



The Berith White Paper

Blockchain Business Platform

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I. Introduction

1. Preface

The Berith Project initially launched to help people easily access membership platform services based on blockchain. There have been many changes since the ICO presale in September 2017. We have conducted market research to identify and analyze market needs and in-depth interviews with companies, franchisees, and small business owners who will be main users of our service. As a result, as following the domestic and international blockchain trends, we developed a service to improve the business process, taking it even further than ERC20, to having its own blockchain platform for more diverse services.

Now Berith, a comprehensive business platform based on a membership economy, took a giant step forward. It builds a platform as in BaaS (Blockchain as a Service) for companies, small businesses, and other organizations to easily utilize the blockchain.

Open API of Berith Platform provides key functions of blockchain and CRM for membership marketing. That will enable enterprises to easily create their DApp to provide various services on the Berith Platform for their customers.

Ever since the first ICO, Berith has focused on developing the underlying platform and applications to provide more practical services, and finally, created its own blockchain as POA. As an outcome of that, Berith Smart Wallet, supporting various cryptocurrencies, and Berith Smart Pay, a payment service, have launched along with three patents on the technology. Through constant updates and platform development Berith will become a cryptocurrency that is widely used in real-life.

In the near future when Berith is commercialized, the following applications are possible:

Berith Platform - Membership and Marketing Service

- You open a new restaurant and issue your own membership points in Berith Coin using Berith Membership Service. You also plan a grand opening event on Berith Marketing Platform, offering discounts on the first week. Moreover, you expect strong sales growth

by holding an event every Wednesday so called Double Points Day.

- A coffee chain, which has its own stores in Korea, China and Japan, can manage the global membership through Berith's Membership Management Service. Its events and promotions take place in all three countries at the same time using Berith Membership and Marketing Services. To that account customers can earn and use points in all countries.

Berith Pay

- An airline creates online reservation and ticketing system where Berith Pay provides a payment service in 72 countries around the world. Its customers now can pay with cryptocurrencies such as Bitcoin, Ethereum, Quantum, EOS or Berith. It would benefit both Airline A as it pays less than 1% of the charge and its customers as they earn 1% of their purchase in Berith Coin.

Berith Smart Contract

- A city council issues T juvenile tokens for juvenile welfare budget using Berith Smart Contract. Smart Contract can be used to set restrictions on usage and area to make it easier to monitor the transactions. The city council hopes to contribute to local economy by issuing cryptocurrency for diverse groups in age, gender, or district.

- A composer uses Berith Smart Contract to store the hash code and original data of his composition on Berith blockchain. He can now prove the copyright of his works.

- A cultural center must renew the curriculum and contract with instructors every semester. It can now easily renew their contracts in electronic contract form using Berith Smart Contract.

Berith BaaS Platform

- A large corporation rebuilds its own membership service using Berith BaaS Platform. This has drastically lowered the infrastructure development and operational costs. In addition, by authorizing only the affiliates to review the documents, it starts monitoring the payment process made with tokens issued by affiliates. Since all transaction

information is placed on the blockchain, transparent management with low cost has become possible.

- A capital company, which provides P2P loan services, has been able to market to many prospective customers using Oauth login and marketing services provided by Berith BaaS Platform. In addition, with Berith's KYC service, P2P loan service can be easily built on the blockchain.

- An entertainment company uses Berith BaaS Platform to manage the rights of composers, lyricists, arrangers and singers in a rational and transparent manner. Now everyone involved in making music can share rights and proceeds fairly.

- An electronic document management company builds notarization system for electronic documents using Berith BaaS Platform. It can now provide document notarization services based on blockchain.

2. Background

Blockchain, which has recently begun to attract a lot of attention, is recognized as the core technology that will lead the 4th industrial revolution. A majority of experts who participated in the World Economic Forum (WEF) in 2016 predicted that before 2025, blockchain-based services would account for about 10% of global GDP. Experts at the World Knowledge Forum (WKF), which was held in the same year, predicted that using blockchain will not only reduce financial transaction costs, but will also be an essential technology in various fields.

As a distributed ledger technology that enables all participants in the network to simultaneously verify, record, and store transaction information, blockchain provides security, transparency, P2P-based, and instantaneity advantages. Due to such advantages, blockchain is rapidly spreading into the non-financial sector as well as the financial sector. Many enterprises and organizations are looking for a variety of ways of investments in or partnerships with FinTech and IT companies. Especially, collaboration with ICT is used in different industries.

This indicates that the needs of blockchain applications are enormous and that the recent industrial paradigm based on integration has turned into a paradigm based on blockchain. In the future, blockchain applications are expected to expand further and greatly affect the whole economy.

1) Blockchain to strengthen the competitiveness of a business

To enhance competitiveness in a digital society should open innovation through collaboration, transparency, knowledge sharing, and distribution of power follow. In recent years, digital and ICT technologies are closely connecting person to person (P2P), person to machine (P2M), and machine to machine (M2M).

Currently, blockchain is mainly used in the following fields.

- Financial services including wire transfers, payment, authentication, and all other operational services
- Platform services supporting business processes at blockchain research and development
- Management services where integration of blockchain with enterprise applications or for different industries

The blockchain has many potential benefits – it can cut out additional costs, improve data reliability and so on. For this it can be actively used to track products, record transactions, collect financial data, manage manufacturing processes, and moreover, share the massive amount of financial data.

In fact, the blockchain is mostly used and occupied by big companies, but still weak and rare to function as a business platform, which is supposed to be easily accessible to every user. It helps that there are only few affordable business platforms. For that reason, we think it is the perfect time to introduce a new business platform anyone can use without deep understanding of the mechanism to generate profit, improve services, and enable to easily manage. That is, a service platform that can be applied

to the business of anyone without understanding and developing the blockchain from a large company to a small business owner is a true blockchain technology that strengthens company's competitiveness.

2) Blockchain applications in business

Blockchain platform can be a viable tool for the new opportunity to lower transaction costs and efficiently manage risk of being hacked in person to person transactions, especially for transfers, payments, and authentication.

In addition, Smart Contract technology, which is to create a contract that can automatically generate based on when certain variables are achieved without any human legal intervention, will be in use. Once it is in wide use it is expected to lower the additional management costs and the risk of contract failure. Likewise, digital democracy will also be in use to eliminate the problem of centralized elections by increasing the transparency of the system that would not only allow voters to verify that their individual votes were counted correctly, but also allow citizens to conduct an independent "audit of the ballot box" by scanning the blockchain where all votes are cast.

Possibly, manufacturers can leverage IoT and predictive analytics in their service parts supply chain to proactively repair equipment before it ever breaks down. In this blockchain can provide an increased level of visibility, as it would allow an entire supply chain to see when and where parts are moving to ensure the repair is made just in time. Or, blockchain to trace the supplier of the faulty parts more efficiently, containing the issue and reducing time and labor costs. As data held within a blockchain is decentralized and shared across nodes, the technology can be used to create and maintain a shared and continually-reconciled database.

Despite that there are experimental blockchain applications for many different industries, the technology is not relatively known to public yet. It suggests that blockchain will likely develop in the form of a highly accessible business platform

that can be easily used by anyone. Sooner or later, blockchain will become an innovative technology that will lead the industry by creating enormous economic ripple effects in terms of improvements in productivity, efficiency, security and cost savings.

3. Suggestion

1) Blockchain Applications: Blockchain with Usability

Building a blockchain-based platform is now a mandate for companies. Global companies have already put its concept to test in their new businesses to enhance business processes, improve service quality and productivity, and reduce operating and managerial costs. Although most companies are clearly aware of the advantages of blockchain, they are not able to properly apply the blockchain platform to the enterprise due to the lack of resources including blockchain experts and operations management. Berith Platform Project started with this idea expanding by answering the question, "Is there a business platform that simplifies business processes, improves productivity, easily operative and at the same time, affordable to everyone?"

To answer the question, in the course of developing Berith Platform we analyzed and reflected the needs of experts and users in various fields to further refine the ideas and expand the scope according to the requirements. Berith Platform leverages its comprehensive membership and fintech, which is based on the existing blockchain technology, and provides various functions optimized for the marketing business as well as enhancement of related functions, as well as sales of real marketing and product services, user-centric access through business processes and various add-ons. We have taken a step forward to a high business platform and upgraded to an easily accessible professional business platform.

