Airbloc Due Diligence Report

Specially Prepared for

Internal Circulation

19 December 2018

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Airbloc Chief Strategy Officer

AIRBLOC PROTOCOL (ABL)

Enterprise-grade data infrastructure for legitimate and transparent user data collection, monetization and exchange.

KEY HIGHLIGHTS AND INTERESTING FACTS

📌Airbloc is a Reverse ICO: A project led by a leading Korean big data data company, Airbridge, that is recognized in 2016 as a promising technology company by the South Korean government. Since 2016, the company has been tracking over 50m devices equivalent to 2/3 of the entire Korean mobile population for big data analytics.

📌The company behind Airbloc was awarded by KB Kookmin Card, Korea's largest credit card company in July 2018 as the top 10 promising technological companies in Korea with expertise in big data infrastructure.

📌Technology giant LINE Corp invested into Airbloc for its promising data infrastructure technology.

📌Airbloc focuses on enterprise adoption by working on use cases with Korea's large enterprises including KB Kookmin Card (Korea's Largest Credit Card Company), GS Shop (Korea's largest e-commerce shopping platform), The Korea Economic Daily (Korea's 2nd Largest Financial Newspaper), Battle Comics (Korea's 2nd largest comics platform with over 1m users). More enterprises will eventually join Airbloc's ecosystem.

📌The CEO and CTO of Airbloc are Korea's acclaimed national TOP 8 developers that were awarded by the Ministry of Science and ICT in 2015.

RECENT NEWS AND PARTNERSHIPS

📌Partnered with the Largest Credit Card Company in Korea—KB Kookmin Card to integrate behavioural data segment analysis features to Airbloc.

📌Partnered with Korea's 2nd Largest Financial Newspaper – The Korea Economic Daily to integrate Airbloc's data infrastructure and Web SDK into their services.

📌Partnered with YouNet—Vietnam and South East Asia's Leading Social Marketing Technology Company for deeper market expansion into Vietnam.

📌Partnered with Korean Tech Giant Kakao's Blockchain Platform "Klaytn" to mount Airbloc's main business logic on top of Klaytn such as second party data transport layer, Airbloc reward system (Contribution Graph), DAuth, and Data Registry Process.

📌Partnered with D2C – Japan and Taiwan's Leading Digital Advertising and Marketing Company D2C for deeper market expansion into Japan and Taiwan.

GENERAL INFORMATION

Project Name: Airbloc

Project Category: Data

Project Type: Protocol

Platform: Dual chains leveraging Kakao's Klaytn Blockchain Platform and ICON's Blockchain Platform

Token: ABL (ERC20)

ICO Date: 20000 ETH in June 2018

Location: Singapore and Korea

Website: https://www.airbloc.org/

Github: https://github.com/airbloc

Medium: https://medium.com/airbloc

Investors: LINE Corporation, Huobi Capital, OKEX Capital, Bgogo Capital, Fenbushi Digital, Signum Capital, Node Capital, BlockWater Capital, Bitshine Capital, Amber AI, ICON, BlueBlock, Coinplug, Deblock, FoundationX.

Featured Advisors: Jason Han (CEO of Kakao Blockchain Subsidiary) and Sean Lee (Director of GS Shop, Corporate VC, South Korea's largest e-commerce shopping platform).

Team: 37 full time members. 90% of which are developers ranging from Blockchain Engineers, Full Stack Developers, Front End Developers, Back End Developers, UI and UX Designers. The rest are involved in Business Development and Revenue Generation, Strategy, PR and Marketing.

Enterprise Partners: KB Kookmin Card (Korea's Largest Credit Card Company), GS Shop (Korea's largest e-commerce shopping platform), The Korea Economic Daily (Korea's 2nd Largest Financial Newspaper), Battle Comics (Korea's 2nd largest comics platform with over 1m users).

WHAT IS AIRBLOC

An enterprise-grade data infrastructure for legitimate and transparent user data collection, monetization and exchange. Airbloc's target users include enterprises, applications, websites and individuals.

