NPICK BLOCK White Paper

Version 1.0 (ENGLISH)

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1. What is SNS?

1) Concepts of SNS

- SNS is an abbreviation of Social Network Service and means an interactive network between persons who share interest or activities or online service or platform which shows such interactive relationship.
- As to the original form of SNS, as pc communication appears in Korea in the early 1990's, communication got to start online and after that, along with appearance of portal sites such as Naver, Daum, Yahoo, etc. in the late 1990's, communication became active online.
- Subsequently, as smart phones become popular in 2000s, remarkable growth of SNS has been achieved throughout the world.

2) Characteristics of SNS

- SNS allows people to widely communicate with other people engaging in various fields, and to be able to swiftly contact extensive knowledge, experiences and information. (Provision of an opportunity to obtain knowledge and information without restrictions on time and space)
- SNS makes development and management of extensive personal connections easy, escaping from the offline limit. (Formation of wide personal network and relationship)
- SNS is characterized by swiftness and mobility of information distribution·production, having great effect on society.
  (Means for advertisement and publicity characterized by swift speed and great impact)

3) Kind of SNS

<Figure 1. Various SNS platform>
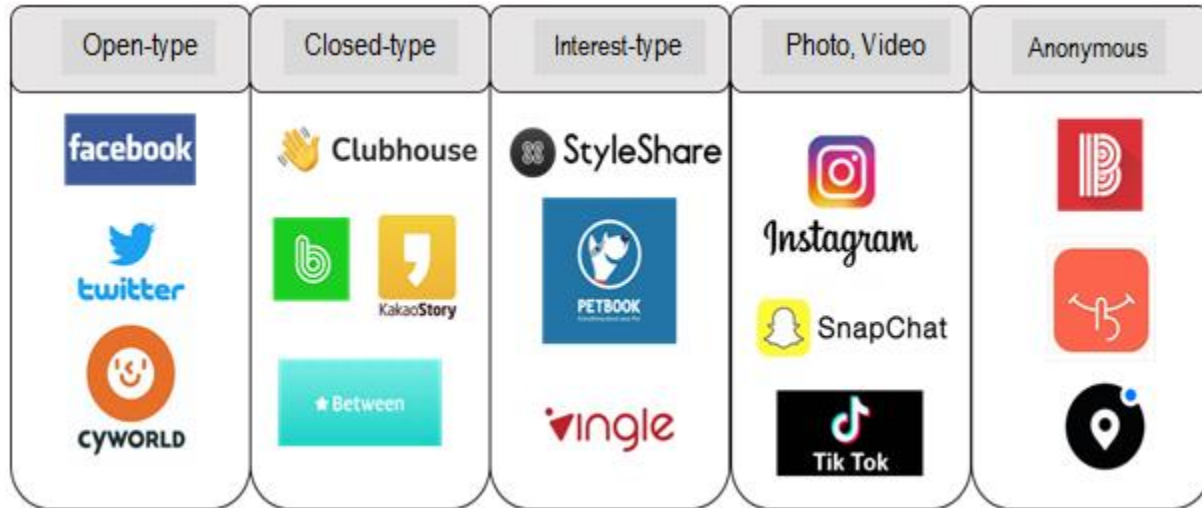
- Open-type SNS platform: SNS platform for friendship and formation of personal connections
    (ex. Facebook, Twitter, etc.)
- Closed-type SNS platform: SNS platform forming friendship between acquaintances
    (EX. Club house, Band, Kakao Story, Bit One, etc.)
- interest-type platform: SNS platform communication centered on specific interest
    (ex. Style Share, Pet Book, Vingle)
- SNS platform centered on a photo, video: SNS platform mostly centering on photos or videos
 (EX. Instagram, Snapchat, Tiktok, Tumblr, Flickr)
 - Anonymous SNS platform: SNS platform communication guaranteeing anonymity
 (EX. Blind, Moci, Around, etc.)

4) Market and Present Situation

<Figure 2. Scope of SNS users in the world>
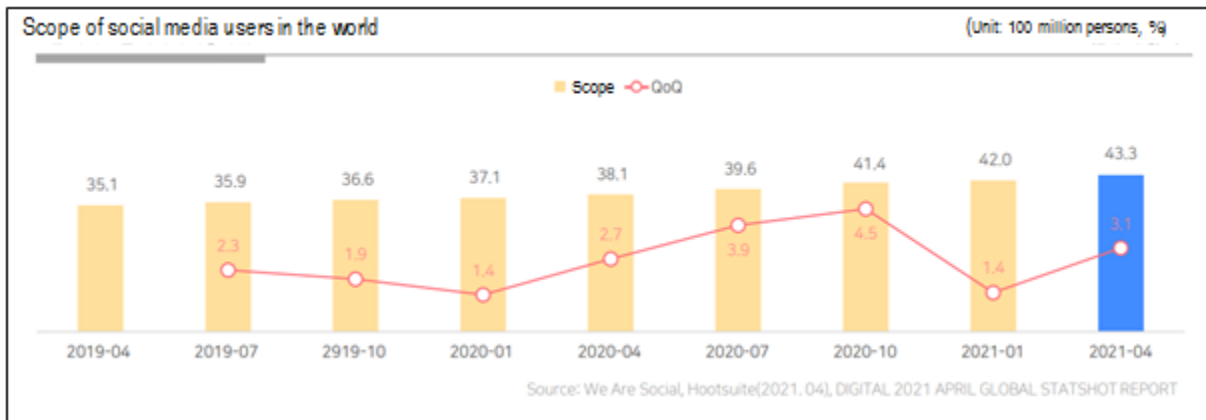
- The number of social media(SNS) users in the world is 4,330 million persons which accounts for 53.6% of the total population all over the world
(Source: Digital report of global situations, April 2021)

<Figure 3. Scope of SNS users in Korea>
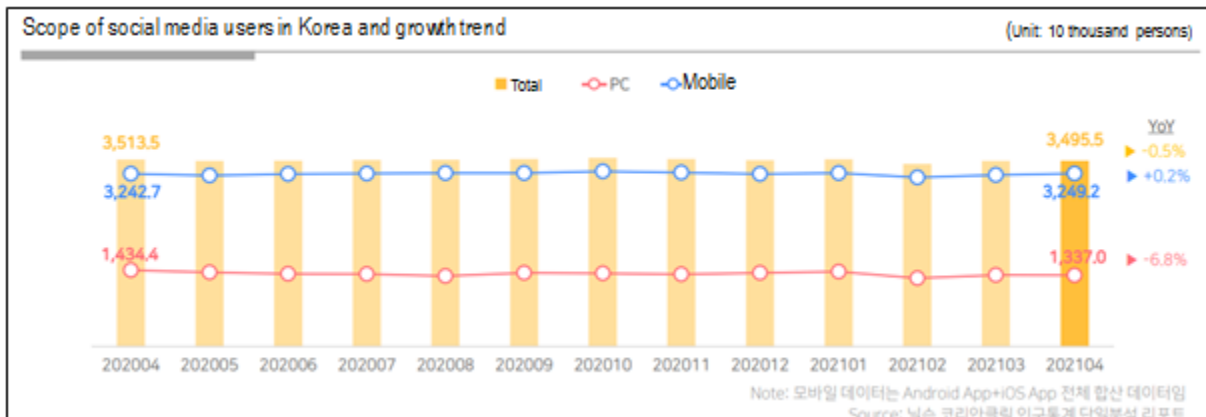
- The number of social media users in Korea is 34,955 thousand persons, which is about 1.7 times higher than the average of the world (53.6%) (Source: Nielsen KoreanClick, 2021)
- The scope of advertisement expenses for social media in the world is 110,628,090 thousand dollars which is the second largest scope in the total world digital advertisement market, following search advertisement (Source: STATISTA)
- Also, social media advertisement market is predicted to continuously grow and the estimated scope will reach 138.4 billion dollars until 2025. This market is expected to grow fastest among digital advertisement types (2019-202, CAGR:7.5%)

2. NPICK BLOCK SNS Platform

1) SNS problems

-We now live in the age of social network. Every day, a variety of SNS platforms are being created and we through SNS platforms, forming relationship and communicating with lots of persons, are exchanging lots of information. Together with development of a smart phone, a huge paradigm is formed.

-Also, the role of SNS is gradually being expanded, and SNS are developing into a strong marketing channel and an e-commerce platform for business beyond the role of a platform simply sharing personal everyday life. However, in the midst of various SNS being generated, many problems arise.

→ **We propose 3 problems and at the same time provide a solution using blockchain technology for solving the problems.**

<figure>

N-pick Block SNS Platform

Privacy Problem Solution   Distribution Problem Solution   Copyright Problem Solution

</figure>

<Figure 4. Problems of SNS platform>
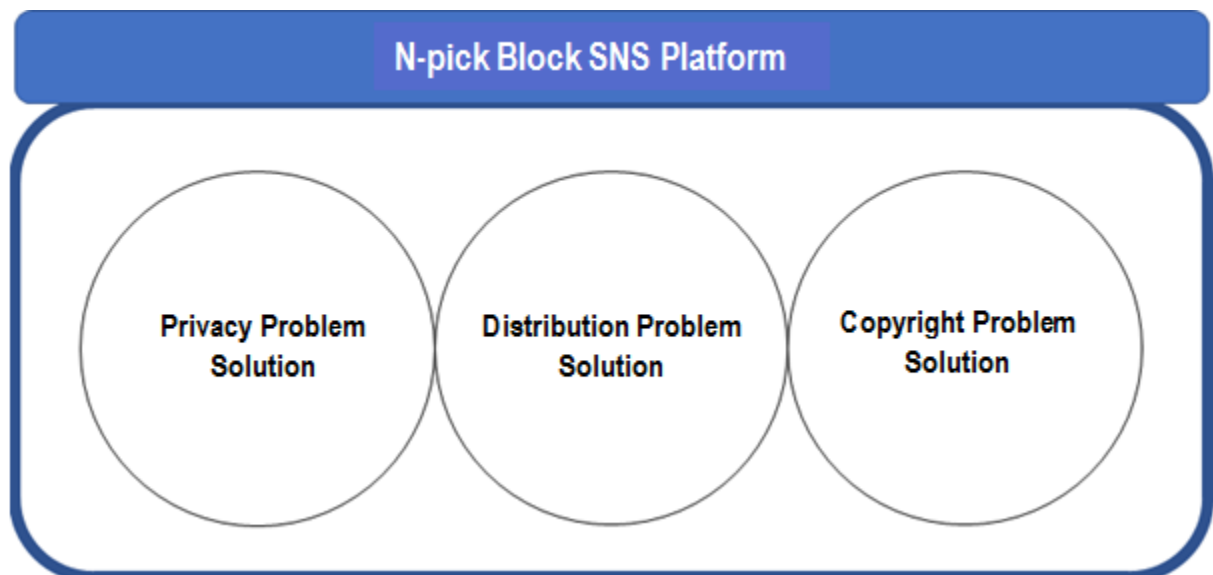
2) Introduction of NPICK BLOCK SNS Platform

A. Privacy Solution

①Privacy problem

- While using SNS, we unexpectedly face problems related to illegal use, exposure and abuse of personal information. NPICK BLOCK provides a solution to such problems through account authentication.

