declaring an aspiring vision, summarized as: achievable dream of helping many people in Iran and in the world by deploying a blockchain platform that will peacefully open a road to reconstruction of both business, and business governance decentralization.

The **Customers** include, but not limited to: Binance Foreign Exchange Shop, non-centralized foreign exchange shops, various nodes of the blockchain, 369 Smart Chain Company (369SCC), big corporations and businesses, government, and the public (people). The customer groups belong to digital foreign exchange-based capital markets, private sector, various businesses, individuals in need of storing secured metaverse data, and closing intelligent contracts, protecting privacy, and the financial sector, providing credit.

**The technology** includes 369SCC's product, which is BlockCity, which is the product of its adopted blockchain division 369 and consists of a core and a few Chinese blocks, connecting various capabilities to the network. The network's feature is that it can enable the blockchain to be constantly updated through time forever, and any existing specific idea in the blockchain

world could be easily implemented in BlockCity. It will be a platform for all programs and networks that can be implemented by entering BlockCity. Also, Oracles as the supplement, is attached to BlockCity to save costs. The network design is based on POS algorithm. While 369 Smart Chain Company's **competitors** are ETH, Chain link, Filecoin, Terra, Decentraland, and Cardano, each time a feature is added, the competitor is identified, accordingly.

On the treatment of the **LMP**, 369SCC is planning to manage its secured data and shared processes services for financial institutions, "on a need-to-know basis", which will save them any noticeable need for a reconciliation process. For individual access to use the blockchain it will require digital wallets and will create digital asset ownership which can solve the double spending problem, like bitcoin. Counterfeiting is a serious problem: any digital copy of a digital medium is identical to its original one. The LMP is treated like how Bitcoin adopted its solution to the double spending problem.

### **Problem statement**

The problems that are sources of opportunities for - and conducive to - the prospective deployment of 369 Smart Chain – as well as other similar entrepreneurs have been:

1. A generally prevailing system of governmental and semigovernmental centralization of most major business activities in Iran, causing hyperinflation, as a trend in recent times. Hyperinflation, has been one ominous highlight of the economy, influenced additionally by the consequential irregular interface between supply and demand, as an inevitable cause of macroeconomic mismanagement. Applying what professor Cilvio Micali (2022) recommends, the role of blockchain in developing countries is in its built-in transparency, which would eventually facilitate curbing corruption, and more decentralization by the blockchain developers. Better supply chain management could come to the rescue, if not suddenly, gradually for sure.
2. Continuous currency devaluations, as a major trend, which could be mitigated by switching to tokens of blockchain ecosystem to create a much more stability in the money's real purchasing power.
3. Given the high nominal interest rates of 18% on the weak-Iranian-rial-denominated time deposits, venture capital investors may perceive blockchain investment as too risky with dubious prospects.
4. Distrust in the system and other financial fraudulent activities, syphoning out many people's lifetime savings by some so-called mutual funds in Iran 2-3 decades ago, which would surely not help any financial innovators' motives. Yet, blockchain deployers must try to convince suspicious people to provide them with some initial capital in launching their blockchain technology.
5. Tax concerns of capital holders have pushed them away from government's eyes.
6. The fatal effects of the economic & financial sanctions imposed on Iran by the U.S. and major nations in the world, mixed with the government's continual fiascos of all kinds, have been probably the top problem to focus on.