2) Blockchain application : blockchain based business platform

The Berith Platform is a business platform for Membership Economy, as a

comprehensive business platform that can affect all business activities with broker-free transactions and various services based on the reliability of the distribution and encryption method of blockchain.

As taking a step forward from the existing marketplace, the users can register their identifications then make transactions over their financial, digital, or service assets on blockchain platform. It provides a marketing service, cryptocurrency payment system, member rewards system, and BaaS (Blockchain as a Service) for a smaller unit operation and management.

Such comprehensive business platforms have not been available nor affordable to small business owners due to economies of scale. Berith will enable each user to be the operator in marketing, CRM, events, rewards programs, planning events and even more. That each user has control over the business process implies unlimited potentials and huge influence.

In particular, Berith will help improve productivity with automated business processes, from making a contract and transactions to execution and settlement, and plan business activities and marketing from the data analysis.

3) Suggestion : business platform configuration and platform service provision

Berith Platform, a membership economy based comprehensive business platform

The membership system is one of the most successful business frameworks. Membership system has existed for a long time and offered a wide range of services from premium membership, which charges premium for members only benefits, to loyalty membership, which provides coupons. In recent years, the concept of membership service has been considered to be premium membership as in Egnyte, Netflix, Pandora, Starbucks, and expanded to membership economics, which any organization can adopt and apply.

Berith Platform introduces blockchain technology for any type of company to easily

join and become a part of membership economy, acting as a driving force for sustained sales and stable profits for companies and small businesses. Berith Business Platform provides platform services through Blockchain as a Service (BaaS) to support a variety of membership businesses.

With BaaS, users can create new businesses in the platform business ecosystem and use various functions provided by DAPP. Berith Platform provides membership CRM and rewards, a digital wallet to manage cryptocurrency, payment services, and marketing for customer management. We provide platform services through Blockchain as a Service (BaaS) to enable these platforms to be used by unit stores, local economies, and government agencies.

II. Summary

1. Berith Business Platform

Berith business platform supports diverse membership businesses in a complex business environment. It constitutes and provides stable and systematic platform due to the characteristics of distributed ledger such as reliability, security and peer-to-peer base. It is also able to construct independent service environment by using the service provided in connection with the Berith business platform and using the Block chain as a Service (Baas).

Users of the Berith Business Platform services are able to use the integrated membership services by applying Berth Smart Wallet, Berith Smart Pay. In particular, small companies and small business owners who are limited in applying BaaS are able to utilize various CRMs including integrated membership services and marketing services.

Berith BaaS service is a combination of SaaS (Software as a Service) and BaaS (Blockchain as a Service) using a block chain platform. Through this Berith BaaS service, various companies, institutes and organizations are easily able to provide various businesses utilizing membership. In particular, enterprise users who provide services do not need a technical understanding of the Berith Platform or technical knowledge of the block chain. By using the functions and services provided by the Berith business platform, it is possible to provide more extended services of the enterprises.

In addition to the basic membership service, Berith Smart Wallet, Berth Smart Pay, and other services, If you need more specific services to your company and separate channels, they can be constructed through Berth Platform's Open API and DApp .

Berth Platform's BaaS service is similar to the familiar SaaS concept of cloud services. Beyond the existing BaaS providing block-chain platforms and tokens, it supports service providers to easily manage and operate them by providing membership economy-based business services and various functions.

2. Berith Business Service

1) Berith Membership

The CRM function in Berith Platform plays a very important role. Through the membership service of new paradigm, It can integrate unit membership economies and contributes to the change in marketing CRM system across the society.

Evolving platform in our real life

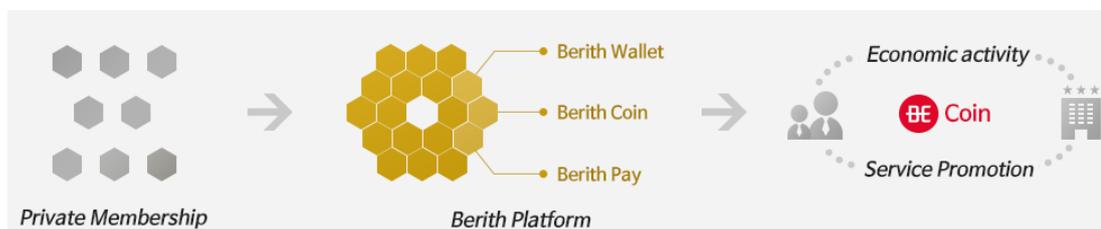
Berith is an evolving organic marketing platform through participation of members.

It contributes to systematic marketing of service providers by issuing cryptocurrencies based on mileage and points.



In particular, small and medium sized business groups and small business owners have not been able to provide membership services due to economies of scale, but they would be able to share the membership and reward service and CRM know-how through Berith Platform's membership service. By using block chain technology, user-centered membership services can be provided other than corporate-centered.

- Joint Economy Membership Platform that can distribute benefits by integrating membership economies



Berith Membership combines unit membership blocks into a single membership and provides the skills and know-how to operate each membership block. Based on this, distributed membership blocks are integrated and a business ecosystem is formed. The integrated membership environment is able to expand the scope of new business

based on more active and enterprising business environment and ideas through various services provided by Berith Platform.

(1) Membership service market environment

The membership system is one of the most successful marketing platforms. The first reward system starting with the airline mileage system expanded to various industries and evolved into various marketing techniques such as royalty and CRM.

In addition to various marketing such as accumulation and use of points, free coupons and promotions, member-based services, lifestyle-care memberships, and rental services are provided throughout various industries.

① Current situation : the effects and challenges

According to a recent survey, 56.3% of companies responded that "the effect of sales promotion is greater in depression period" to the question on the effectiveness of membership services in the report on "Membership Service Utilization and Future Prospects" conducted with 200 companies that provide customer compensation services.

Also difficulties in adopting membership services and management is due to the various obstacles such as 'operating cost of membership service', 'lack of operational know-how', 'lack of information analysis capability', and 'difficulties in finding their partners.'

Even though the marketing effect is obvious, it is still not easy to introduce membership service. In reality, services are provided through large corporate centered membership system, and small and medium-sized enterprises, small business owners, and unit stores are failing to provide a systematic and efficient system. Even if they provide similar loyalty marketing services, they do not offer comprehensive membership services but offer offline-based coupons and stamps.

② Implications of global membership services

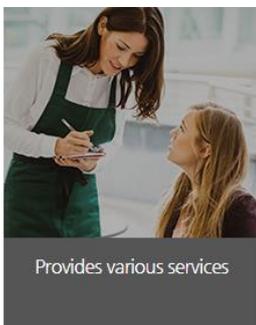
Already, membership services have evolved into a customized service marketing platform that utilizes customers' information beyond the current benefits offered to customers such as accumulating mileage points. In the

United Kingdom, TESCO uses membership services and Big Data to analyze consumers' patterns and their nutrition balances, to reduce or encourage the purchase of specific products. Also, 'Life Fitness' in the United States linked personal computers to treadmills. It offered service marketing that the data about users' favorite TV program and past exercise record was gathered during their exercise time.

Large companies and large-scale membership services are evolving based on the membership platform which enables analyzing information, establishing marketing strategies with the analyzed data, integrating management of customer information, and various recommendation marketing. This paradigm shift requires small and medium-sized business groups and small business owners to adapt to the new environment and here the need exists to integrate totally separated individual membership platforms to one unified comprehensive membership platform.

(2) Berith membership service

Berith Membership supports a variety of marketing functions based on membership services. By offering functions for marketing and promotion of companies such as reward services and membership events by purchasing goods and services and event functions for non-members, small companies, small business owners and unit stores are also able to operate specialized membership services.



① Membership service without restriction on the area and scale

Berith membership uses block-chain-based technology to secure the convenience of settlement and processing by using block chain technology in the

ledger used in membership, and to provide global services such as accumulation/use by issuing cryptocurrency in the platform.