②Solution (Account Authentication)

<Figure 5. Method of authenticating a personal account utilizing NFT>
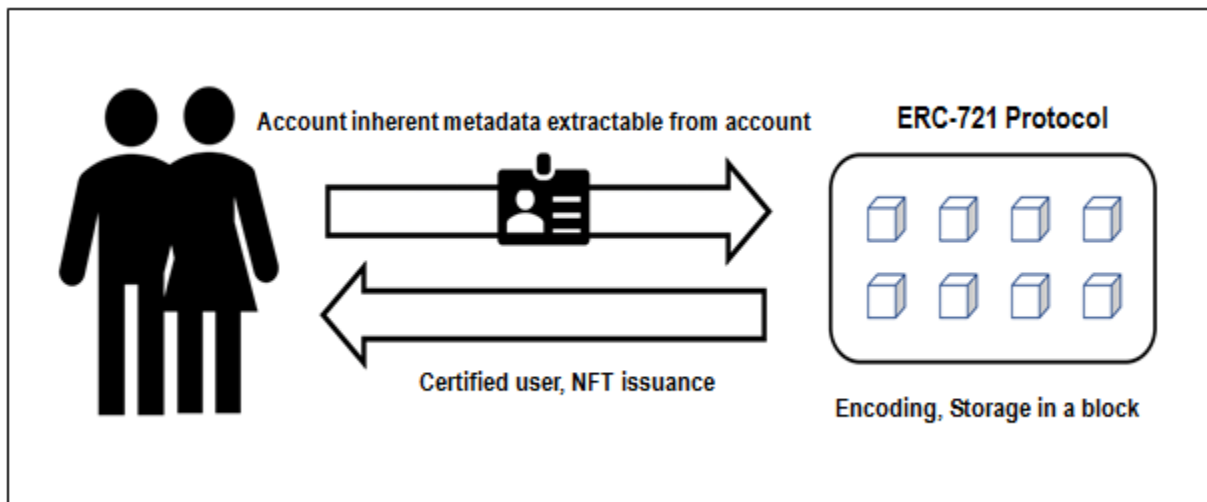
-Users providing quality contents are called influencers, an account itself has an effect and thus each account has value.

-On SNS, accounts of these influencers are frequently impersonated and illegally used and SNS business operators play a role to protect those accounts.

-NPICK BLOCK issues an account which repeatedly uploads quality contents to become an influencer as well as the account of an influencer in the form of a non-fungible token which has different value by each account itself using NFT.

-NFT is an abbreviation of Non-Fungible Token which, as a token irreplaceable, means technology of evidencing digital assets having scarcity in tokens with respectively different values by storing the assets in the block.

-NFT is guaranteed uniqueness by leaving meta data of digital assets like encoded transaction details in a block chain and can be said to be digitalized specific information of various inherent identifies of accounts of users. By leaving NFT in a blockchain, the account can be also guaranteed uniqueness.

-Like this, NFT account is authenticated and protected on SNS due to characteristics retained by a block chain and NFT.

In the below, how an account is protected according to characteristics NFT and a blockchain have is described.

- Difficulty in forgery and falsification: Though a blockchain is not entirely free from hacking, because it is technology created so that it can cope with problems of forgery and falsification better than other commercialized technologies, it can be helpful to account security of users.

-Traceability: Because the date of a blockchain is open and transparent and everyone is able to peruse the source, issue time, owner details and other information, the actual owner of an account is open and traceable and thus it is never easy to illegally use an account.

B. Distribution Solution

①Problems of distribution

-SNS platform receives contents from platform contents providers and gives appropriate compensation for such contents to contents providers according to respective logics of a platform.

-Each SNS platform not only has a different logic for contents compensation but also doesn't make most of calculation methods transparently open to contents providers.

-Therefore, to solve problems of contents revenue distribution on SNS, NPICK BLOCK provides a solution using SMART CONTRACT.

②Solution (Revenue distribution)

<Figure 6. Contents supply and SMART CONTRACT>
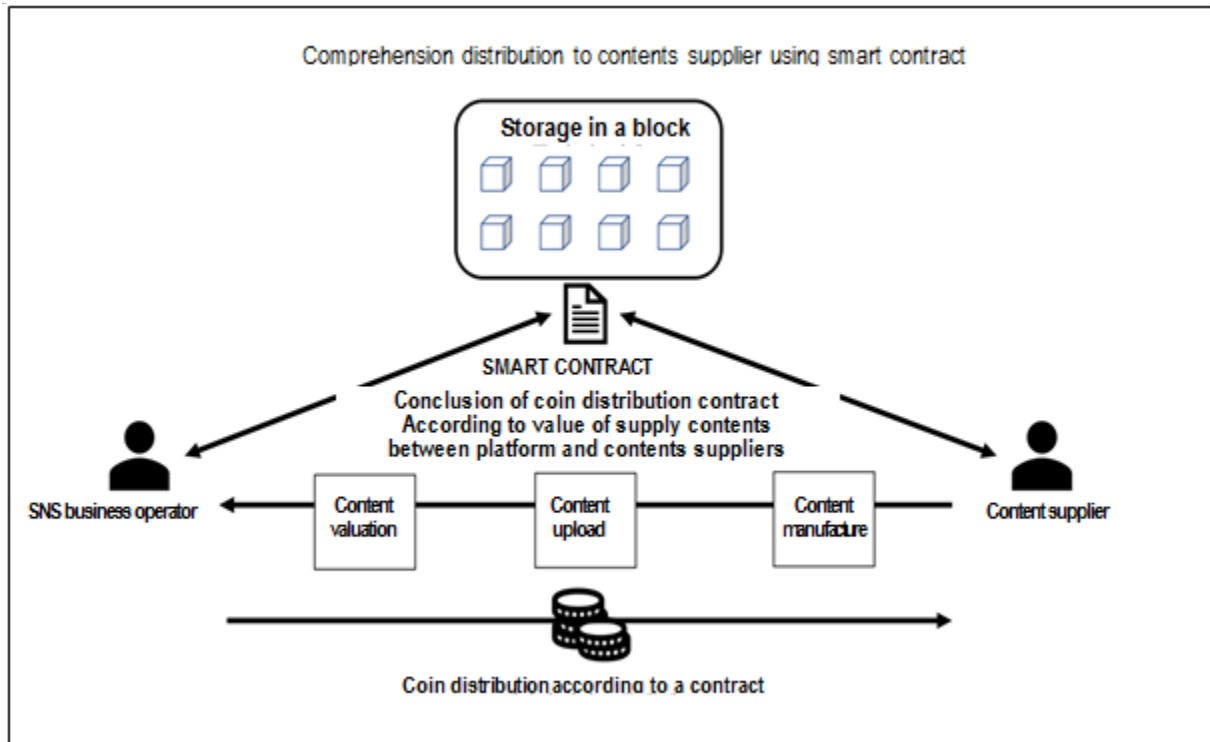
-Compensation

A SNS business operator must continuously supply quality contents on SNS in order to activate SNS. Contents are composed of products such as videos, photos, sound sources, etc. that are uploaded by general users and a SNS business operator is required to motivate contents manufacturers so that they may continue to actively upload contents. The method of motivating contents manufacturers may include monetary compensation and, in NPICK BLOCK, because a contract is made through Smart Contract so that compensation may be made according to value of contents, forgery, change, default, etc. of a contract are prevented and coins are allowed to be distributed in automated methods according to a contract.

-Valuation of contents

Valuation of contents is a problem directly related to coin compensation, so that it must be dealt with significantly. The contents uploaded by a contents supplier, in case of a certified user, are issued in a NFT in which each content has different value and the value of contents are measured according to a change in value of this token and becomes the basis for compensation to a contents manufacturer.

-Compensation contract

A content supplier makes a contract with a SNS business operator in order to provide quality contents and receive appropriate compensation. All contracts are prepared in Smart Contract and stored in the block to prevent illegal changes and default and to provide transparent compensation.

C. Copyright Solution

①Problems of copyright

- As to SNS, there is no special restriction in a contents provider uploading contents, contents created by a contents manufacturer are illegally used by a third party, which causes damage to the contents manufacturer.

-Also, even though contents are illegally used for a profit-making purpose, there is no special remedy other than a request for deletion. Besides that, because it is difficult to evidence actual ownership of contents created by oneself and to measure the monetary value of contents, even if contents manufacturer makes a report of illegal use, there is no way of getting compensation.

-NPICK BLOCK provides a solution for guaranteeing the copyright of contents uploaded on SNS platform and for determining the value of respective contents.

②Solution (Copyright and Value of Contents)

Fungible Token

1 ETH 1 ETH

1 ETH 1 ETH

Token issued in framework different NFT such as ERC-20, Etc. is equal to value of one token

Non-Fungible Token

#123456 #123457

#123458 #123459

It issues a token whose value is different using ERC-721 framework.
- All contents and accounts such as account, sound voice, photo, video, etc. can be the subjects.

<Figure 7. Difference between NFT contents and fungible token>
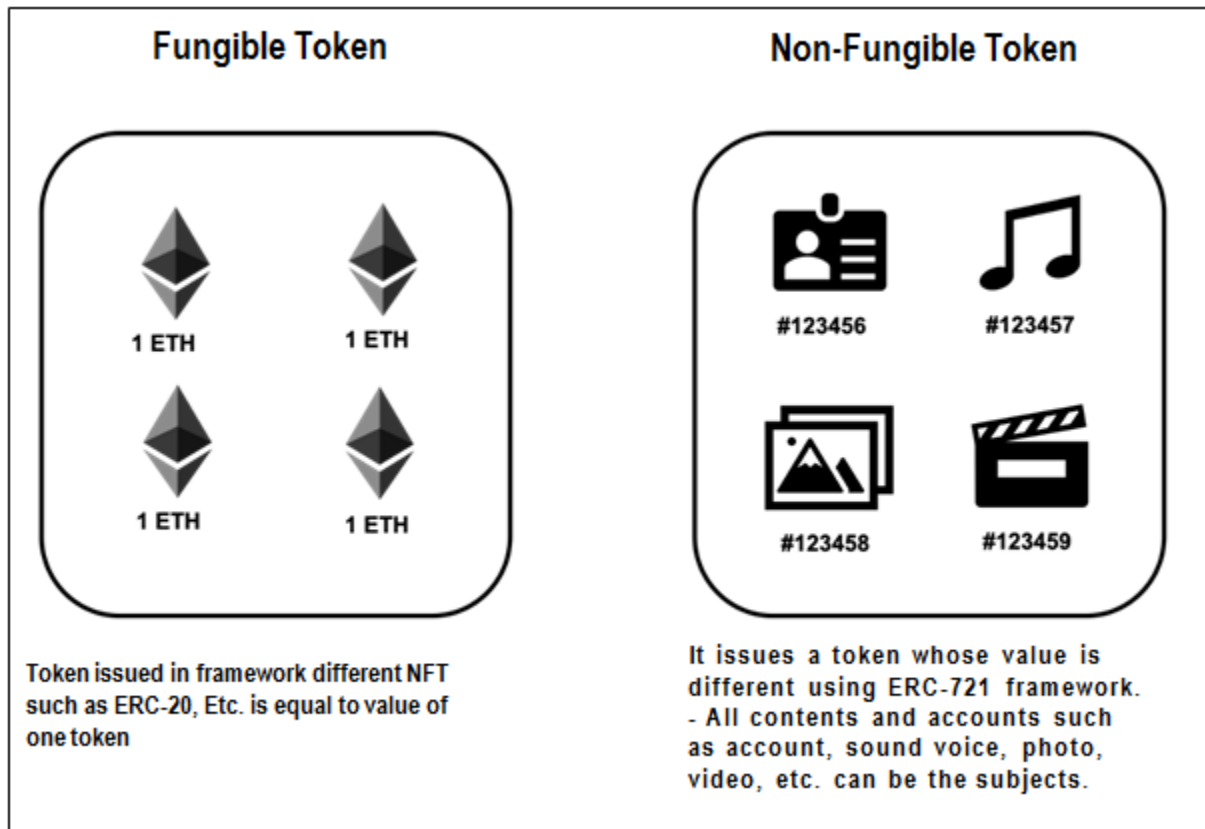
-SNS contents NFT registration

NPICK BLOCK registers contents uploaded using ERC-721 framework in NFT. Contents are issued as tokens each of which has different value, and the value also continuously changes.

-Automatic registration of contents of a certified user

Even if contents are registered as NFT, the copyright problem of contents is not solved. Because if a user whose identify is not clear steals contents and first registers NFT, the digital owner of such contents becomes the user whose identify is not clear.

Accordingly, if the user certified through NPICK BLOCK goes through a process of registering contents as NFT, the certified user who is traceable becomes the actual owner of contents, so that, even if the certified user steals contents without permission and registers them as NFT, information of an owner of contents is transparently open because the user is registered user, and as a result, legal evidence of illegal use of contents may remain, which naturally leads to prevention of such illegal use.