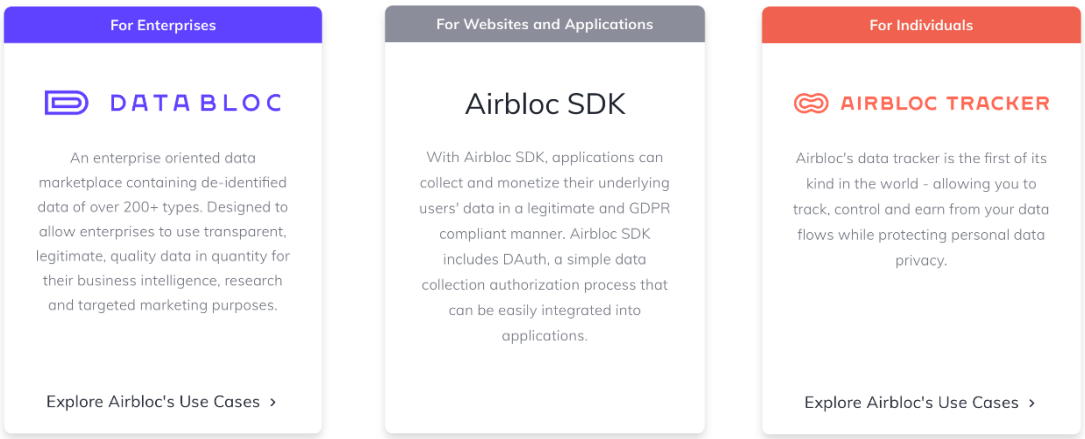
Industry Problems:

The data industry today is mired in multiple layers of opacity. Data brokers are earning millions off the illegitimate collection of individuals' personal data without their awareness and selling it to enterprises. There is also increasing governmental emphasis on personal data protection regulations such as the GDPR. The essence of such data-related regulations seems to impose new procedural obligations for organizations processing personal data to return more rights to data owners.

Against this backdrop, enterprises interested in purchasing data are also beginning to question data brokers' source of the data and its legitimacy.

Airbloc's Solutions:

Through various data infrastructure tools, it aims to help return data ownership back to data owners, allow applications to collect and monetize data legitimately, and allow enterprises to purchase explicitly consented data with an auditable source of provenance for their business intelligence, research, and targeted marketing purposes.



Airbloc's Core Product Offerings for Enterprises, Websites, Applications and Individuals

Key Features of Airbloc:

- **3rd Party Data Exchange via Databloc** - An enterprise oriented data exchange platform containing de-identified data of over 200+ types, and provides a wide range of data segmentations. Designed to allow enterprises to purchase 3rd party data in a transparent, legitimate, quality data in quantity for their business intelligence, research and targeted marketing purposes.

- **2nd Party Data Exchange via Data Relayers** – A feature optimised for transparent and auditable second-party data exchange between enterprises who wish to enrich their current database with more relevant data gathered from other related enterprises in the similar industry verticals or horizontals.
    - Data relayer is a node which supports data discovery by querying on the data marketplace. It helps data consumers find and purchase their specific subsets of data under certain filters.

- **Airbloc Web and Mobile SDK** – An enterprise oriented developer toolkit for enterprises' websites and applications to collect and monetize their underlying users' data in a legitimate and GDPR compliant manner. The module also includes pre-configured options for developers to choose from a wide range of data types to collect.