② Offerings using blockchain

Coupons are issued in the platform based on block chain. Various services such as coupons, gift certificates, electronic prepaid cards can also be issued. Management of usage record and change of ownership are easy to make.

③ Membership services for SMEs

Berith membership provides standardized processes and service platforms for small business owners and small and medium sized franchises lacking in membership expertise and service know-how, and offer customized event and coupon offerings and CRM by providing pattern data based on user behavior through analysis of big data.

④ Accrual and redemption of rewards with cryptocurrencies

Berith Coin is issued, which can be used on the membership platform. Berth Smart Wallet and Berith Smart Pay modules are linked with payment settlement and discount functions. Some of the usage amount is re-accumulated as membership rewards and provides management indexes such as the setting of the discount, discount rate and statistics and settlement.

⑤ Unit operation and integration operation using membership platform

Single stores operated by small business owner and merchant are also able to provide membership services. They offer integrated membership services by linking single stores themselves. It is also possible to operate with specialized membership in case stores want to operate independently.

2) Berith Smart Wallet

The Berith Smart Wallet provided by Berith Platform is a service provided for the use of cryptocurrency. 'Berith Smart Wallet' is a multi-electronic wallet that can store various cryptocurrencies at the same time in addition to the Berith coin issued in Berith platform.

Berith Smart wallet replaces the role of the existing cryptocurrency wallet, and has user convenience function and more secure storage system, and provides real-life wallet services linked with Berith Smart Pay.

It is an integrated wallet that can provide a user-friendly electronic wallet with DApp method and store various cryptocurrency. For example, MyEtherWallet could only keep ERC20 tokens based on Ethereum, but Berith Smart Wallet can store a variety of tokens based on different cryptocurrency platforms through the functionality of multi-wallets. Also, it provides convenient additional services such as ICO Listing and KYC authentication for other projects' ICO.

(1) Smart Wallet service market environment

① Current situation : the effects and challenges

Recently, a variety of electronic wallets for cryptocurrency have appeared and they can be divided into software wallet and hardware wallet. Though the category of wallets are divided again by the range of cryptocurrency that can be stored, in fact there is no wallet that holds the real concept of wallet until now.

In fact, almost all the services of the current wallets can be regarded as a form of safe for the cryptocurrency. It has functions for deposit and withdrawal of coins, storage of coins and tokens, and it is also possible to deposit and withdraw cryptocurrency through authentication using a private key.

Smart Wallets for cryptocurrencies, which have the same form as an electronic safe, usually have usability issues. It cannot make actual payments and is not easy to manage various types of cryptocurrency. In case of loss of private key, probably the only way of authentication, there is a risk of losing the entire wallet and its tokens, moreover, the full liability falls on the owner who lost the key when hacking or leakage happens.

② Implications of Smart Wallet service

Almost all types of smart wallets, except cryptocurrency, are included in the payment market, and are linked to various Pay services through the integration of FinTech technology. Smart Pay system is mainly provided through mobile services and can be divided into online and offline services. According to the report, the domestic offline payment market exceeded 700 trillion KRW by the end of 2016, and the smart pay market exceeded 10 trillion KRW.

Payment service for cryptocurrency has begun with the development of cryptocurrency, and it is time to change the concept of cryptocurrency wallet. It reflects the advantages and usability of smart wallets that do not use cryptocurrency, and it should revive the characteristics of cryptocurrency. In other words, it plays a role as a digital safe which can freely enter and withdraw a cryptocurrency, constitutes a characteristic service linked with a cryptocurrency, supports the use of a cryptocurrency by linking with Smart Pay applied in real life, and protects information for securing usability and stability and security.

(2) Berith Smart Wallet service

Berith Smart Wallet is a software wallet designed to provide convenient and secure services. Multi-wallet structure can be used to store and use cryptocurrencies in many ways, and payment service can be used through Berith Smart Pay. Accrued membership points stored in Berith Wallet in cryptocurrency can be used as cash or it can be traded at the exchange.

You can also check the ICO list and participate by registering the KYC certificate and one step authentication.

① Multi-wallet for various types of cryptocurrencies

Berith Smart Wallet is a multi-wallet to manage various cryptocurrencies. It is distinguished from existing wallets that it handles Bitcoin, Ethereum, or any ERC20 tokens.

② Fast and safe authentication and recovery of private key

It is double authentication structured in which login is proceeded with ID / PW authentication and private key. To ensure usability and convenience, we provide the following private key management services.

- Private key in private storage

Existing cryptocurrency wallets let users store the key themselves, of course, in case the key is lost, users are liable for the lost tokens. Berith Wallet gives options to users to save the key into server, phone, or app on their demand.

- Private key in server storage

After accepting the terms of server storage, the private key is encrypted and stored in the Berith Wallet server according to the policy. Private key can be restored after authentication of the individual or family in case of loss or unexpected accident.

- Private key in APP archive

Private key is stored in mobile application so that it can be used easily, less concern about loss of private key, easier recovery when key is lost, but dependent on mobile device.

③ Participation in ICO and KYC authentication

Existing cryptocurrency wallets are mainly used for exchanging and participating in the ICO. Berith Smart Wallet provides a list of validated ICOs for your convenience and a variety of additional features such as KYC authentication with which users can participate the ICO easily.

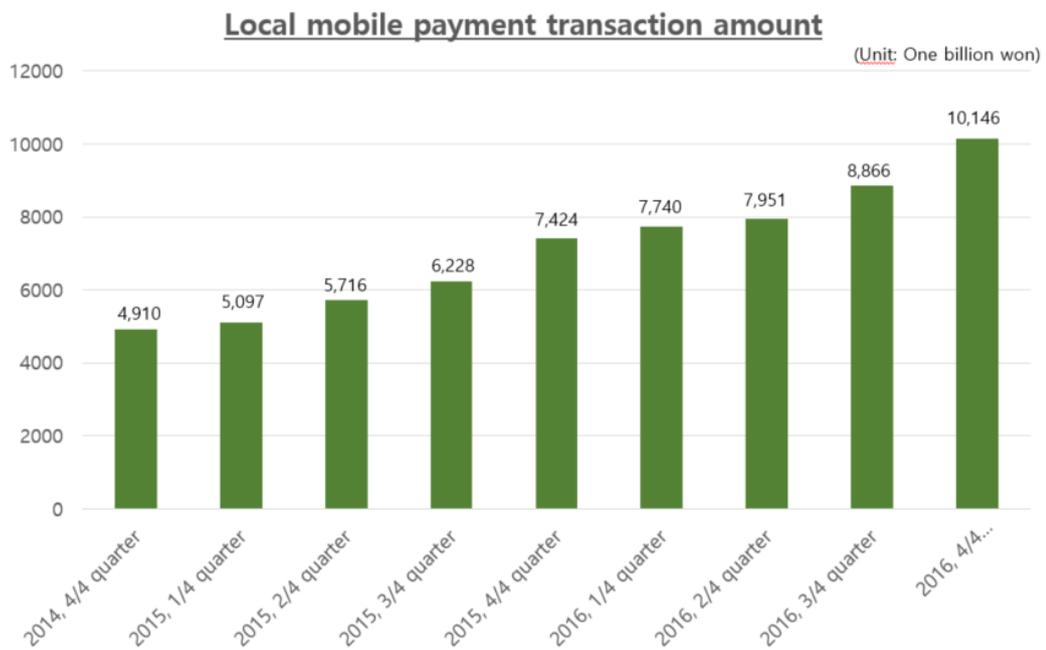
3) Berith Smart Pay

Berith Smart Pay is a service that enables cryptocurrency to actually be used in real life. Along with Berith Wallet, various cryptocurrencies can be used in real economy. It provides payment and settlement services for cryptocurrency and provides online services such as DApp as in mobile app or web app.

A settlement module for the settlement of the cryptocurrency, an accounting module for the actual payment, and a manager service for the statistics and management.

(1) Smart Pay service market environment

The Smart Pay service sounds like a new concept, but it is not much different from the payment service with credit cards. It has changed in that market has moved from offline to online, especially, mobile service. Smart Pay service, known to be simple, is rapidly increasing in the mobile payment market due to increase in smartphone users and development of fintech.