<figure>
Contract

SMART CONTRACT

Transparent reward

Valuation

Blockchain

NFT account authentication

NFT contents copyright

Account

Quality contents upload

Contents
</figure>

<Figure 8. SBNS platform solution provided from NPICK BLOCK>
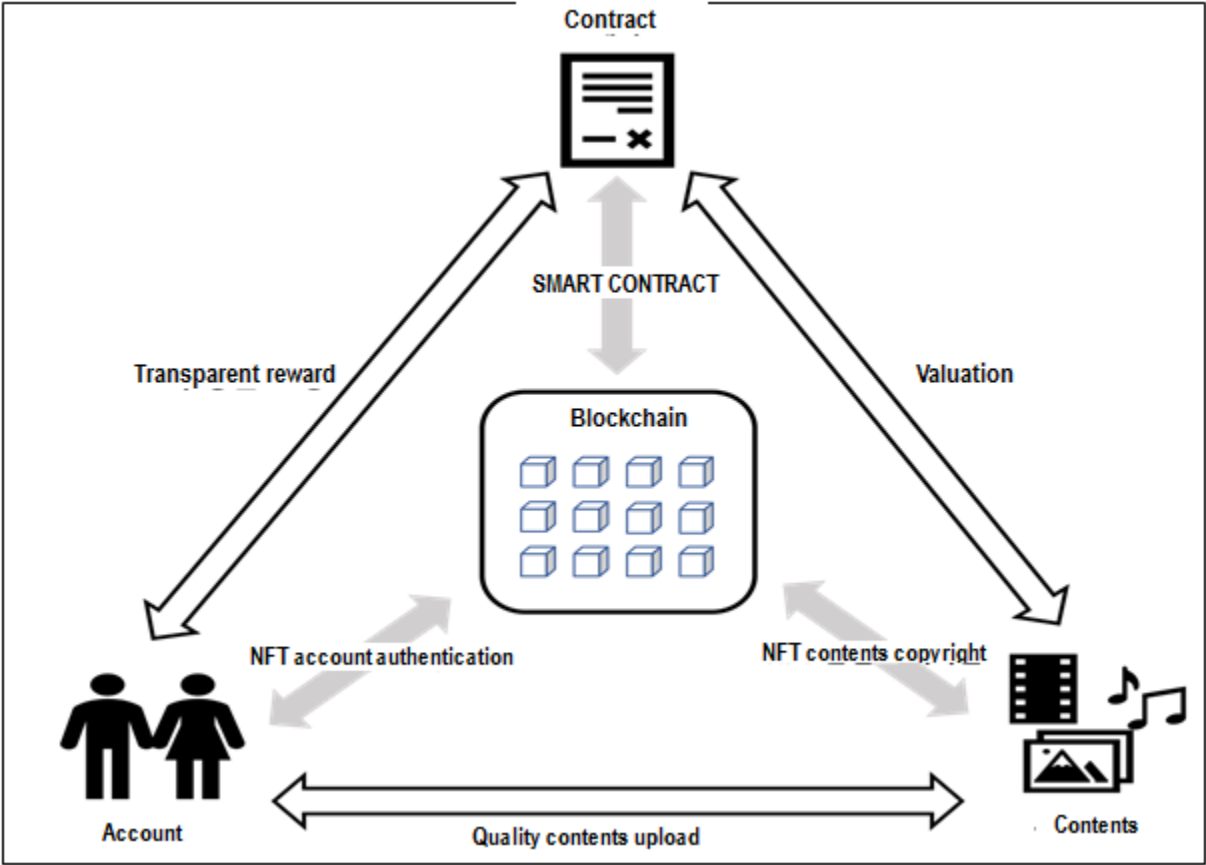
3. Technology of NPICK BLOCK

1) Ethereum and Ecosystem of NPICK BLOCK

-Ethereum is utilized as a token in various blockchain platforms. Etheruem that uses Proof of Work-based consensus algorithm ensures more stable platform operation. Because it uses the same algorithm as Proof of Work method of Satosi Blockchain, the more generation of a blockchain continues, the more stable security status can be obtained.

-Etheruem supports SMART CONTRACT function together with such a basic blochchain function. It can be utilized as a contract in everyday life by prescribing various actions by a code level. Besides that, Ethereum enables NFT(Non Fungible Token) to be issued through ERC-721.

-NPICK BLOCK utilizes NFT concepts for identification and guarantee/security of SNS members as well as concept. Also, it is able to compose various functions in a platform utilizing SMART CONTRACT.

<Figure 9. Relation between Ethereum and NPICK BLOCK ecosystem>
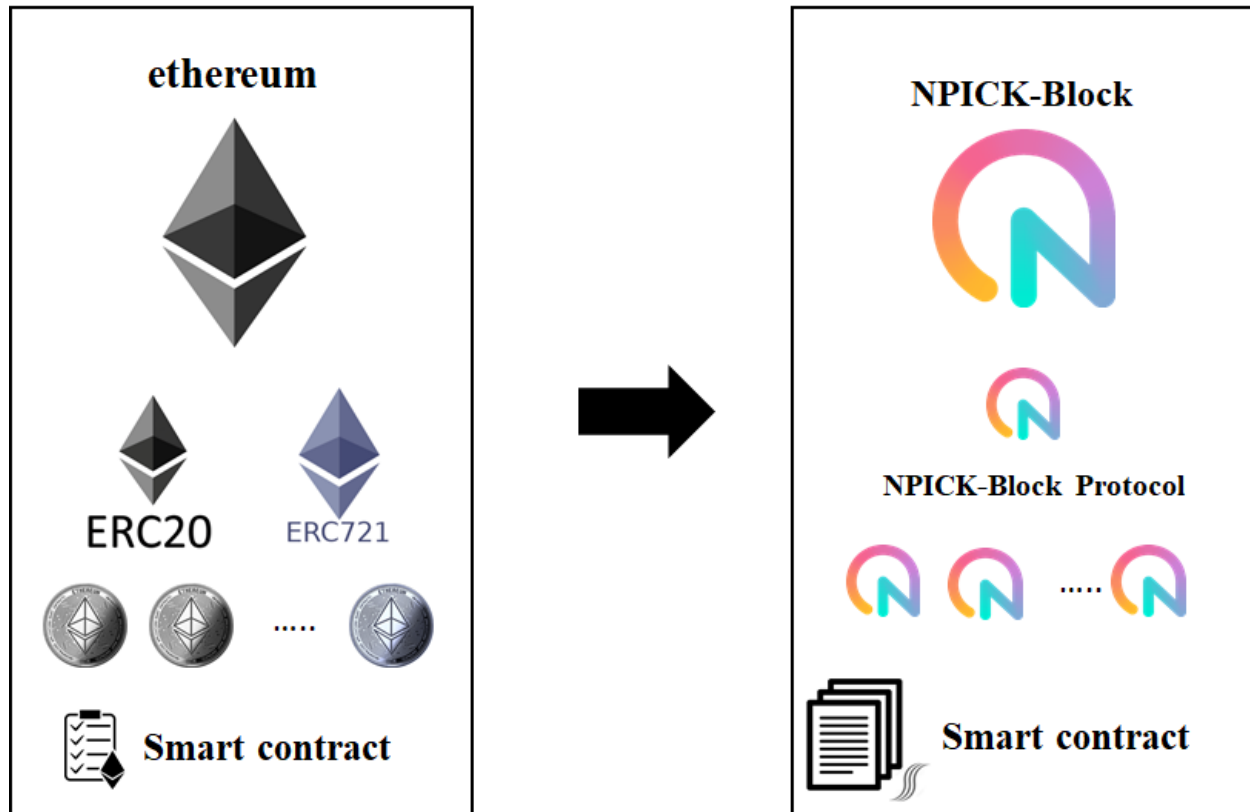
-Issuance of a token utilizing ERC20 and ERC721 and a future plan to develop its own main net

NPICK BLOCK requires a coin which supports a non-fungible function for managing copyright, etc. of contents as well as a blockchain-based coin to support a SNS integrated blockchain platform function. For that, initial composition is achieved utilizing Ethereum network.

That is, a token is issued and managed on the basis of each of ERC-20 and ERC-721. In early NPICK BLOCK platform, transactions are conducted on the basis of tokens issued on the basis of Ethereum rules, and a function is constituted based on SMART CONTRACT concepts of Ethereum. This, subsequently, is replaced with NPICK COIN after completion of development of NPICK BLOCK main net.

2) NPICK BLOCK Chain Ecosystem

<Figure 10. Configuration of ecosystem of NPICK BLOCK blcokchain>
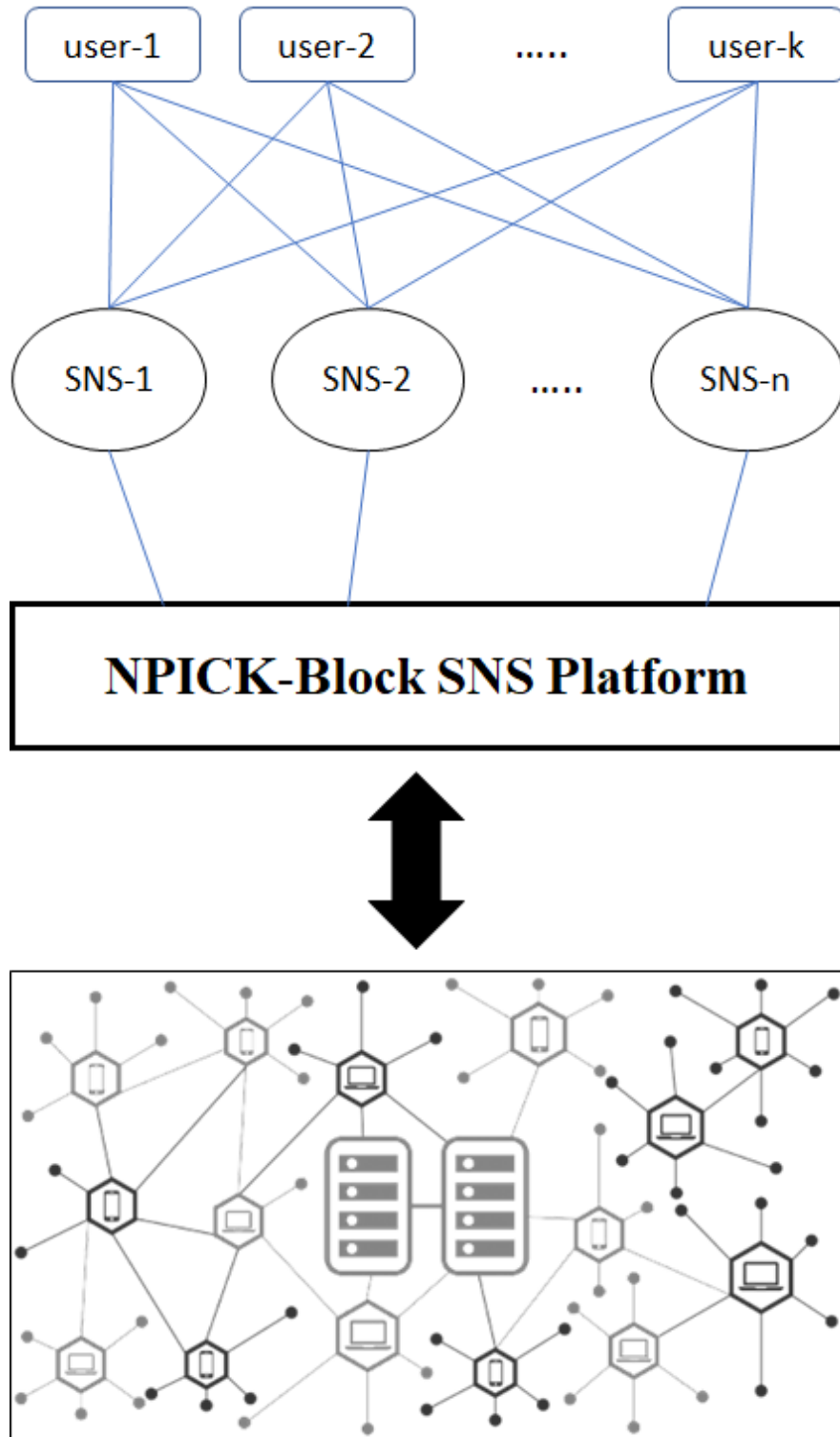
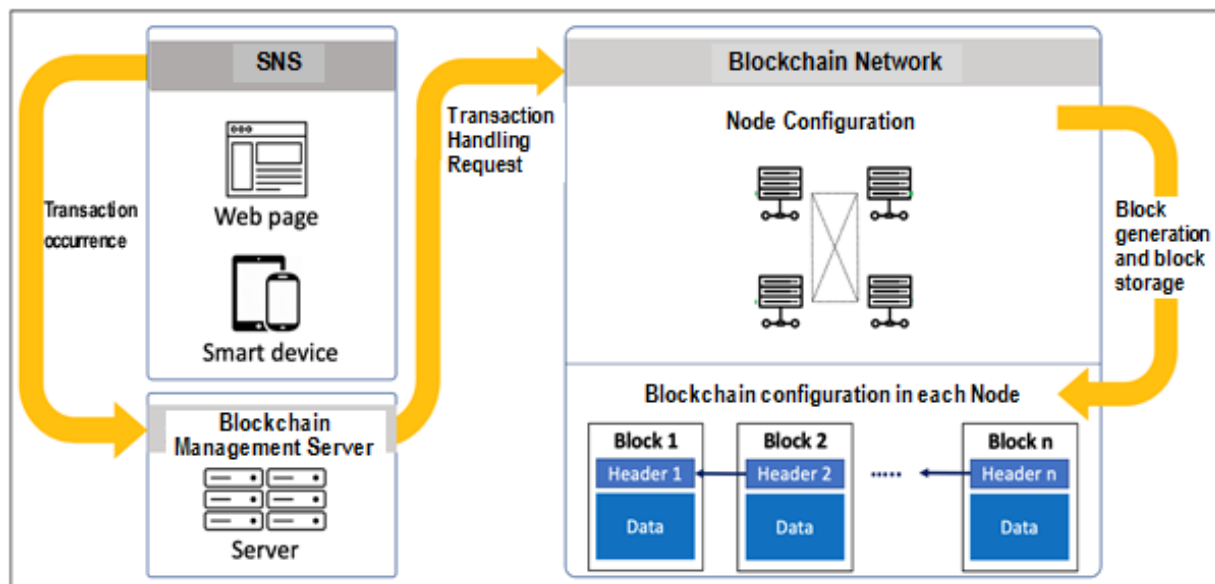NPICK BLOCK blockchain includes NPICK BLOCK platform enabling management and implementation of various social media application programs on the basis of NPICK BLOCK main net. Various social medal application programs can utilize NPICK BLOCK main net using NPICK BLOCK platform.