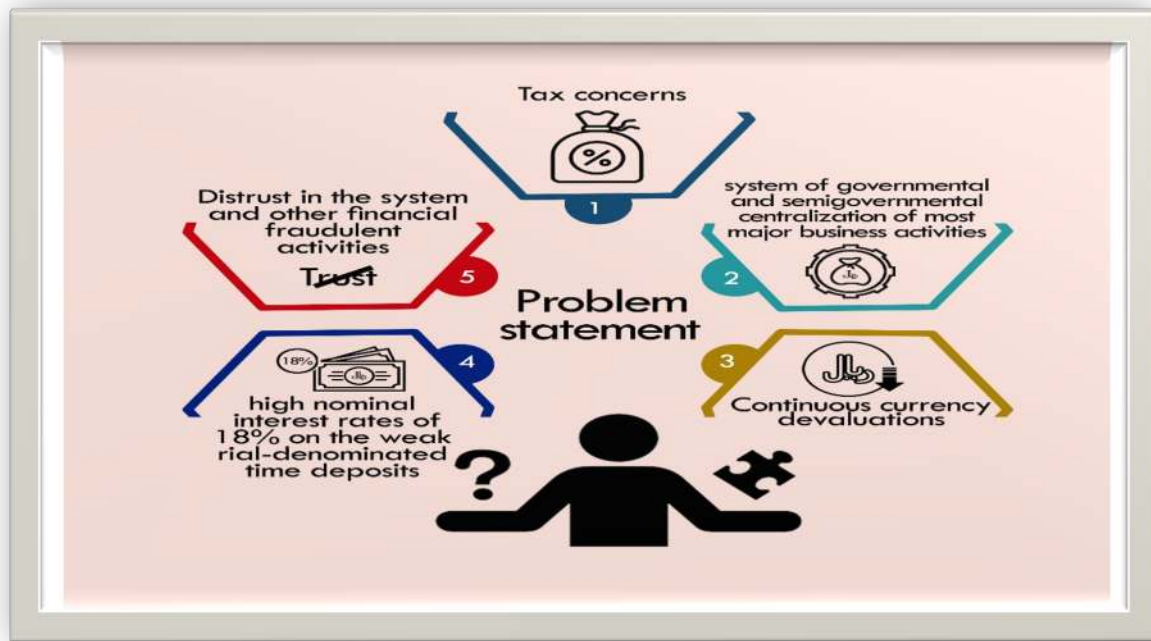


**Figure 3. BlockCity's Challenges**

### Outline of Vision

During the last half a century, there has been an accelerated downfall of moral value system and general level of morale in Iran. The national ethical infrastructure, which is supposedly a major foundational prerequisite for the needed development of an essential law & order establishment, has been decaying at a rapid pace. Hence, business development has been encountering the biggest challenges when property rights, business law and legal system, real political, social, and economic freedom have all been diminishing. Iranian government has failed to offer any major plans for national prosperity through its clearly defined strategic objectives of regional-hegemonial dominance. Businesses suffered, consumers and hard-working people have gradually found their limited lifetime assets converted to melting ice under the extreme heat of centralization of all socio-economic and political activities.

Yet many bright Iranian innovators, tough college graduates, who would have excelled anywhere in the world, stayed at their home country to live, make, and shake it in there. Nowhere is like home, they believe. One of them has been well determined that business and brain can still matter. Mr. Saeed Valikhani, the registered inventor of several Metaverse-related technologies in Iran, with some expected experiences of business ups & downs, all conducive to being tougher for the road ahead, proved to himself that brain and love of people would still matter. His excitement could not be more highly pervasive. He and his successfully recruited team, all “cremes of the crop”, have come into one major vision: We can help people if we ultimately succeed to taste the decentralizing effects of blockchain ecosystem.

Even the Iranian government, inspired by El Salvador's full adoption of cryptocurrency as a replacement for their traditional fiat money in 2021, is convinced that crypto currency would help them out of the ongoing fiat currency depreciations and failure, causing hyperinflation and the visible growth of misery. Valikhani and his team have an achievable dream of helping many

people in Iran and in the world by deploying their BlockCity, a blockchain platform that will peacefully open a road to reconstruction of both business, and business governance decentralization, where there will be more visibility, transparency, verification, identification, and access to the permanent ledger and accounting activities of all nodes to be joining the main blockchain.

Meanwhile, the users-friendly technology for all kinds of businesses, and individuals, as well as the entire industries, would be accessible to millions, while the developers would strive to accumulate the necessary capital. Being a blockchain vanguard, with their extensive experience in the field of metaverse applications, their ultimate success, in their well transparent vision, would spread around the entire country and beyond. I believe 369 Smart Chain will carve the Iranian history for its great impact on a growing pace of decentralization of many businesses and industries. Alongside its BlockCity, and TSN (standing for three six nine), 369 Smart Chain will be registered in the historical records of Iranian growth and development.