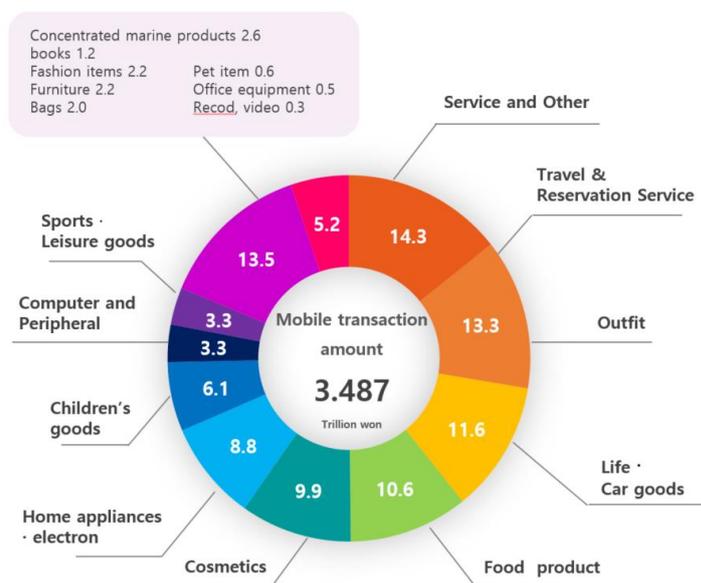


According to Gartner, an IT market research firm, the global mobile payment market will grow by 30-40% annually, reaching \$ 618.8 billion by 2016 and \$ 721 billion by 2017. Also, it is expected that the emergence and use of cryptocurrency will grow and the smart pay service would be introduced. It is also very likely to develop a more sophisticated and enhanced payment system with various technologies and to provide global pay service through domestic and overseas cooperation. We will strengthen our competitiveness by providing vital services accordingly.

① **Mobile Financial Services and Smart Payment Market Status**

Mobile financial services are becoming more sophisticated through the development and integration of financial technology. Financial companies are continuously growing with the launch of differentiated payment services for various companies in mobile financial services, which include mobile banking, mobile remittance, and mobile payment. In 2016, the Bank of Korea survey showed that mobile payments grew by 9.4%.

<Figure 5> accounts for mobile web payment transaction in December 2016 such as 14.3% in travel and reservation, 13.3% in clothing, and 11.6% in life and leisure. - It is attributed to the recent increase in younger shoppers who are more likely to use digital and mobile payment platform.



<Figure 5> mobile transactions, KOSTAT(2017)

The domestic mobile payment market is launching payment services by various entities such as credit card companies, distributors, mobile carriers, manufacturers, platform companies, and PGs in 2017.

[Table 0] Mobile payment service in Korea

Industry	Company	Service	On/Offline	Payment method	Note
Finance	Shinhan	Shinhan AppCard	On-and-Offline	smart pay,barcode, QR code, NFC	Brand's own
	Kookmin	Kookmin AppCard		smart pay, barcode, QR code	
	Samsung	Samsung AppCard			
	Lotte	Lotte AppCard			
	Nonghyup	Nonghyup AppCard		smart pay,barcode	
	Hana	Hana AppCard			
	Hyundai	Hyundai AppCard			
	BC	PAYALL		smart pay	
Retail	Shinsegye	SSGPAY	On-and-Offline	smart pay,barcode	Shinsegye Group On/Offline applied to affiliates
	Lotte	LPay			LotteGroup On/Offline applied to affiliates
	Hyundai	H wallet			Hyundai Department On/Offline applied to affiliates
	Timon	Timon Pay	Online	smart pay	Timon smart pay
	eBay	Smile Pay			auction, G market smart pay
Telecommunication	SKT	TPay	Offline	barcode	
	KT	ClipCard	Offline	Card like device	
Manufacturing	Samsung Electronics	SamsungPay	On-and-Offline	MST, NFC	
	LG Electronics	LGPay		WMC, NFC	
Platform	Daum Kakao	Kakao Pay, Bank Wallet Kakao	Online	smart pay	KakaoTalk platform
	Naver	Naver Pay, Line Pay		smart pay, NFC	Naver shopping partnership
	SK Planet	Syrup Pay	On-and-Offline	smart pay, NFC, barcode	SK planet service
PG	NHN Entertainment	PayCo	On-and-Offline	smart pay, NFC, barcode	T money affiliates
	inisis	KPay	Online	smart pay	inisis Online affiliates
		PayNow			
	LG U+	PayNowTouch	Offline	PUSH메시지, barcode	Pettycash payment
Others	Yellow Pay	Yellow Pay	Online	smart pay	Phone payment system
	Korea SmartCard	Mobile T money	On-and-Offline	NFC	Public transportation based payment system
	InfoTech	UBeePay		smart pay, barcode, QR code, NFC	
	eBeeCard	MobileCashBee		NFC	

In Korea, the peculiarity is that the payment service that combines the membership service and fintech is provided with the financial company membership as the lead, and the coffee shop also releases the payment service which combines the membership card and the gift card.

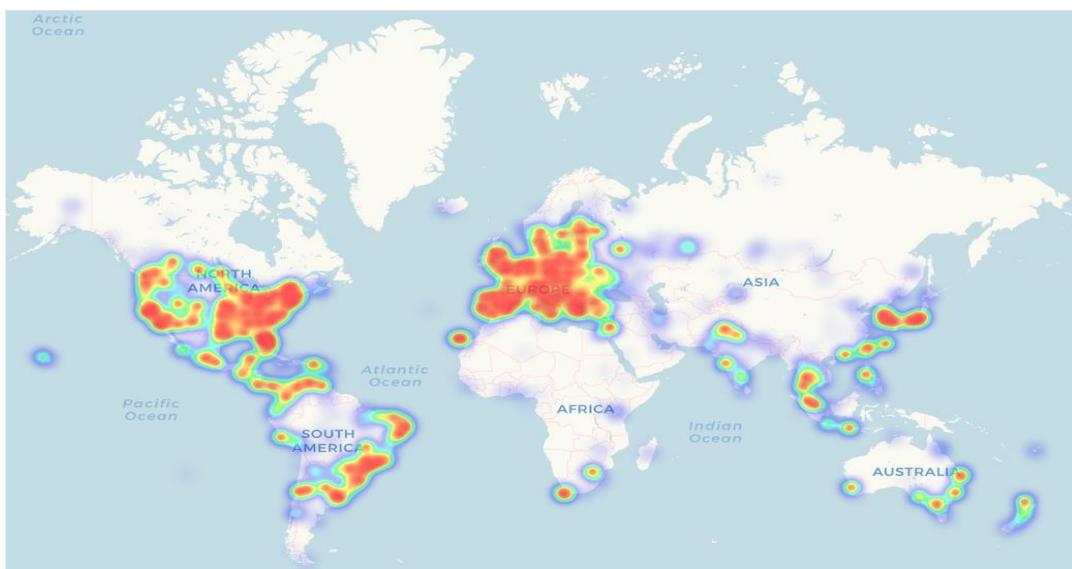
[Table 1] Coffee brands' mobile membership in Korea

Service	Summary	On/Offline	Pre/Post-Paid
Angelinus	-Membership points as stamps on a coupon -Membership level depending on the number of stamps	On-and-Offline	Prepaid
Starbucks	-Membership level on the number of stars -Different rewards for membership level -Income deduction		
TomandToms	-Different ratings and benefits based on cumulative purchases		
Hollys	-Points as cash on purchases online		
CoffeeBean	-Different rewards and benefits on membership levels		

② Implications of cryptocurrency payment system

Governments around the world and the central banks are also interested in the possibility of the use of the decentralized ledger system, and some central banks are using the distributed ledger technology such as blockchain to directly issue digital currencies or apply them to existing payment systems. It is under study.

Particularly, in the private sector, a payment service using a blockchain and an ATM are installed and some of them are utilized, and this trend is expected to increase gradually.



However, any business model to apply cryptocurrency in real-life has not been released yet, we realized the need. Ever since we have tried to respond to that need.