This means that various blockchain-based functions provided from NPICK BLOCK main net can be used at special social media application programs.

In NPICK BLOCK blockchain ecosystem, actions of basic functions of various social media application programs that provide service utilizing NPICK BLOCK platform is constructed on the basis of SMART CONTRACT. For example, functional processes of user action, etc. such as user's subscription, comments or contents sharing are written in SMART CONTRACT. Accordingly, unless the contents of SMART CONTRACT change, contents of the whole process such as user's subscription, etc., that is, the contents written in SAMRT CONTRACT, are deemed ta transaction, stored in the block and shared with Nodes of NPICK BLOCK blockchain.

<Figure 11. Data processing of NPICK BLOCK blockchain>

Figure 11 shows data processing of NPICK BLOCK blockchain. A blockchain management server receives a transaction arising from user action such as membership registration or entry of comments and makes a request for processing from a blockchain network. And a transaction is processed through Node and block composed within a blockchain network.

Functions supported by user action such as membership registration or entry of comments, that is, by social media application programs are written in SMART CONTRACT. And a code in SMART CONTRACT is implemented by line and causes a transaction to arise. This means that whenever SMART CONTRACT is executed, the executed contents and results are stored in the block, and the results stored according to irreversible features of a blockchain are not manipulated. NPICK BLOCK blockchain main net composes the self-designed Node and block and provides consensus algorithm designed on the basis of techniques with various academic arguments.

<Figure 12. Example of main nets of NPICK BLOCK blockchain>
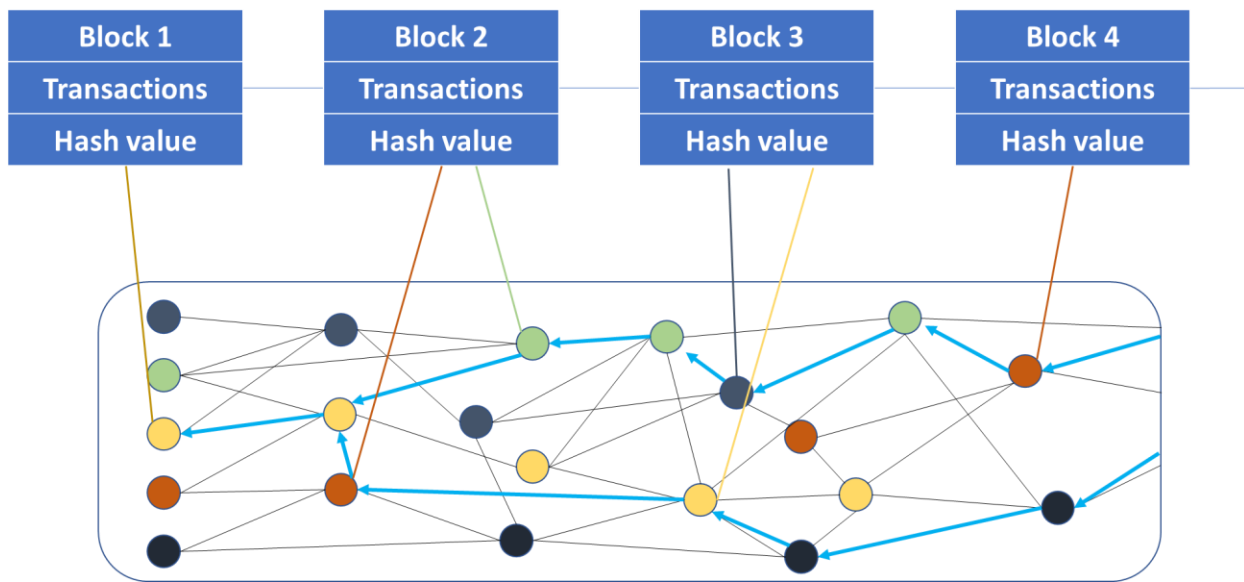
Figure 12 shows examples of main nets of NPICK BLOCK blockchain.
 The main net of NPICK BLOCK blockchain consists of blocks which can store participating Nodes and contents of transactions. And, participating Node, etc. are structure that applied Gossip protocol and share block information. Like this, the block shared with not less than 2/3 of participating Nodes is selected as the final consensus block. Then, contents of transactions are stored in a consensus block. Because participating Nodes are selected as a form generated by considering features of social media service and a block is shared in a method in which Gossip protocol applies, a great number of edges between.
Accordingly, structure in which participating Nodes share blocks can be defined as graph G(V, E). Where, G means a graph that arises while participating Nodes of NPICK BLOCK main

net share blocks and V (means all lines in Figure 12) means participating Nodes sharing blocks at a specific point of time, and E (means all circles in Figure 12) means block sharing information transmission edges.

- Structure of Node

Node

Node Signature: $sign_{node}$

Gaussian Score: r_1

Current Level: i

Current Chain Score: r_2

NPICK-Block Chain :

Main Chain:

h_1	h_2	h_3	h_4	.....

<Figure 13. Structure of Participating Nodes of NPICK BLOCK blockchain main net>
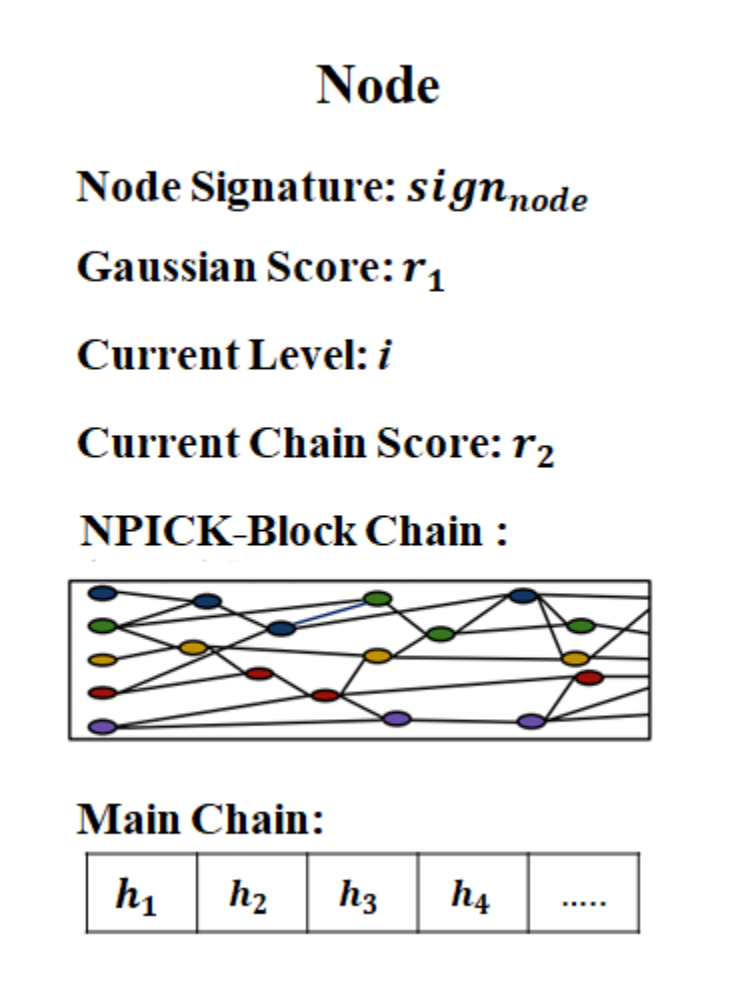
Figure 13 is structure of participating Nodes of NPICK BLOCK blockchain main net, and includes a total of 6 attributes.

-The first is Node Signature. It is the only value each participating Node has, and all participating Nodes that participate in the main net of NPICK BLOCK blockchain respectively have unique Node Signatures.

 -The second is Gaussian Score. Participating Nodes of NPICK BLOCK main net consist of users who use social media service or participants who want to take part. The users having a great effect in specified service among social media service users are included in this. The user, though influential, who doesn't want to take part may be excluded, and in case there is no powerful user, participating Nodes in a distributed type may be optionally composed in the service. And if an influential user appears as the amount of service used increases, optionally participating Nodes are replaced. Gaussian Score is a numerical value of deciding the influence of the user at that time. It draws Gaussian distribution for the total users by using the numerical value indicating the influence of users in social media, for example, number of followers, Good, etc. as feature value and determines the value of X-axis at Gaussian Score. So to speak, it regards the users located in the upper standard deviation of the distribution as upper users and classifies them as participating Node candidates. Gaussian Score of participating Nodes selected among these candidates is included in Node structure. Also, Gaussian Score of other participating Nodes is also shared.

 -The third is Current Level. Current Level means a step for present consensus. Consensus in a blockchain shall guarantee Byzantine Fault Tolerance. This means that when n participating Nodes exist, not less than 2n/3 share information. That is, it means that when some block was generated, about 2n/3 or more of participating Nodes shared existence of a relevant block. The meaning of Level is a moment a certain block is generated and shared by participating Nodes. For example, in case Current Level is 1, it means that a block is initially generated and the information of this block is shared by participating Nodes. And in case not less than 2n/3 shares a block in Current Level 1, Current Level is changed to 2. All participating Nodes share Current Level.