### **Blockchain Technology Solution**

The existence of economies of scale in e.g., auto, airline, and banking industries, has been one of the major reasons for creating higher market concentrations & centralization, conducive to loss of technical (productive), and allocative efficiency, higher prices, lower quality and quantity of production, lack of transparency and trust than otherwise. Hence, unless in the cases of natural monopolies, scalability problems have mostly led to an inefficient pricing (above both average total and marginal costs), and less of social justice.

Economies of scale are witnessed through a decreasing long-run average total cost, while production scales, which is one of the main reasons for emergence of market concentration. The only possible good thing about it is that one producer, enjoying such a cost advantage would emerge as a natural monopoly, capable of charging lower prices than each of the many competitive ones would be able to charge. Yet in the absence of an effective government control, unregulated monopolies have no reason to avoid charging much higher prices than they can afford, given their market dominance. So even in those favorable market structures, in absence of any reliably effective government regulations, the expected advantages of natural monopolies' economies of scale would either vanish, or at the best, would be much less beneficial to society, as technically possible.

Also, in response to the growing need of mining in blockchain operations, if a mining technological revolutionary exploration would be introduced, where the fueling could be increasingly cost saving, and leading to economies of scale at that stage, using for instance windmills more effectively, and the like, could also create new possibilities. That could cause natural monopolies to arise, who can be a second-best development, providing the service least costly, as contrasted to an alternative (more competitive) way of production. In that situation, market concentration could be also a possibility. Yet, we would need government regulation in keeping service charges (price) lower, since they can - just like the regulated public utility industries - raise the price, due to their - otherwise - unregulated market power.

In an exhaustive and well-rounded critical review of several blockchain management arrangements and consensus algorithms by Professor Micali and others, including Proof of Work (POW: cumbersome), Pure Proof of Stake (PPOS: centralized system), Delegated Proof of

Stake (DPOS: centralized system), and Bonded Proof of Stake (BPOS: more money, would have more influence), he has proposed that all are suffering from some actual or potential failure in providing trust, efficiency, and scalability. There exists potential for cheating, centralization (assigning delegates).

Pursuing the historical rapid and cost-saving developments in both electronic hardware and software industries, one can be optimistic about the blockchain technology to be revolutionized in a way that scaling would not necessarily create natural monopolies, only if its innovations are gradually shared by - and channeled through - hands of the people, as opposed to few huge capital holders. One restriction is proven to be mining costs embedded in computers' storage and speed limitations. Even now, prior to being as much comfortable and knowledgeable with blockchain, some "supercomputers" are produced and acquired, though too costly and primarily developed to enhance merely speedy hashing functions, and successful blocks creation.

Blockchain is still an amazing public ledger, which is shared broadly in keeping records and transactions registered permanently. It is still open to public inspection but thankfully – till next possible notice - not subject to any central control. According to *The Economist* (September 18, 2021), it has been "a machine for building trust".

The existing experiences of higher concentration ratios, reflecting monopolistic or oligopolistic tendencies in some industries such as public utilities, banking, airline industries, and even big governments, at various times have stifled competition, innovations, transparency, trustworthiness, all leading to output quality as well as quantity declination, more costly (and less) market information, and unnecessarily higher prices. All or most of those factors would await the reverse evolutionary direction of what was so attractive about the blockchain technology's promising and practically prevailing opportunities for data decentralization, more transparency, and more trustworthiness. In economic literature, centralization is measured by concentration ratio.