(2) Berith Smart Pay Service

① Offline payment module designed in a user-centric way

- Berith Smart Pay supports payment through the payment module. Considering user's convenience, it is possible to make payments easily through barcode and QR code similar to existing mobile payment service.
- Berith Smart Pay is a smart payment platform that supports cryptocurrency in the real economy. Easy and fast payments are made using mobile APP provided to users and payment modules provided to operators.
- The company adopts the billing system of the cryptocurrency and can make payments with Berith Coin or convert it to cash at the rate when transaction was made.
- It is linked to the exchange API and the amount to be paid with cryptocurrency is determined by the price the corresponding cryptocurrency at the time of the transaction. Crediting merchant account and settlement will be done the next day regardless of the currency exchange rate changes.
- Berith Smart Pay's on-and-offline payment module is scalable and can be used for a variety of online marketplaces, offline POS and mobile payments.

② Cryptocurrencies to be accepted as payment

Berth Smart Wallet, including Bitcoin and Ethereum, can make payments with cryptocurrency so that cryptocurrency are used in the real economy to improve accessibility to blockchain technology.

③ Payment system and adjustment for business owners

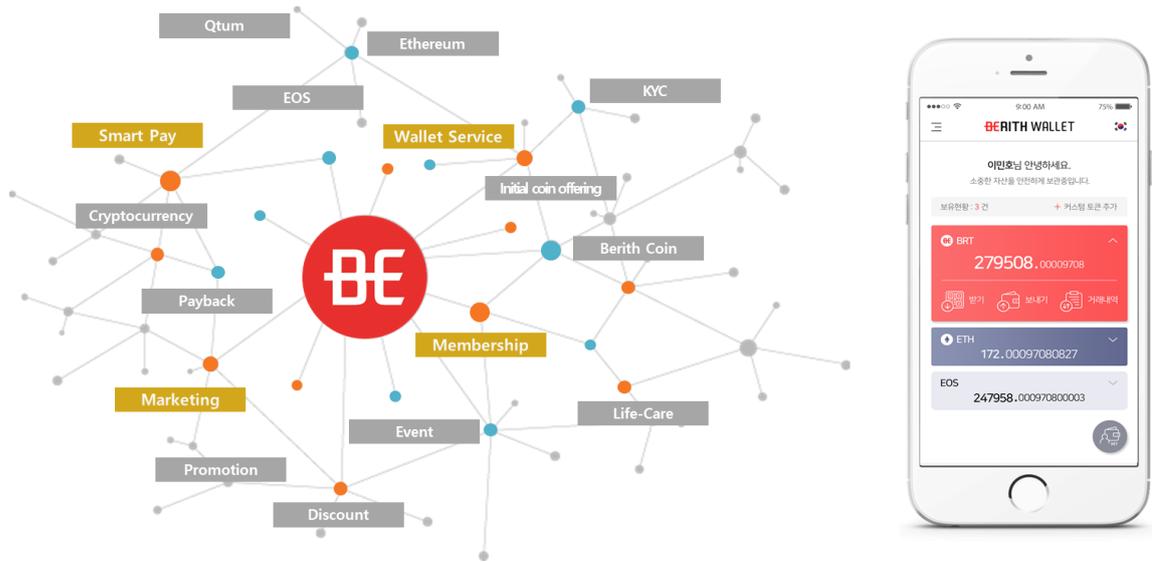
- Mobile payment modules for small businesses owners are provided to make P2P transactions, and payment can be made immediately using smartphones.
- Berith Smart Pay's management feature provides various functions related to sales and settlement such as payment management function, payment method, membership rate, coupon and discount application.
- Berith business members are provided with basic administrator functions. Through the administrator function and payment module, users can make payments in cryptocurrency, provide related services, and be credited and settle the transactions.
- Merchants may choose to be credited and settled in Berith Coin or cash.

III. Business

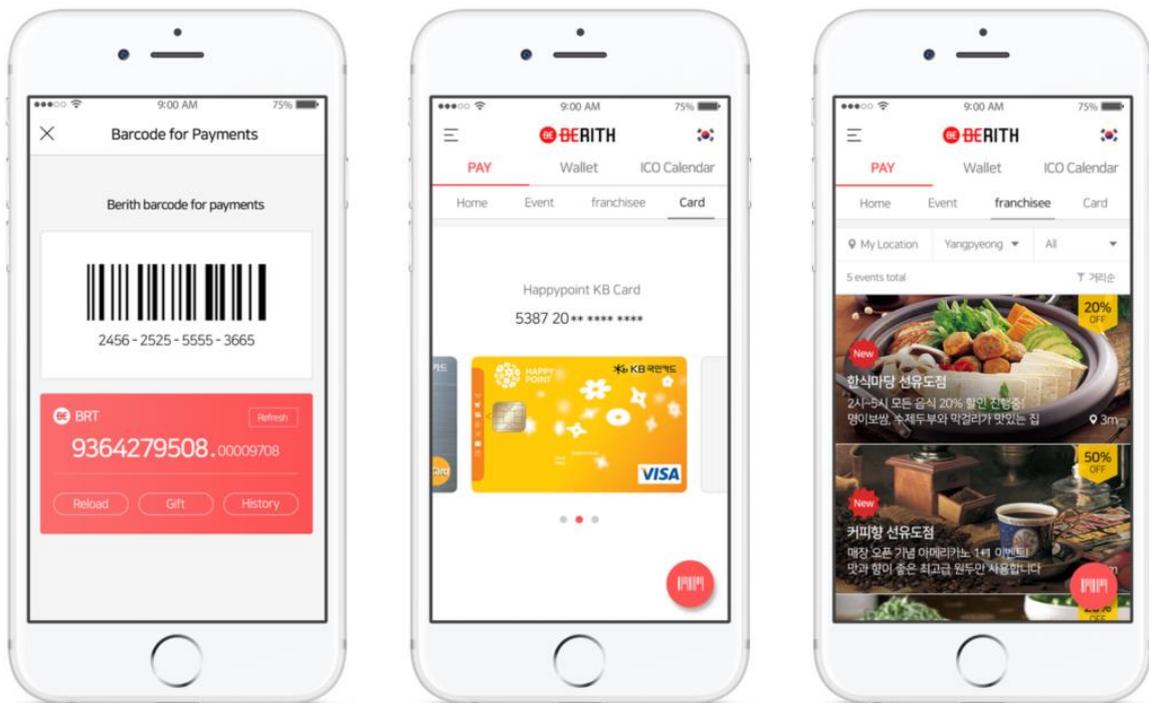
1. Berith Business Platform Business

Berith Business Platform is a structured platform to support comprehensive business. It provides various services based on the membership CRM system and changes existing business paradigm by using blockchain based technology.

It provides the management of members who are the basis of membership services and various services and marketing based on them. It changes the ways points to be accrued and redeemed in cryptocurrency, provides the service without border by using cryptocurrency, and enables payment settlement merged with fintech technology. Particularly in the area of marketing, it provides member-based loyalty programs, promotional coupons, events, discount information, and can issue and manage prepaid cards or gift cards based on blockchains.