-The fourth is Current Chain Score. Current Chain Score means a ratio of Node sharing in Current Level. In this case, NPICK BLOCK blockchain main net doesn't determine the ratio of participating Nodes by simply calculating a numerical value of 2n/3 for n Nodes. The reason is that there exist Gaussian Score in every participating Node. Gaussian Score shall have

different numerical value in every participating Node, and means power of influence it has in social media service.

Accordingly, in case a more influential user, that is, a user with high Gaussian Score shares block information, it can be determined that the influence is greater than the influence one Node has. For calculation of the influence, Gaussian distribution is normalized. For that, Formula (1) is used.

$$N_a = \frac{k(x_a - \mu)}{\partial \cdot \sum_{i=1}^{k}(\frac{x_i - \mu}{\sigma})}, \qquad (1)$$

In Formula (1), N_a means an influence figure of the n_{th} participating Node. k means the number of participating Nodes, x_a means Gaussian Score the n_{th} participating Node has. x_i is Gaussian Score of the nth participating Node and μ and σ respectively mean average influence and standard deviation in the service.

Through Formula (1), it is possible to draw a Gaussian Score-based influence figure of every participating Node. And Current Chain Score is the sum of influence figures of participating Nodes that are sharing blocks that currently occurred in Current Level. Accordingly, in case Current Chain Score is not less than 2k/3, it is confirmed that Byzantine Fault Tolerance has been guaranteed in Current Level, and Current Level terminates.

-The fifth is a blockchain of NPICK BLOCK, which means structure of G(V, E) shared by participating Nodes from Current Level 1 to the present Current Level.

-Lastly, the sixth is Main Chain which is the data meaning connection information of blocks which reached consensus. NPICK BLOCK blockchain main net generates a block at every level and ensures Byzantine Fault Tolerance through a process of consensus. The blocks that reached consensus are stored in Main Chain and linked through hash information of a block. And such block connection retains a specific materials structure type as Main Chain, and is shared by all participating Nodes.

- Structure of block

Block

Block Hash: h_i

Information:

Previous Hash: h_{i-1}

Timestamp: t_i

<Figure 14. Block structure of NPICK BLOCK blockchain main net>
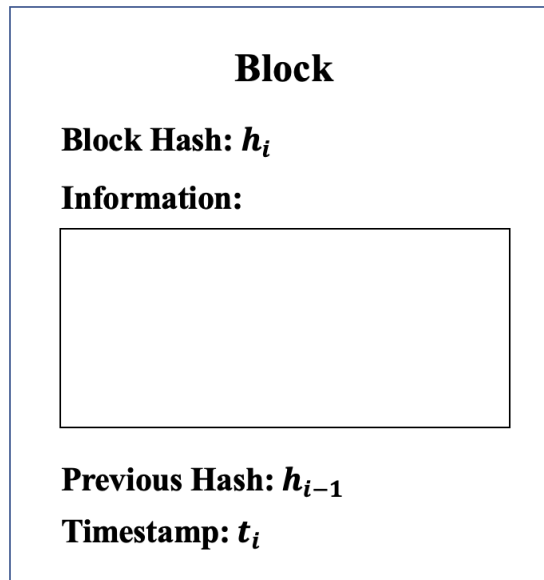
Figure 14 is block structure of NPICK BLOCK blockchain main net and includes a total of 4 attributes of Block Hash, Information, Previous Hash, Timestamp.

Block Hash means hash of a current block and Previous Hash means has value of a previous block. Information is the information stored in a block. For example, it includes executed contents, etc. of SMART CONTRACT.
In conclusion, Timestamp is the concatenation result of the time a block occurred and the time information was entered. Accordingly, in case of a block in which information was not input, only the time a block occurred exists as a value of Timestamp.
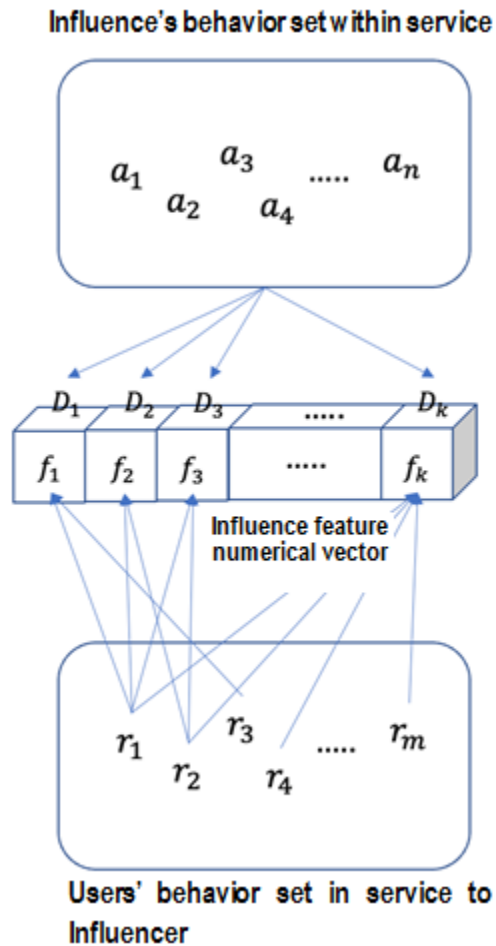
3) Method of Drawing Consensus of NPICK BLOCK

NPICK BLOCK blockchain main net is a blockchain platform for social media service. Accordingly, a main net operates on the basis of a consensus method suitable for social media service.

NPICK BLOCK main net selects a participating Node in the similar mode as DPoS(Delegated Proof of Stake), Nodes are determined on the ground of various activities existent in social media service. In social media service, influential users called Influencers exist. These users mean the users who carry out various activities in the service and strongly influence other users.

DPoS is carried out in a process in which specific representative Node is selected among PoS and consensus is reached.

So to speak, it is structure of making participants with lots of interest on specific blockchain network participate as a Node for block generation. Here, lots of interest can be substituted by influence within social media service. On the basis of influence concepts replaced like this, NPICK BLOCK blockchain main net gets to select a participating Node.

- Selection of users based on Gaussian distribution

Influence's behavior set within service

$$a_1 \quad a_3 \quad \ldots \quad a_n$$
$$a_2 \quad a_4$$

$$D_1 \quad D_2 \quad D_3 \quad \ldots \quad D_k$$
$$f_1 \quad f_2 \quad f_3 \quad \ldots \quad f_k$$

Influence feature numerical vector

$$r_1 \quad r_3 \quad \ldots \quad r_m$$
$$r_2 \quad r_4$$

Users' behavior set in service to Influencer

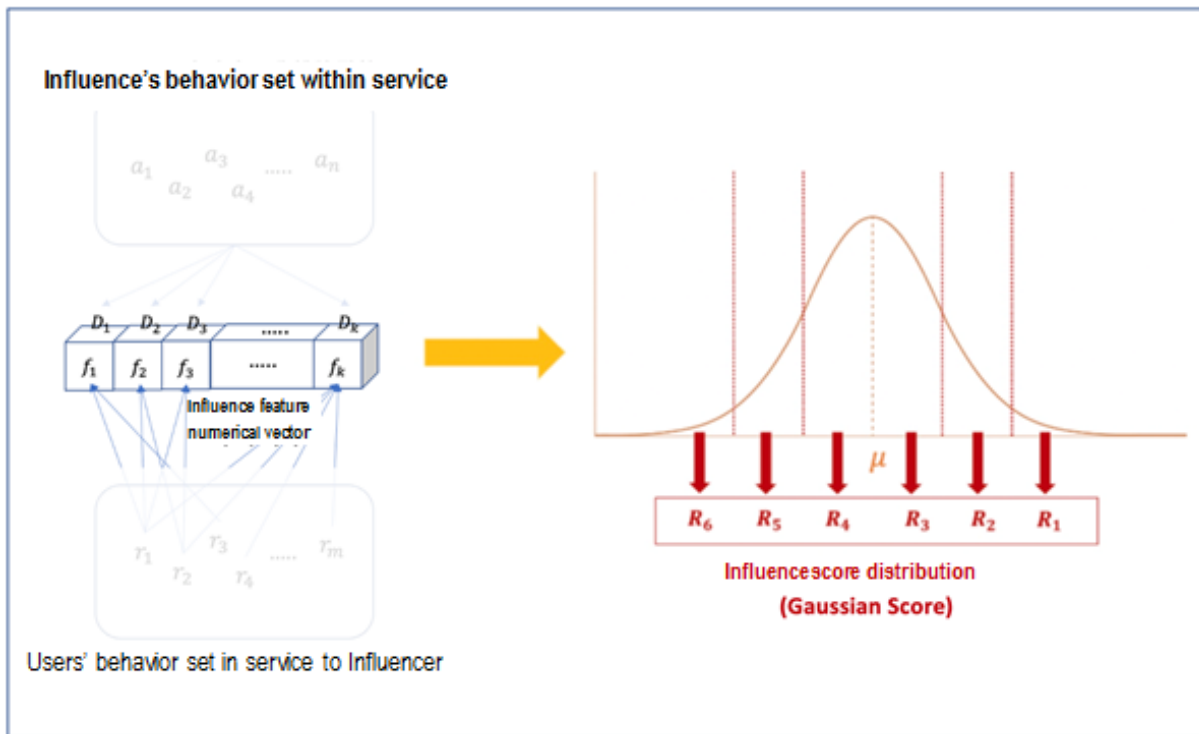<Figure 15. Structure of influence feature numerical vector>

Figure 15 is structure of influence feature numerical vector.

In case of influence feature numerical vector, dimension is composed of user behavior-based functions existent within social media service such as comments, upload, etc.

And the figure of each dimension is determined by the frequency of behavior that some influencer used social media service and by the reaction figure of other users to Influencer's behavior of each dimension.

For example, in case some Influencer wrote comments in specific contents, the figure of comment dimension increase by 1. And in case, to relevant action, other users reacted using functions such as comments of comments or Good, the dimensional figure increases as much as the figure of the reaction. Such reaction arises n times, the figure of comment dimension increases as much as n+1.

<Figure 16. <Influence score measurement structure utilizing Gaussian distribution>

Figure 16 is influence score measurement structure utilizing Gaussian distribution. NPICK BLOCK blockchain main net draws Gaussian distribution on the basis of the sum of all dimension of influence feature numerical vector by user that was calculated in Figure 16.

And it selects the upper point of distribution, that is, a set of users above R1 or R2 as a participating Node. And each participating Nodes share Gaussian Score information of other participating Nodes.

- **Gossip Protocol with Delegated Influencer**

 NPICK BLOCK blockchain main net shares information on the basis of Gossip among participating Nodes.

That is, a specific Node generates a block randomly among participating Nodes, and shares information on block generation by randomly selecting some of remaining Nodes. In this case, together with information on block generation, the signature of

the participating Node which generated relevant block and information on the selected other participating Nodes are also transmitted.

Participating Nodes that received relevant sharing information calculates the internal current chain score on the basis of signature information of the participating Node which generated a block. After that, it recalculates the current chain score, re-sharing block sharing information utilizing information of other participating Nodes that it received together.

Then, in case the current chain score becomes 2k/3 or more, the current level is terminated.

After that, another Node generates a block and this process is repeated.

NPICK BLOCK blockchain main net generates block generation information on the basis of the above Gossip Protocol. For example, in case k participating Nodes exist, it can be assumed that the i_{th} participating Node generated a block. Then, the i_{th} participating Node randomly selects n Nodes among k-1 participating Nodes and shares block generating information. The n Nodes which received this information update the current chain score on the basis of influence of the i_{th} participating Node. And, n Nodes share block generation information with each other, continuously updating a current chain score. Then, in case the current chain score becomes 2k/3 or more, current level is terminated.

In this case, participating Nodes which can terminate current level are the Nodes whose current chain score is not less than 2k/3 among n Nodes. Accordingly, n-j (In this case, j means the number of Nodes whose score information for 2k/3 has not been updated among n participating Nodes) participating Nodes get to generate the next block.