There would appear both technical inefficiencies, where the price would be settled above the minimum level of average total cost. Also, with a price above the operators' marginal cost, a loss of allocative efficiency would be realized, which would transpire to an under-allocation of resources to - and hence, production of - what might be desired more by society. Too much power would be created under control of a single firm or very few dominant firms. Risks of Centralizing Blockchain," are innovation restriction, trust violation, and dependence risk creation. Catalini and Gans (September 21, 2017) have identified four impacts of the blockchain technology on "the rate and direction of innovation", verification, and networking costs. Market concentration has proven to damage output quality and quantity, price, trust, and efficiency. Public ledgers will be shared but not in a socially optimal or economically efficient manners. In summary, the larger the extent of central command and concentration ratio, the more reductions would be realized in society's benefits, as contrasted to a decentralized market.

## **The Four Choices for Entrepreneurial Strategy**

### **1. Customers**

The Customers include, but not limited to: Binance Foreign Exchange Shop, non-centralized foreign exchange shops, various nodes of the blockchain, 369 Smart Chain Company (369SCC),

big corporations and businesses, government, and the public (people). The customer groups belong to digital foreign exchange-based capital markets, private sector, various businesses, individuals in need of storing secured metaverse data, and closing intelligent contracts, protecting privacy, and the financial sector, providing credit.

## **2. Technology**

369SCC's product is BlockCity, which is the product of its adopted blockchain division 369 and consists of a core and a few Chinese blocks, connecting various capabilities to the network. The network's feature is that it can enable the blockchain to be constantly updated through time forever, and any existing specific idea in the blockchain world could be easily implemented in BlockCity. It will be a platform for all programs and networks that can be implemented by entering BlockCity. Also, Oracles as the supplement, is attached to BlockCity to save costs. The network design is based on POS algorithm.

## **3. Identity**

As a start-up, 369SCC has successfully passed 4 years of hard work as an established Metaverse & VR entrepreneur. The founder succeeded to earn three registered invention patents in that field. 369SCC has fostered its culture of ethical standards and universal loyalty to customers, its highly educated staff, and has already invested in legal experts' consultation to consolidate its internationally legal compliance with the rule of law everywhere. In its 9-section Business Model Canvas (BMC), the key activities, partners, customers, proposed value enhancement factors, resources, marketing channels, sustainable customer communications, cost structure, and income-generating processes are discussed.

## **4. Competition**

While 369 Smart Chain Company's competitors are\* ETH, Chain link, Filecoin, Terra, Decentraland, and Cardano, each time a feature is added, the competitor is identified, accordingly. Hence, once competition starts step by step with any rival, there won't be any reason to challenge competitors in the third or fourth stage. Therefore, with the addition of each feature to 369 Blockchain main network, to make it more credible, all potential rivals are dropped one by one. Despite that, 369 Smart Chain Company always watches competitors' strategies.

## **Analysis of Digital Ecosystem and Token Distribution**

Token distribution is intended to serve 4 purposes, but Kenny Li (March 7, 2018), not being an advocate of ICO, only indulges through a critical reservation, with one reason, to raise capital, and investors are expecting to get something back, which seems like IPOs in equity markets. A token is also assumed to grow in value in the future. Even then he argues why should they not consider equity market's IPOs. Obviously, I think anyone considering Blockchain's prominent decentralizing objectives, as contrasted to stock market's strategic objectives, his argument does not shine to me. In contrast, Christian cantalini<sup>1</sup> clarifies that: "...tokens can be used in many ways: to crowdsource resources, to attract talent, and engage everybody within the same ecosystem. But recently they've been extensively used to raise funding." Tokens fulfill two functions, transaction settlements and indication of ownership rights. Li has rejected the 3 other reasons why some advocates claim ICO is a good choice.

## CONCLUSION

**BlockCity's** team, including the authors, has gone through so much of analytical assessment of the available alternatives in Iran and the opportunities versus the constraints, and has decided for now that issuing, to a limited extent, and marketing its ICO, with the corresponding **BlockCity's** coin, **TSN (standing for three six nine)**, will be an optimal choice (BlockCity's White Paper, 2022).

Repeating Cathy Barrera's (April 2, 2018) assertion, the public usage of blockchain, would expose them to a compilation of useful transparent and verifiable records, leading to their consensus on the issue of credibility, hence costless identification seems to be a clear advantage. Yet, Christian and Gans (2017) warn that the extent of verification-cost efficiency has not necessarily been equally experienced in all transactions, which would keep us alert in minimizing any remaining elements of LMP.