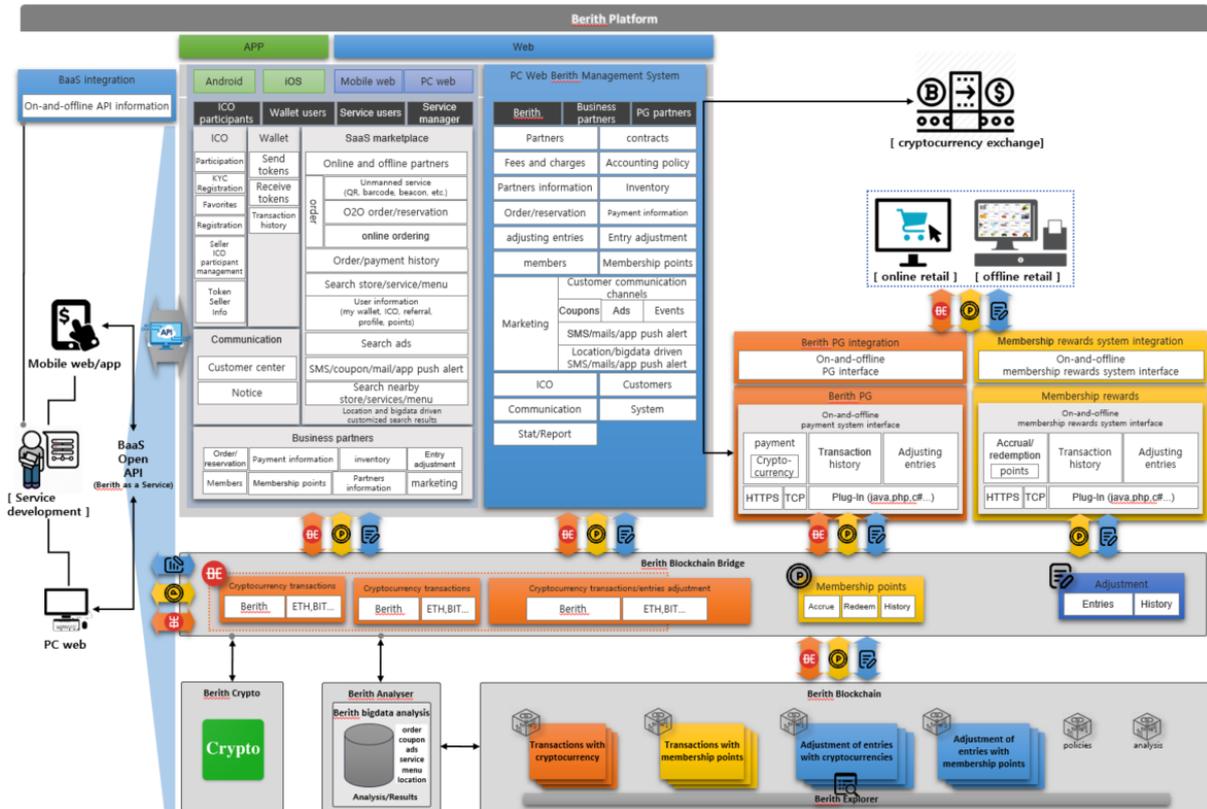
In particular, the payment function of Berith Smart Pay is different from the existing payment method that smart phones and mobile card payment machines can be used to enhance competitiveness of small business owners and small merchants. Instead of standing in front of the cash register, you can go online to place orders and pay for your purchase, and then you will be provided with the food or merchandise you ordered. These technologies make you enjoy your life to the fullest.



IV. Technology

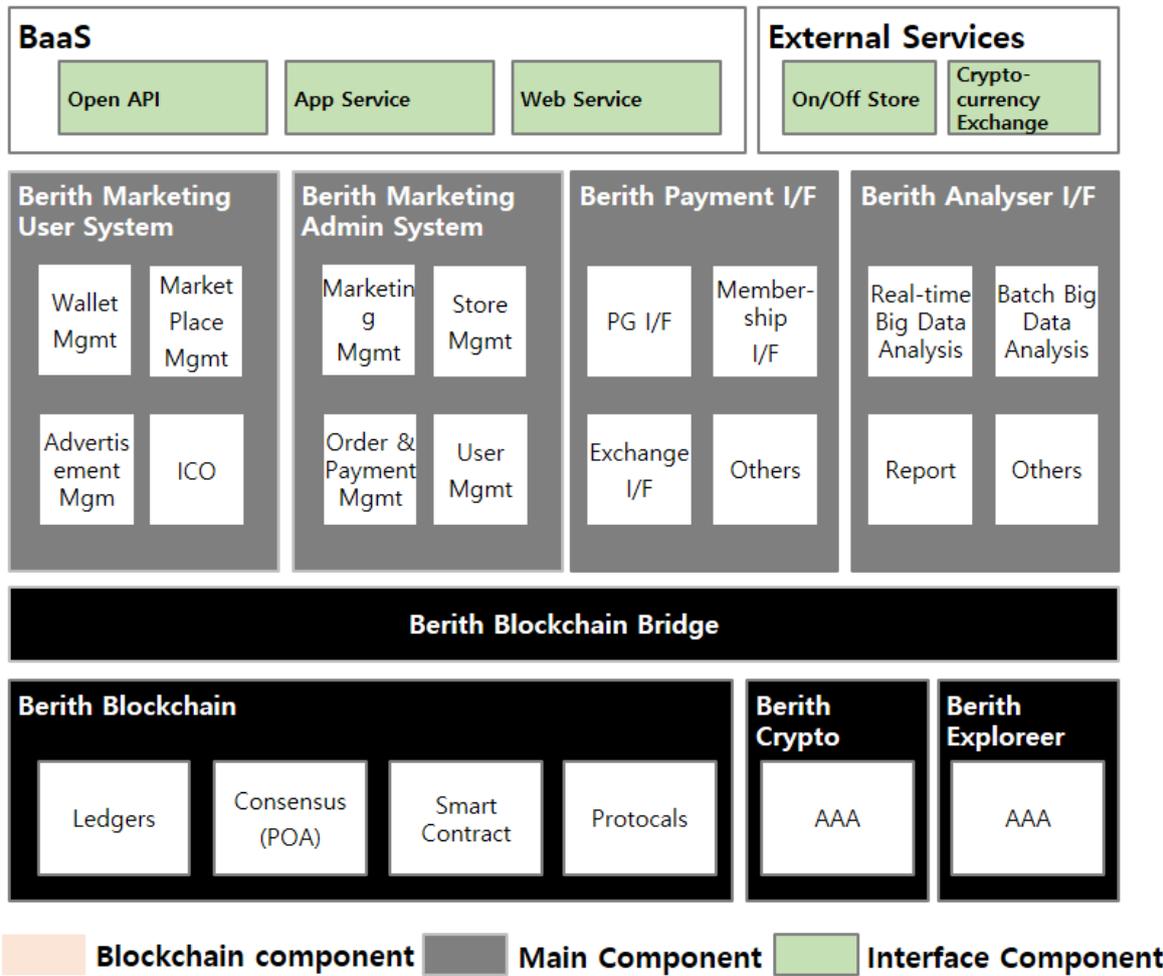
1. Outline

Various services provided on Berith Business Platform run on diverse blockchain technology that satisfy the global business platform standards. The entire system consists of the followings.



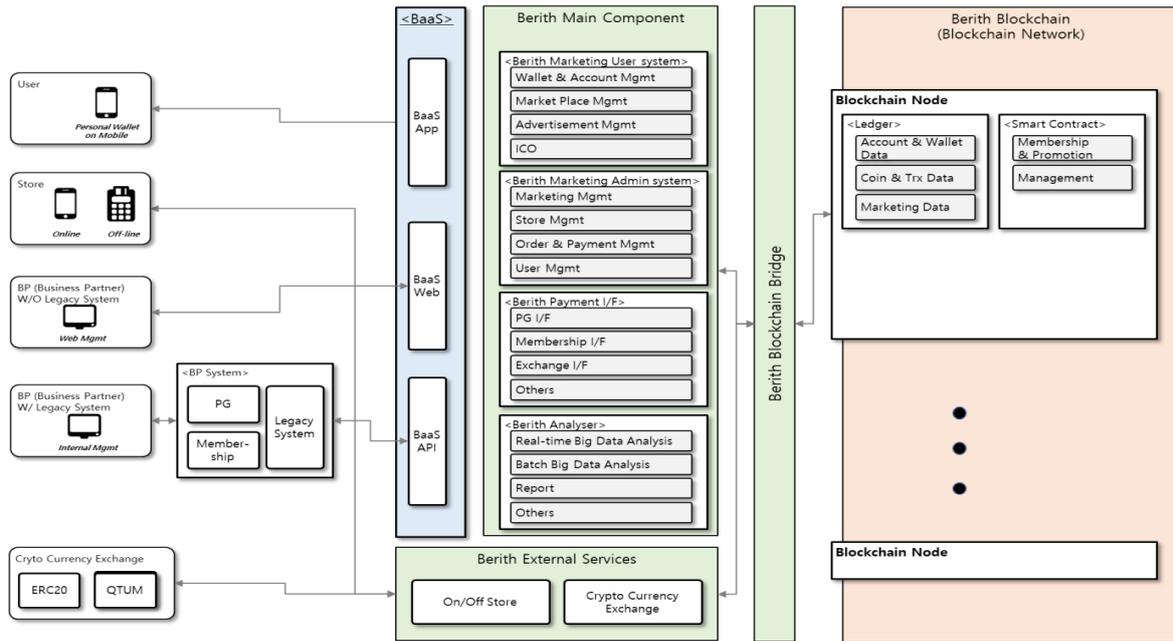
< System Architecture of Berith Business Platform >

The services provided by Berith Business Platform operate in conjunction with other components at the right place at the right time. The logical architecture is as follows.