And, block generation information is shared k-1 Nodes randomly selected according to Gossip Protocol and, among this k-1 participating Nodes, a Node not included in n-j participating Nodes may exist.

That is, among Nodes which are not n-j Nodes that know the final score at the previous level among n Nodes selected by the i_{th} participating Node that generated

the initial block, a participating Node which received block generation information at the next Level may exist.

In this case, the relevant participating Node receives all information related to previously generated information, that is, block information of main chain, current level information and s block chain information and updates them into the latest information. After that, it proceeds with a consensus process updating the current chain score at a current level.

 Because NPICK BLOCK blockchain main net, utilizing Gossip Protocol, allows information between and among 2k/3 participating Nodes to be shares, it can cope with a variety of attacks such as Parasite chain attack, Double Spending, etc. This is verified in an attach type which can react according to guarantee of Byzantine Fault Tolerance in case 2k/3 participating Node shares information.

4) Reward Policies on the Basis of Reliability-rich user detection

<Figure 17. Example of reliance graph>
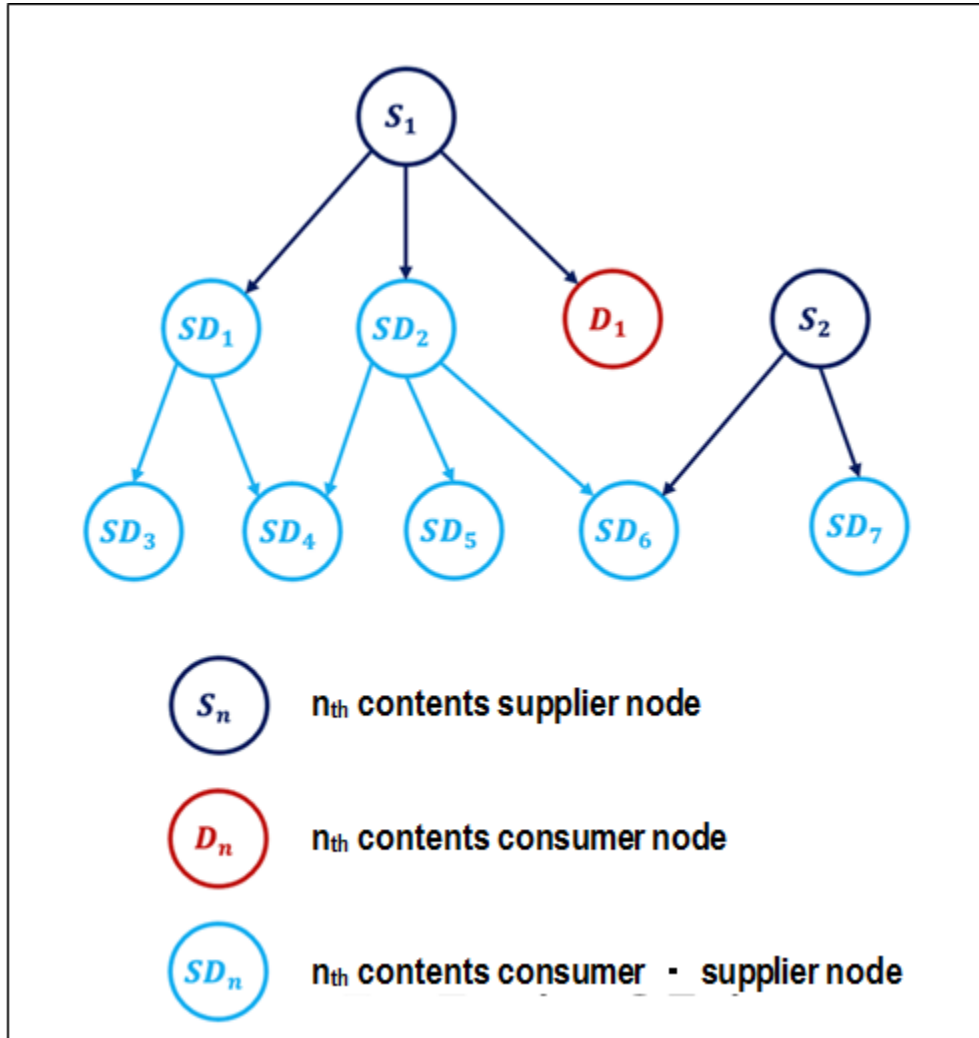
$$R_S = w_S \sum_{i \in E_S} i + \sum_{j \in E_{SD}} w_{SD} \cdot j \quad (2)$$

NPICK BLOCK blockchain main net carries out a policy that gives some coins to the user doing lots of activities as a reward. This is determined by forming a reliance graph of a user on the basis of activities of social media service, and Figure 17 is an example used for that.

In Figure 17, the supplier s1 means some user, reliability is drawn utilizing Formula (2). In Formula (2), Ws is the weight of some user Node s, and Es means an edge set of s. Wsd is the weight of other user who reacted to behavior of s, and Es means an edge set of s. ESd means an edge set of all action demand/supply Nodes which utilized data of S.

Accordingly, the result of Formula (2) for s1 is the one obtained by adding the sum of weighted edges of other user who reacted to s1 and weighted value of s1 to the sum of out-transition of s1. NPICK BLOCK blockchain main net draws reliability of a specific user utilizing the above numerical value.

5) Definition of Actions based on SMART CONTRACT

NPICK BLOCK blcokchain defines various functions existent on social media utilizing SMART CONTRACT.

The previously defined SMART CONTRACT-based actions are as follows.

* Service subscription
- SMART CONTRACT: Service subscription process action (Entry of personal information, Consent to authentication and information provision)
- Stored contents: Contents of entered personal information, and of consent to authentication and information provision, etc.

* Data collection
- SMART CONTRACT: Collection action according to a kind of data
- Stored contents: Various transactions arising among user behavior in social media service

* Contents registration
- SMART CONTRACT: Registration action according to conditions and structure for contents registration
- Stored contents: Transactions arising among contents registration actions

* Data inquiry
- SMART CONTRACT: A Request for data inquiry and dealing with a request
- Stored contents: All transactions, such as time, place, etc., arising at the time of an inquiry request

* Transactions
- SMART CONTRACT: Actions for transactions within the service including a request for merchandise purchase, dealing with a purchase request, provision of merchandise, etc.
- Stored contents: Transactions arising at the time of implementation of SMART CONTRACT such as a purchase request, handling, provision, etc.

* Refinement/processing/analysis of Data Products
- SMART CONTRACT: Key actions among product data behavior
- Stored contents: Transactions arising among behavior processes

* Data products delivery and use
- SMART CONTRACT: Actions for preparation of product delivery processes to purchasers and for details of sellers and purchasers after product transaction processing
- Stored contents: Records of sellers and purchasers and transactions arising at the time of execution of SMART CONTRACT

* Payment of rewards
- SMART CONTRACT: Process of providing rewards based on a reliability graph
- Stored contents: Transactions related to reward payment information

* Personal information inquiry
- SMART CONTRACT: Actions for inquiring details of service such as details of rewards and purchase, etc.

- Stored contents: Transactions arising among inquiry actions (Details of inquired service)

* Withdrawal
- SMART CONTRACT: All processes arising among withdrawal
- Stored contents: Transactions arising withdrawal function actions

NPICK BLOCK blockchain main net defines in advance by preparing SMART CONTRACT all functions, such as membership subscription/withdrawal, various action in the service, etc. which are basically generated when a user uses social media service, that may generate transactions.

Accordingly, in case of action of using basic service, the service can be used utilizing the basic provision function of NPICK BLOCK main net without the necessity of preparing SMART CONTRACT.

Because such information is defined on the basis of SMART CONTRACT, it is stored in NPICK BLOCK blockchain main net.

And the stored information is continuously stored without a change/deletion unless NPICK BLOCK blockchain main net is maintained.
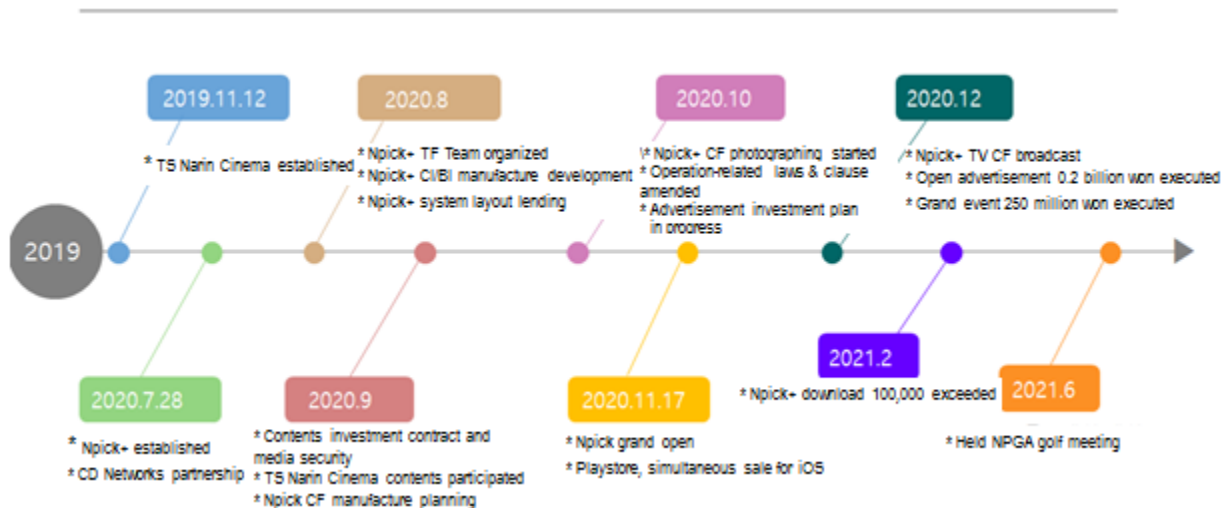
4. Npick+

1) Introduction of Npick+
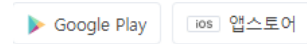
Multimedia platform **Npick+** that enlightens you

- **Pickme** competing at video TOP100 for a prize every week
- **Picktto** which is issued a number every day, and gives prize money by drawing lots

- **Npli** full of original movies & contents
- **NPGA hole in one** that gives 2 million won without restriction at the time of hole in one succeeds.
- **Npick Casting** that links aspiring starts to enterprises

Npick+ is user-participation multi-platform application that relieves boredom, recharges sensitivity and realizes your dreams.