369SCC is planning to manage its secured data and shared processes services for financial institutions, "on a need-to-know basis", which will save them any noticeable need for a reconciliation process. For individual access to use the blockchain it will require digital wallets and will create digital asset ownership which can solve the double spending problem, like bitcoin. Counterfeiting is a serious problem: any digital copy of a digital medium is identical to its original one. The LMP is treated like how Bitcoin adopted its solution to the double spending problem (BlockCity's White Paper).

## References

1. 369 Smart Chain, BlockCity. 2022. White Paper. U.S.A. and Tehran, Iran. Website: <https://369smartchain.com>
2. Barrera, Cathy. April 2, 2018. "Hidden Costs of Verification". MIT Cryptocurrency Lab.
3. Bresnahan, Timothy F., and Manuel Trajtenberg. 1992. "General Purpose Technologies 'Engines of Growth?'" *The National Bureau of Economic Research*. Accessed May 25, 2018. <http://www.nber.org/papers/w4148>.
4. Brynjolfsson, Erik, and Andrew McAfee. 2017. "The Business of Artificial Intelligence." *Harvard Business Review*. Accessed May 25, 2018. <https://hbr.org/cover-story/2017/07/the-business-of-artificial-intelligence>.
5. Brynjolfsson, Erik., Daniel Rock, and Chad Syverson. 2018. "Slowly but Surely, Gains from AI Innovation are Coming." *The Hill*. Accessed May 25, 2018. <http://thehill.com/opinion/technology/367646-slowly-but-surely-gains-from-ai-innovation-will-be-realized>.
6. Catalini, Christian. 2022. Blockchain Technology, Online Short Course, MIT Module 5 Unit 2 Video 1 Transcript.
7. Catalini, Christian. 2017. "How Blockchain Applications Will Move Beyond Finance." *Harvard Business Review*. Accessed June 4, 2018. <https://hbr.org/2017/03/how-blockchain-applications-will-move-beyond-finance>
8. Catalini, Christian, and Joshua S. Gans. 2017. "Some Simple Economics of the Blockchain." *NBER Working Paper No. 22952*. Accessed June 4, 2018. <http://www.nber.org/papers/w22952>.
9. Fabode, Seyi. 2017. "Will AI, Blockchain, AR and/or VR Become a General Purpose Technology?" Accessed May 25, 2018. <https://hackernoon.com/ai-blockchain-ar-vr-etc-which-one-is-a-general-purpose-technology-9b5510ca25e3>.
10. Hamzaee, Reza G. (2022). Cluster of 6 reports submitted to the MIT Executive Blockchain Technology Management Certification Program.
11. Higgsinon, Matt; Johannes-Tobias Lorenz., Björn Münstermann, and Peter Braad Olesen. March 1, 2017. "The Promise of Blockchain". McKinsey

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12. Hutton, Will. 2017. "Bitcoin Is a Bubble, but the Technology Behind It Could Transform the World." *The Guardian*. Accessed May 25, 2018. <https://www.theguardian.com/commentisfree/2017/dec/24/bitcoin-is-a-bubble-the-technology-behind-could-transform-world>.
  13. Li, Kenny. March 07, 2018. "Investing In or Launching on ICO? 5 Things to Consider."
  14. Micali, Silvio. 2022. Module 6, Unit 4, Video 3 Transcript. MIT (Massachusetts Institute of Technology) Executive Blockchain Technology Management Program
  15. Stern, Scott.; Scott, Erin L. APRIL 4, 2021. "Making good choices on the entrepreneurial path" Massachusetts Institute of Technology (MIT), Webinar.
  16. Tabitha. Feb 24, 2019. "3 Risks of Centralizing Blockchain". Cole Scott Group. <https://colescottgroup.com/3-risks-of-centralizing-blockchain>.
  17. The Economist. September 18, 2021. (What Are Blockchains?)