<Logical Architecture of Berith Business Platform>

Berith Business Platform's system structure is represented as an organic relationship on a blockchain network. The following is a diagram of the system structure.



<System Operation Structure of Berith Business Platform >

2. Major components

1) Berith Blockchain

It is the fundamental component of all services, saving the transaction history of the cryptocurrency and membership points. POW (Proof of Work), the most widely used algorithm, is known for its problems in transaction verification so that it cannot be applied to non-dependency transactions. POW consensus algorithm is inefficient in terms of transaction throughput and block generation speed, and therefore, is not suitable for environments requiring real-time performance.

Initially launched Berith Blockchain used the POA (Proof of Authority) consensus algorithm to speed up transmission and eliminate commissions. This ensures the integrity of blocks and transactions. It also has the advantage that it can quickly deal with transactions (real-time consensus) because every node it deems trustworthy agrees. In case that the trusted nodes could be hacked, we applied the dynamic blind voting consensus rule through transfer if technology from Sogang University.

Dynamic blind voting consensus rule

- Blinding votes using final block vote hash value between the nodes

- Each node broadcasts or stores transactions in the mem pool based on previous transactions.
 - Each node constructs a merkle tree from transactions stored in mem pool and then have the value SHA256-hashed after adding the previous block hash.
 - Set this value as the final block vote hash (=merkle tree + previous block hash).
 - Based on the last block hash each node casts a vote independently using modular and node index.
 - The node elected for decision maker node will generate blocks and make decisions for the blockchain.
- Because of the fact that the transactions change every time and that nodes cast a vote independently the decision maker node is dynamically and randomly elected and therefore cannot be traced back.
 - Nodes can agree to elect another node as a decision maker node when hackers forge or modify the transactions or block.

Block Difficulty Adjustment based on Decision Maker Node in Block Generation

- When attacked by a malicious node, the node has tendency to generate and broadcast the forged or modified block.
 - For this block difficulty adjustment takes place depending on the decision maker node.
- This makes it difficult for malicious nodes to generate blocks, resulting in selective discrimination.

Berith Blockchain plans to support POS (Proof of stake) consensus algorithm after POA, then each node must own a certain amount of cryptocurrency to become a Master-Node. A node is compensated for the consensus depending on the amount

of cryptocurrency it owns. This compensation takes a form in rewards to the partner service provider and its customers.

Partner service provider or individual who participate in the Berith Blockchain network can be POS's Master-Nod, which would incur an initial investment in purchasing Berith Coin in the beginning. Berith Blockchain starts with a POA consensus algorithm that does not require an initial investment cost or transaction fees to provide services for a small business, then will hard fork to POS consensus algorithm right before the global services launch.

The Berth Network in the POS state can deal with Master-Node with more than a certain number of Berith Coins. In this way, the Berith Platform enables nodes participating in either POA or POS to become decentralized platforms using their own nodes.

In addition, Berith Blockchain is a hybrid blockchain that maintains a wallet account of public blockchain and a decentralization platform while enable the front office as management of the existing cryptocurrency transactions and maintenance and the authority to manage, cooperate and support businesses in specific areas that Berith best fits, such as marketing strategies.

In the private blockchain element, a personal identity is added to strengthen the security by adding personal Identification, confidentiality, and role-based access control. Partner service providers will be supported with the back office functions such as statistics, monitoring, and big data analysis.

By combining the above public and private elements, users can have multiple wallets for each device and real-life constraints such as transfers between wallets or maximum transfers at a time or a day will be set as well. That is, the back office function will take care of the private blockchain for the partner service providers and the front office, a 1: N relationship between individual and wallet.

2) Berith Explorer

Let's take a look at Berith Blockchain. Anyone can access the current block of Berith

Blockchain, a transaction verified and validated within a block, a wallet that owns cryptocurrency, and Smart Contract. It is similar to Bitcoin blockchain explorer, BlockExplorer, BlockCypher, BTC.com, and Ethereum's blockchain explorer, Etherscan, Ethplorer, and etherchain.

Berith Blockchain, a global service, has hundreds of transactions in a second. We use the Document Store Database Engine to store such a large amount of transaction history. In order to access large volumes of data quickly, indexing should be done through the search engine. The accumulated data will be processed with the Berith Analyzer explained later.

Berith Blockchain can store various types of metadata that cannot be stored in blocks. Such metadata can be used to create services by applying BaaS (Blockchain as a Service).

3) Berith Blockchain Bridge

The blockchain components and explorer mentioned above are easily accessible using this Bridge component. Berith Platform Developers needed an internal library that all components could use in common. Berith Blockchain Bridge solved a performance issue native to blockchain happens when directly accessing the blockchain

It is a kind of library-like concept for using the Native API more systematically and easily. Applications can implement each function using this Bridge components and support various program languages such as JAVA, C #, and PHP.

Bitcoin CLI (command line interface) API or Ethereum JSON RPC API are native APIs close to the blockchain. Berith's services, including membership, points, and Wallet, combine APIs that are closer to this native, providing a more API-friendly service. BaaS API is more like developer-like API.

4) Berith Analyzer

Marketing data from the Berith Business Platform is created using the Berith

Analyzer component. The extraction of marketing data is the core project that analyzes huge amount of big data. This Big Data Analysis Project is a combination of a batch-based analysis engine and a real-time analysis engine to extract necessary data.

Marketing data may require marketing data that is valid in place by the customer, and there may be valid marketing data later.

When customers walk along the street and go next to a store where there are products that they are interested in, it is the start of marketing that makes them visit the store once, even if it is an impulsive purchase. Such data can be generated through a real-time analysis engine.

Things you should buy carefully must be expensive. Customers will think carefully and decide on the purchase. It is wise to buy items after weighing various items over time. To show these merchants products to our customers. This is marketing data created through a batch-based analysis engine.

Berith Analyzer is a component that can analyze marketing data from these two perspectives, real-time and batch. From the perspective of the sellers and consumers Berith Analyzer's objective is to produce such filtered data. The Berith Analyzer was developed for this purpose.

To help you easily extract this powerful marketing data, Berith Platform's BaaS provides developers with a very simple API.

5) Berith Crypto

Berith Business Platform is a software responsible for security component. This component is used by all components within the platform, including OAuth Token for membership services, xMAC for PG services, private keys for wallet services, and API keys for Bass Open-API services. Details are omitted for security reasons.

6) Berith BaaS (Blockchain as a Service)

Berith BaaS is provided as an easy-to-use developer for the functionality of the

above mentioned components in the form of Open-API, from Berith's blockchain platform to business services.

Berith Blockchain can be used to create Smart Contracts, store and retrieve necessary data in the blockchain API to extract merchant marketing data, APIs for accumulating and using membership points. All of these Berith Business Platform features are provided in an easy-to-use OPEN-API.

Berith BaaS App

It is a server side node that is connected to User Wallet App and provides service. The node belongs to the Berith main platform and is configured to be scalable according to the number of user wallets.

- Wallet & Account Mgmt: Security is maintained by preventing simultaneous access to multiple wallets by simultaneously authenticating the PKI-based wallet and the account.
- Coin Trx & Exchange: Supports coin usage, payment, and collection and cooperates with exchanges to assist in coin conversion and cashing.

Berith BaaS Web

It is a server side node that provides services for management. The node belongs to the Berith main component and is configured to be scalable according to the number of store wallets. Also it can handle business tasks such as settlement, collection without BP API or BP BaaS.