2019

2019.11.12
* TS Narin Cinema established

2020.8
* Npick+ TF Team organized
* Npick+ CI/BI manufacture development
* Npick+ system layout lending

2020.10
* Npick+ CF photographing started
* Operation-related laws & clause amended
* Advertisement investment plan in progress

2020.12
* Npick+ TV CF broadcast
* Open advertisement 0.2 billion won executed
* Grand event 250 million won executed

2020.7.28
* Npick+ established
* CD Networks partnership

2020.9
* Contents investment contract and media security
* TS Narin Cinema contents participated
* Npick CF manufacture planning

2020.11.17
* Npick grand open
* Playstore, simultaneous sale for iOS

2021.2
* Npick+ download 100,000 exceeded

2021.6
* Held NPGA golf meeting
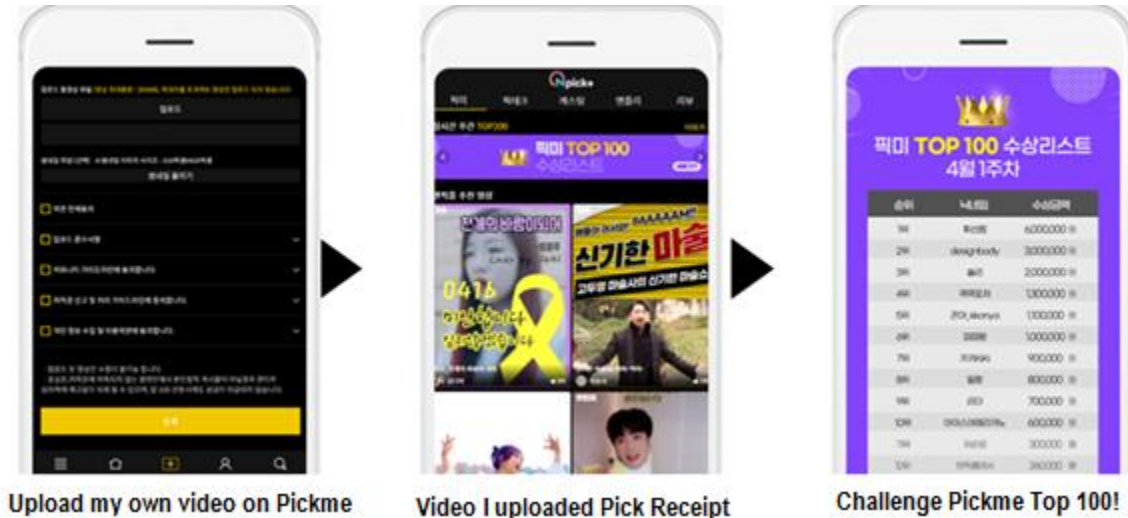
<Figure 18. History of Npick+>

2) Business scope

- Application-based multi-platform business

Npick+ enjoying contest-type platform and media contents with 2,000 won per month without any burden

- Main contents of Npick+, Contest that selects video management TOP 100 for the prize of about 24,500,000 won every week

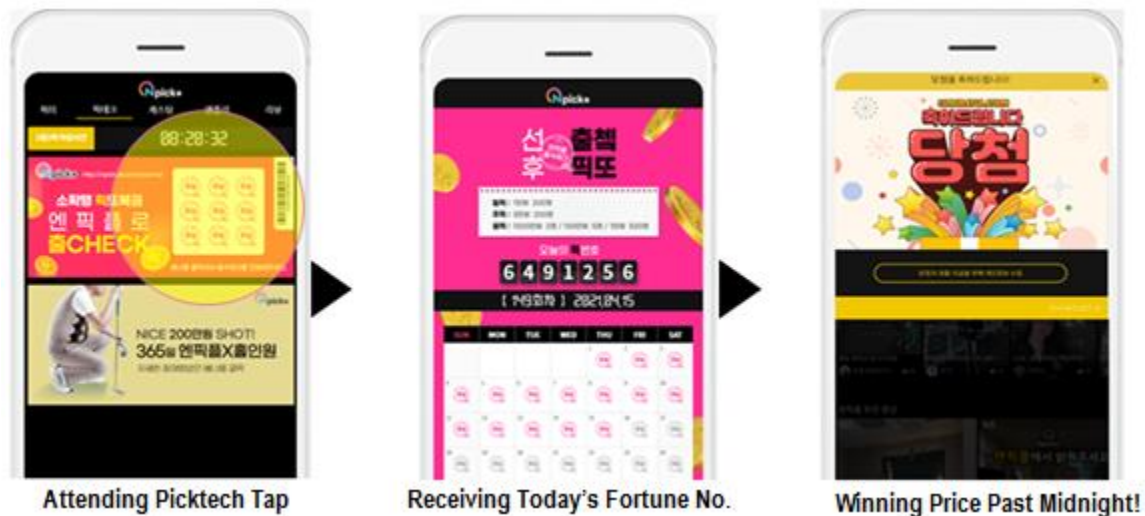<Figure 19. Contents: Pickme >

- Event that, after granting a winning number to participating members every day and, through drawing lots, gives luck of a total of prize winning money amounting to about 85 million won.

<Figure 20. Contents: Picktto >

- If a paid member submitted a proof picture evidencing hole in one, he/she is paid 2 million won unconditionally.

| Hole in one banner selection at Picktech Tap | Being issued hole in one number after converting paid member | Making hole in one & receiving prize money (Hole in one certificate & photo submission) |

<Figure 21. Contents: NPGA Golf>

- Feel free to apply for your dream including CF star, actor(actress), etc. at N-pick+ casting that links aspiring stars to enterprise.

| Confirm new public subscription | Uploading supportive image | Receiving casting at relevant public subscription |

<Figure 22. Contents: Casting >

● Please enjoy original movies and contents provided by only Npick+ with only 2,000 won per month.

Contact to Npli Tap   Npick+ original contents appreciation

<Figure 23. Contents: Npli>
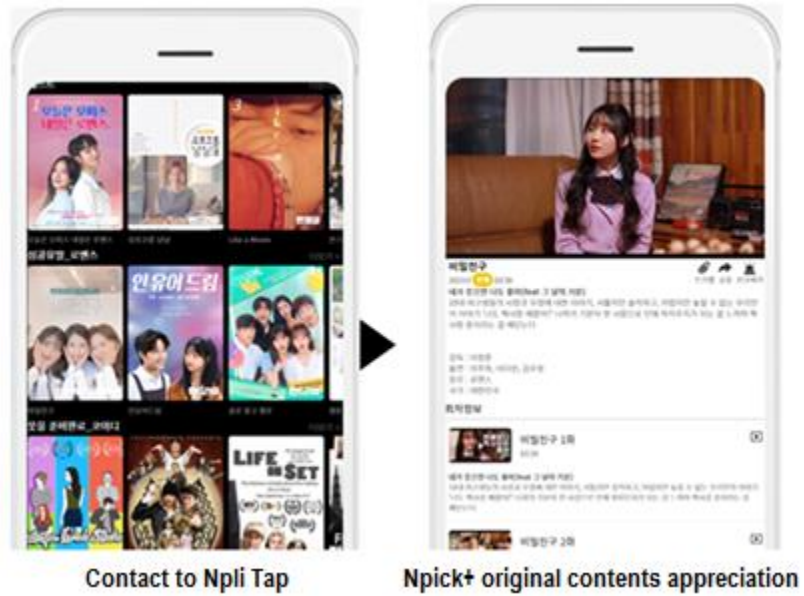
5. NPICK BLOCK Ecosystem

<Figure 24. NPICK BLOCK Ecosystem>
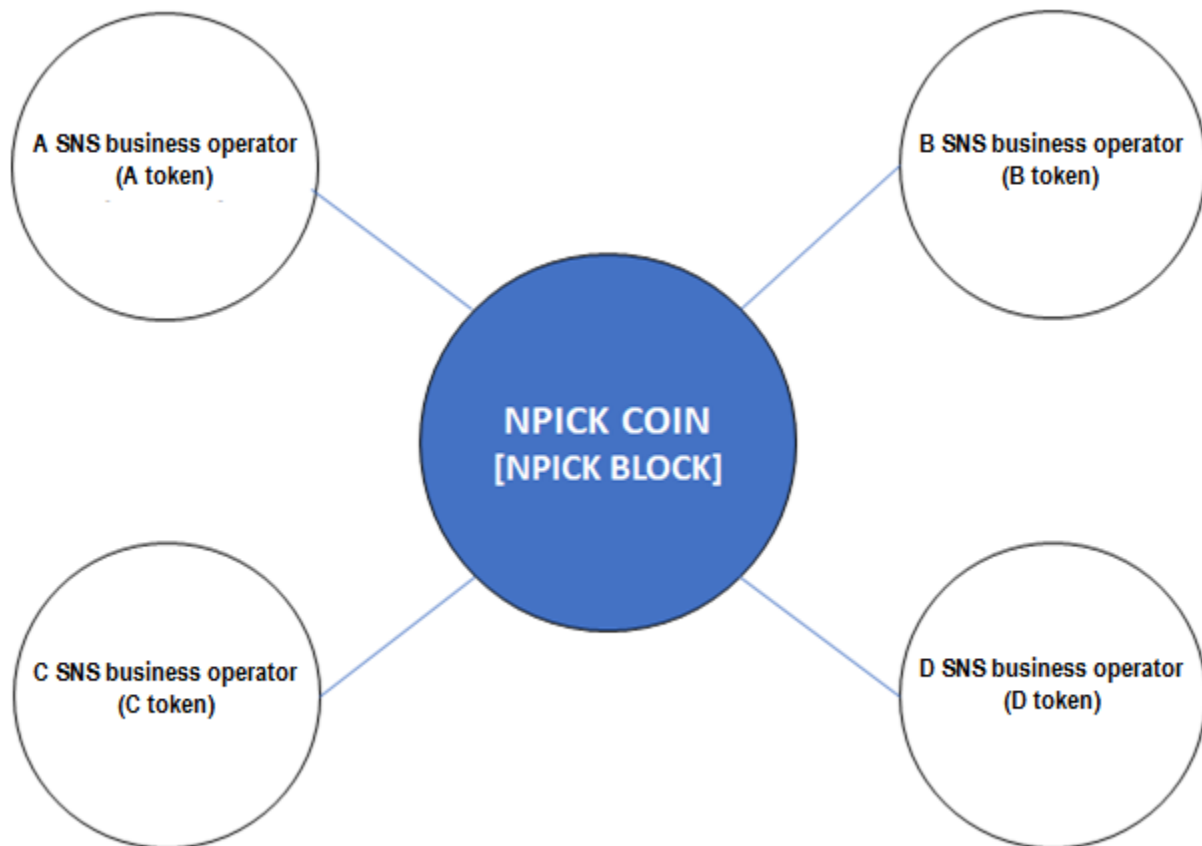
1) Growth of SNS Platform based on NPICK BLOCK

- It makes ecosystem of extension final NPICK BLOCK with respective SNS TOKEN utilizing NPCIK COIN.
- NPICK BLOCK ecosystem constructed by NFT technology and SNS management system provides an opportunity to generate economic value to more contents suppliers.
- The opportunity to generate economic value promotes more contents producers and inflow of contents.
- With increased traffic, service value of NPICK BLOCK is established and the possibility for business expansion is raised.
- Asset value of SNS platform based on growth of NPICK BLOCK increases.

2) Token Economy

<Figure 25. NPICK BLOCK Token Economy>
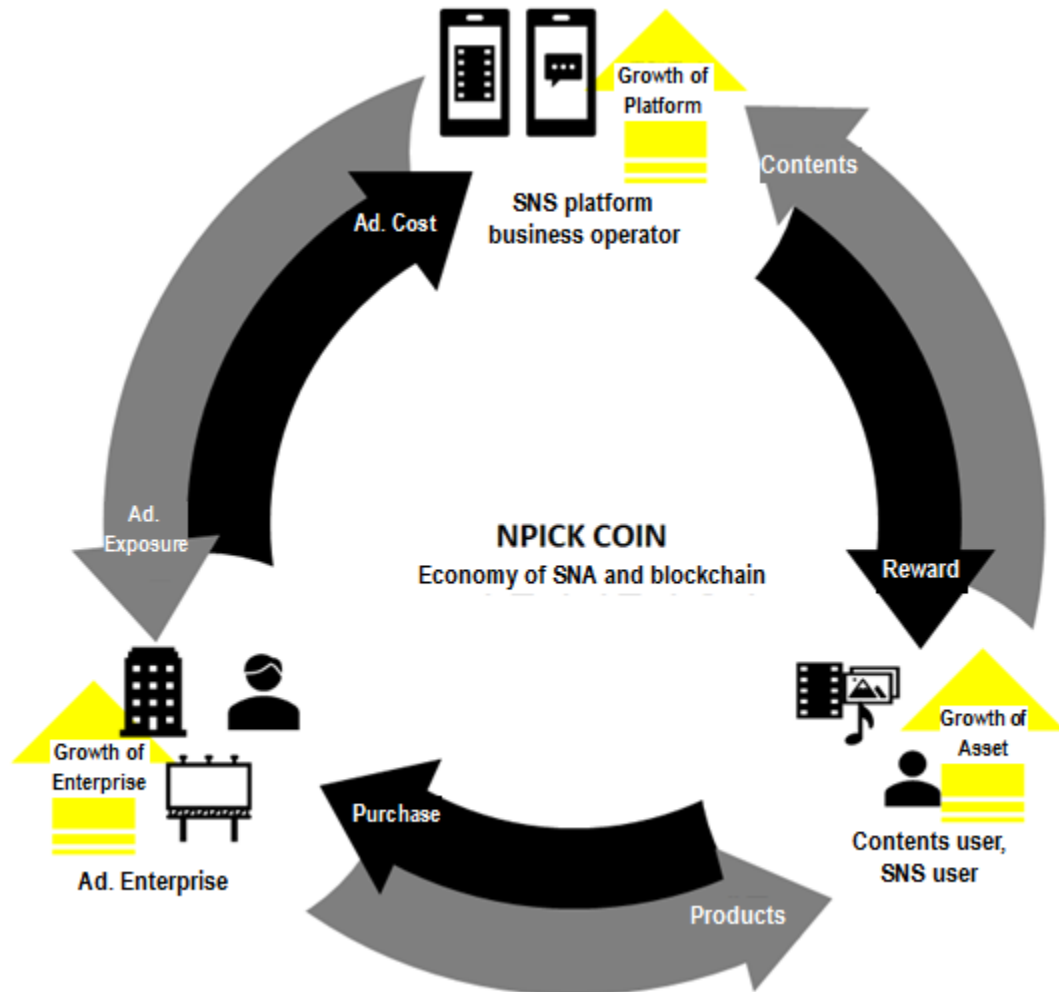
-NPICK BLOCK maintains fairness of each subject utilizing blockchain technology and utilizes NPICK COIN to maintain reasonable ecosystem.