- Account & Wallet Authentication: Establishment of Blockchain service that uses only specific groups by setting permissions on account to maintain security by preventing simultaneous access to multiple wallets by simultaneously authenticating and authenticating the wallet based on PKI It is possible.

- Membership & Promotion service: Membership & Promotion service allows you to apply membership compensation and promotions under specific conditions.
- Business Trx: Supports business transactions for collection and settlement.
- Store Search Service: Provides a list of search functions and event information for coin-enabled merchants.
- Registration UI / UX: As a pre-registration process, registration of partners for registration of partners, registration of bank accounts for virtual currency and cash collection, issuance of tax invoices and other business operations is supported.
- Payment & Clearance UI / UX: Activate the payment process function and support the settlement request process.
- Membership & Promotion UI / UX: Supports the site to enter conditions and logic for membership and promotion.
- Reporting & Analysis UI / UX: You can check and download statistics and reports for all actual transactions, and support big data analysis of customer usage patterns and membership and promotion relationships.

Berith BaaS API

The Berith BP API Service Node is a node that provides an API for services such as Payment & Clearance or Membership & Promotion marketing or Statistics & Report to a business partner who owns Legacy (ledger system, customer service).

Provide private key and public certification based on Business Partnership to maintain through tls communication for security

- API

- Blockchain Service: An API that saves and verifies trustworthy information such as contract, authentication, and copyright in the Berith Blockchain Platform using a blockchain storage and inquiry service.
- Smart Contract Service: Berith Smart API to create contract and apply various rules.
- Registration UI / UX: Registration as a pre-registration process for exchanging private key and public certification for secure communication and authentication, bank account registration for digital currency and cash collection, issuance of tax invoice and other business operations.
- Payment API: For store-driven payment API through POS or App-to-App, business authorization required, and wallet registration.
- Clearance API: API to cash out the digital currency of the wallet, transfer to a pre-registered bank account.
- Membership Promotion marketing API: API to enter conditions and logic for membership and promotion.
- Reporting & Analysis API: An API that can check and download statistics and reports about all actual transactions, and analyze big data related to customer usage pattern and membership / promotion.

V. Vision

1. Roadmap

1) Progress

The Berith Project started with experts in membership business and blockchain and launched the first ICO (Initial Coin Offering) in September 2017, with a membership platform that facilitates the membership business and block chain engineers. After the successful completion of the first ICO for 15 days from September 12 to September 27,

we conducted user interviews, updated market requirements, and expanded and upgraded existing platforms.

It expanded into an integrated business platform based on the Membership Economy. It was applied to the Berith Platform by analyzing the business of various industry groups and the online service besides finance and distribution area.

Berith Platform opened Berith Blockchain Mainnet and Berith Smart Wallet services on March 7, 2018 with the goal of "Easy-to-use block-chain business platform."

In order to expand the service of the platform and apply the business, we have carried out an MOU with relevant organizations such as the Korea Food Service Industry Association, gathered the requirements of actual business people, and made endless efforts to apply and expand the business continuously.

Patent	Summary	Reg. no.
Unmanned service to cut costs for service industry	Provides unmanned service with Wallet and Pay systems in a platform that runs based on membership	10-2018-0009248
Tools and methods to provide a comprehensive wallet for multi-cryptocurrencies and enhanced security	Wallet supporting its own KYC authentication, multi-cryptocurrencies, transactions among different tokens, block and notice on simultaneous logging in.	10-2018-0009259
Tools and methods to provide hybrid blockchain platform supporting public and private	Smart Contract supporting public and private blockchains	10-2018-0009265

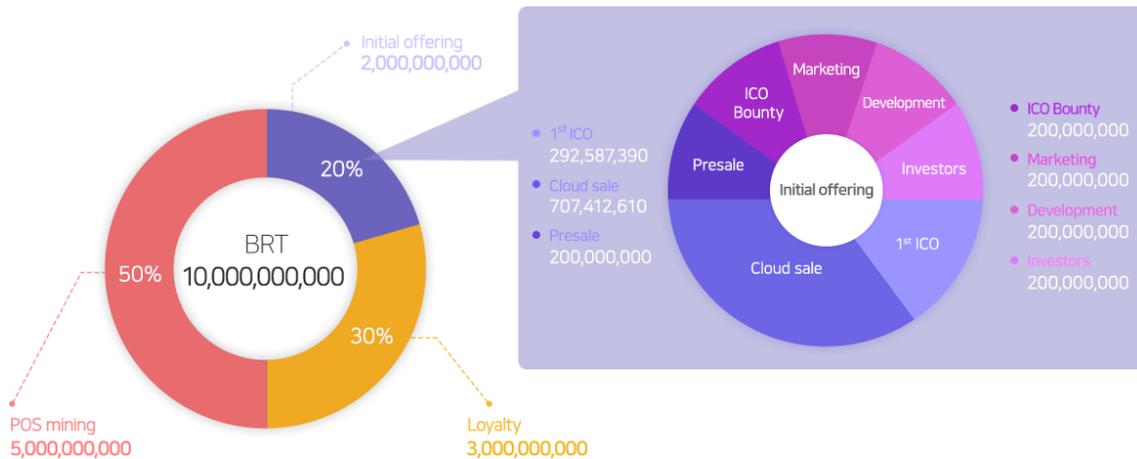
2) Roadmap

Berith Platform has a mission that improve business environment using blockchain technology and provides better service by finding business opportunity and relentless effort in maintaining the affordable business environment for everyone.

Summary	Date
Berith 1st ICO	2017.09
Berith Blockchain platform / Wallet Testnet open	2018.01.25
Berith Blockchain platform / Wallet Mainnet open	2018.03.07
Berith 2nd ICO Crowd sale	2018.04.11 ~ 2018.04.27
Berith Wallet Ethereum, ICO, KYC service open	2018.03
Berith Pay cryptocurrency payment service on-and-offline pay open	2018.04
Berith O2O service (unmanned order, pickup, delivery) open	2018.07.30
Berith TV Commercial on air	2018~05~2018.07 2018.08~2018.12
Berith membership service open	2018.09
Berith partnership on membership	2018.09
Berith Coin to go public	4th quarter in 2018
Berith service marketing in Asia	2018.10
Berith blockchain platform POS mining support	2019.01
Berith integrated membership launch	2019.02
Berith BaaS open	2019.03
Berith service marketing for global market	2019.04

2. Issuance of tokens

Total of 10 Billion Berith Coins have been issued. 50% of which was from PoS mining, 30% to pay loyalty when used. 20%, that is 2 billion coins, were initially offered and among them, 292,587,390 were sold during the 1st ICO presale, 200 million reserved for the 2nd ICO, 707,412,610 for cloud sale, 200 million for each of investors, development, marketing, and bounty.



3. Team

The Berith team is comprised of experts from the business team including the membership CRM business, professional blockchain engineers, management, accounting and marketing. The Berith team is also responsible for the development of the Berith Foundation, which is responsible for the issuance and management of cryptocurrency, and IBIZSoftware, a technology partner that actually performs blockchain and membership business knowhow and block chain development.

1) Berith Foundation

It was established in Singapore for the purpose of "Blockchain Technology for public interest and membership service for all", and is the subject of implementation of the Berith Project. The Berith team has a large number of people who are in charge of the actual work, and it carries out the overall management operation including the management and issuance of the actual Berith Platform and the support of independent corporations in each country.

2) Berith KOREA

Berith Korea is a corporate entity managing Berith project with IBIZSoftware, which is leading the technology development. It has a variety of experiences in application of the membership business and understanding of overseas business and the ability to develop overseas platforms.

3) IBIZSoftware

IBIZSoftware is an IT company specialized in blockchain technology and develops the core technologies of the Berith Project. Since its establishment in 2006, it has accumulated know-hows through the development of membership services such as GS & POINT and CJONE, membership services for HANA members, Shinhan FAN club. It has developed various technologies ranging from consulting to an integrated development support platform called JworkSuite Platform that improves development convenience. In particular, based on accumulated technology, it has built a membership platform for Indonesian companies and have various memberships for foreigners such as CGV in China.

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