- It is possible to set a budget for separate purchase by each SNS business operator.

- It considers elements for management of circulation amount and price-setting.

- Setting is possible according to influence by SNS.

3) NPCI COIN

- The supply of the total NPICK COIN at the time of network launching is 10,000.000.000, and after initial issuance, there is no plan to additionally issue coins.
- 60% is allotted to verification of NPICK BLOCK (SNS blockchain platform).
    - For extension of NPICK BLOCK, in linkage with separate TOKEN for construction of each SNS platform, it is used for verification and compensation of contents providers and advertisement enterprises.
    - Each SNS business operator is distributed with a separate budget according to circulation amount of contents and influence.
- 20% is used with NPICK BLOCK MARKETING budget. [Maximum period available for use: 3 years]
- 10% is used for NPICK BLOCK expansion and making ecosystem. [Maximum period available for use: 3 years]
- 10% is conditionally allotted to NPICK BLOCK network creator and its teams.

<Figure 26. NPICK COIN distribution>
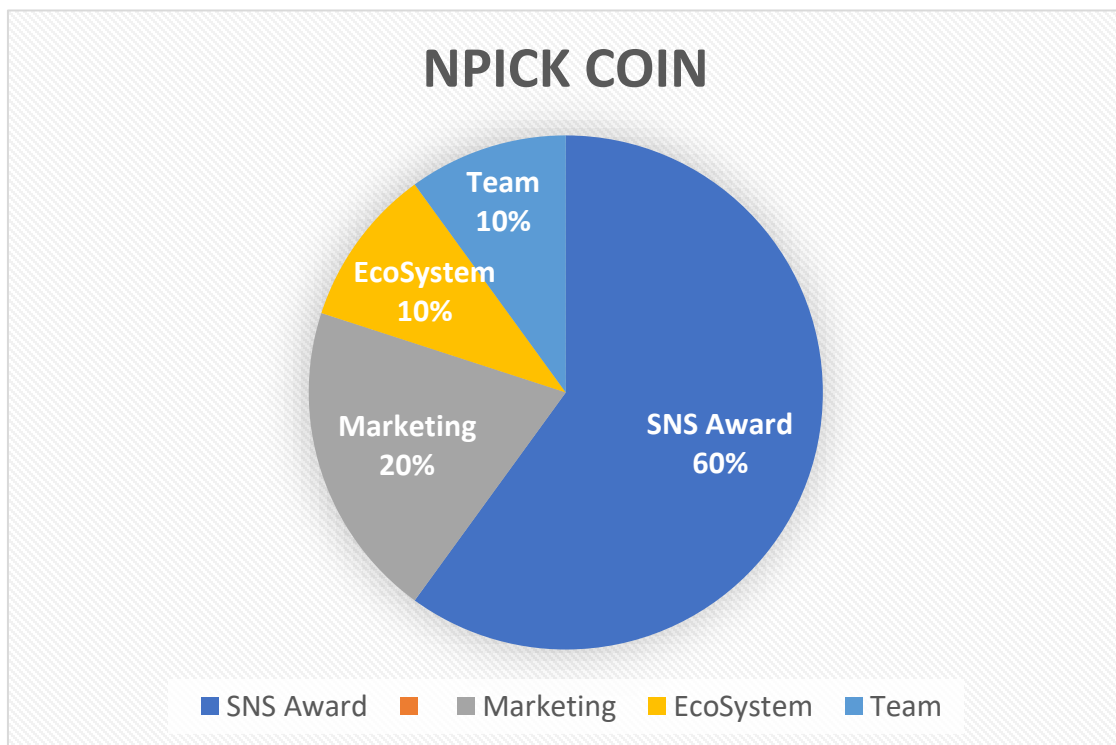
4) Valuation Mechanism

- NPICK BLOLK and NPICK COIN is a network tool made for activation of each SNS platform, and a platform embodied utilizing various blockchain technologies. Also, a blockchain includes a token for ecosystem activation.
-In NPICK COIN, the total currency amount is mediated and the value of a coin is measured using Fisher's monetary equation used in existing economics.

"MV=PQ"

<Fisher's equation of exchange>

- M= Scope of NPICK COIN asset, that is, it means the total quantity of NPICK COIN X value per coin.
V= Transaction distribution speed of Npick coin.
P= Price of digital tokens provided. (Price of each SNS business operator's token)
Q=Quantity of digital tokens provided. (Quantity of each SNS business operator's token)

When n SNS business operators exist, P and Q can be defined as follows.

$$P = (p_1, p_2, \ldots, p_n)$$
$$Q = (q_1, q_2, \ldots, q_n)$$

For n SNS business operators, the total MV can be defined as follows.

$$MV = \sum_{i \in n} p_i \cdot q_i$$

- According to the monetary equation, M=PQ/V, so that the total asset scope(M) of NPICK COIN is calculated by dividing the sum of values of tokens used at each SNS business operator by V (transaction distribution speed).

That is, the greater the power of a token commonly used by each SNS business operator, the larger the asset scope of NPICK COIN can become.

Also, it can be known that asset value(M) of Npick coin is inversely proportional to transaction distribution speed(V), and may have great effect on valuation.

Therefore, to reduce transaction speed(V) of Npick may have favorable effects on asset value(M).

However, transaction distribution speed(V) of Npick is related to the quantity(Q) of each SNS business operator token. Because too low transaction distribution speed(V) means low trading volume, to maintain distribution speed(V) at a very low level doesn't necessarily have good effects on asset value.

That is, we try to provide blockchain technology and each policy for raising token value of SNS platform business operator, and activate token economy and raise its value by limiting mostly transaction distribution speed(V).

6. Road Map

2021

3Q

* Published the 1ˢᵗ white paper
* Designed platform prototype
* Sale of private token
* Listing its share on the Exchange

4Q

* Technical design and Npick stability certification
* Established Npick block ecosystem
* Participating service recruitment

2022

1Q

* Prototype development in progress

2Q

* The 1ˢᵗ beta test
* Wallet generation and test
* Npick block prototype development & test
* Listed its shares on the exchange

3Q

* Npick block prototype test
* SNS service internal test

4Q

* Made Npick platform public
* Made SNS service public

2023

1Q

* Additional participating SNS recruitment
* Service stabilization

7. TEAM

1) Key Team Member

Its leaders consist of specialized blockchain developers, SNS operators, marketers and designers.

CEO Choi Junggyeong

On the basis of experiences for more than 10 years in establishment and operation of investment & consultation companies, the CEO has worked as senior managing director of Midas Co., Ltd., and has operated Center Nine Co., Ltd. up to the present time.

CMO Hong Youngju

The person has experiences in LG Co., Ltd. and Shinsegye Group Design Team and, as a joint founder of Namu and Dal, now is conducting marketing business of the company.

CFO Jin Seunghwan

The person is working at Daishin Securities, has expert experiences as a financial specialist, now, and is carrying out planned sales as well as a role as a financial specialist.

COO Hong Gumin

On the basis of experiences that the person worked at Urban Development Corporation, Kumho Tire Co., Ltd., and Taesung Group, the person, as TF team leader of Npick+, is constructing new social network.

2) Development Team
CTO Jeong Youngmin

Starting from 1997, the person holds 30 or more home and abroad technology & invention patents 1997. Up to the present time, the person has participated in a variety of platform development.

< Major Project >

- **1997~2000 [Digicom]IVR/UnPABX/ACS/VMS/VoIP Gateway**
- **1998~1998 [Korea Telecom Freetel] 016 vehicle message center – UnPABX**
- **1999~2000 [Korea Telecom] KT114 NACD – Fax server**
- **1999~2000 [Hitel] Customer center – IVR/Fax server**
- **1999~2000 [Suhyup] Fax server**
- **2000~2001 [Yestech] DB Library construction, Network, DB Gateway, No.7 AIP system development**
- **2000~2001 [KDNET] ToYou card – DB Gateway, FTP Gateway**
- **2000~2000 [Korean Horse Affairs Association] Betting ticket issuing system-Betting ticket issuing DB Gateway**
- **2001~2004 [Digicom] Library construction through CTI , server package (Fax, UMS , CMS, UnPABX, PDS) S/W development , Daehan Life Insurance CSM design and development, Shinhan Life fax server design and development, Chogeung Bank TM DB G/W design and development, Choheung Bank CHBIT HelpDesk construction, NHN Naver search customer support center construction, Hanwha Land Development Comprehensive Computing TFTCTI design and development**
- **2001~2001 [KTF] Angel Eye Customer Center UnPABX Call Center**
- **2001~2002 [Korea Telecom] EDI/KORNET-CMS/VRU/FAX system construction**
- **2004~2005 [CO Soft] CJ Cable net fax server construction, Kyowon Jam Counseling Center UnPABX construction, L&C Customer Center UnPABX construction, N2N UnPABX construction, Jooyon Tech Computer Happy call system construction, Daum direct fax server construction, Ministry of Food & Drug Safety-fax server construction, Qnsolv UnPABX construction, Tour express fax server, Korea Banking Institute fax server construction**
- **2005~2006 [Health Insurance Corp.] Call Center construction, centralized fax server construction**
- **2005~2006 [National Pension Corp.] Centralized fax server construction**
- **2006~2007 [Hyundai H&S] Hyundai Department Store Call Center construction**
  [Credu] Call Center construction
- **2007~2007 [Yongmalogis][Ntreev Soft][Gyungbuk Provincial Policy Agency] Call Center construction**
- **2007~2008 [Opevacs] International phone/Roaming service system construction**
- **2008~2008 [National Agricultural Cooperative Federation] Computer Help Desk construction**
- **2008~2009 [Speed Total Solution] Sports(Golf, etc.) Broadcasting video sub-title machine and corder development**
- **2009~2009 [VTCW(Vietnam)] Vietnam No. 177 VoIP network service construction**
  [Taegwang E&C] Follow satellite network linkage VoIP network service construction
  [Samsung Fire, Samsung SDS] Samsung Fire UCS system construction
- **2009~2010 [Time Education] CIC, IPCC construction**
- **2008~2018 [Openvacs] Hybrid IP-PBX-based integrated communication system**
  Audio Call Center ASP solution development
  OTO free(global) internal telephone application development
  OTO service, SNS, MNS data recovery, security
  OTO Usim, OTO data, Telink messenger, PLAYOTO, Project Y, 007i
- **2018~2019 [Neorama] VR simulator research & development**
  2D Laster & Vector Image Processing
  3D Modeling System Interface
- **2019~2020 [Zetta Qubit] AI Deep Learning Algorithm : Neuroscience, Mathematics**
  Calculus, Geometry, linear Algebra, Probability and Statistics, Mathematical, Optimization, so on .
  AI Machine Learning, Object Recognition and Classification, Natural Language Processing, AI Perception Virtualization
- **2020 ~ [Pet Club] Companion animal online open mall platform (CSO, CTO)**