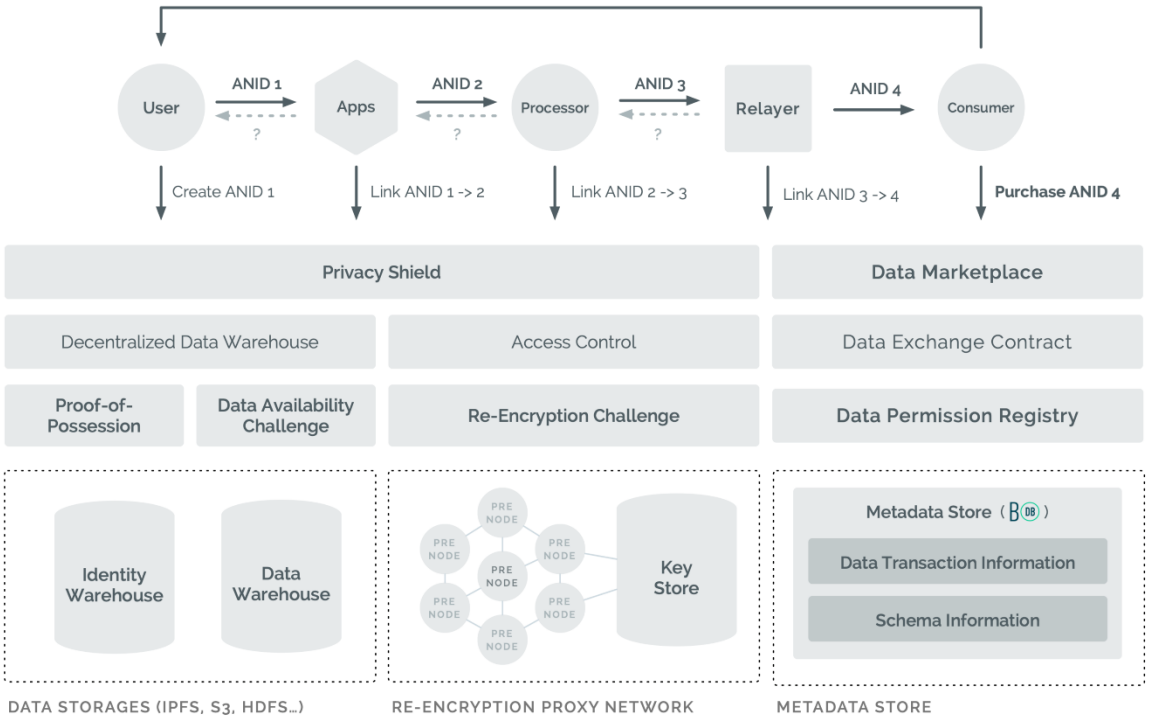
- **Airbloc Data Tracker** – A dashboard allowing individuals in the Airbloc ecosystem to track, control and earn from their data flows.

- **Privacy Shield Technology** – A back-end process that de-identifies, masks, decouples and anonymizes identity data in Airbloc to further safeguard individuals' data privacy and prevent data back-tracking to the individual's identity.

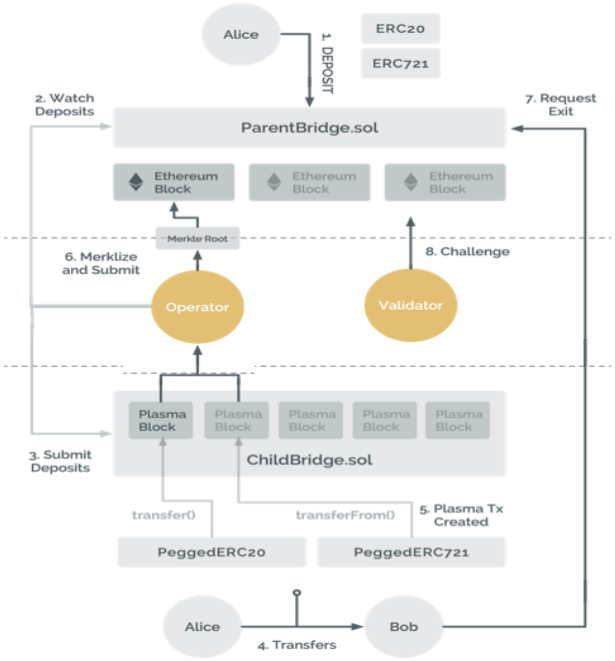
- **Wallet-Free Account System** – Enterprises and ecosystem participants Users can ese Airbloc (e.g. control their own data, withdraw ABL rewards) using either their own private key or alphanumeric password.

- **AERO Sidechain** – A self-developed proprietary layer-2 plasma high performant sidechain built on top of Ethereum operating with Proof-of-Authority Consensus. It is an enterprise-grade platform to allow enterprises to use Airbloc for faster and feeless transactions, and be assured of their data privacy.

Airbloc Architecture Diagrams:



Enterprise Data Exchange Process using Airbloc's Proprietary Privacy Shield Technology



Airbloc's Enterprise-Grade Aero Sidechain

POST-ICO COMMERCIAL AND BUSINESS DEVELOPMENT PERFORMANCE

Q3-Q4 2018 Business Development focused on expanding real world use-cases for Airbloc's data infrastructure.

Source: https://medium.com/airbloc/airbloc-q3-q4-business-report-635a04eaa534

📌Our company was awarded by KB Kookmin Card in July as the top 10 promising technological companies in Korea with expertise in data technologies.

📌Korea's Largest Credit Card Company—KB Kookmin Card Incubated and Partnered Us

📌Tech Giant LINE Corp formalized its blockchain investment into Airbloc's promising data infrastructure technology.

📌Partnered with Kakao's blockchain platform, Klaytn to realize a real world use case

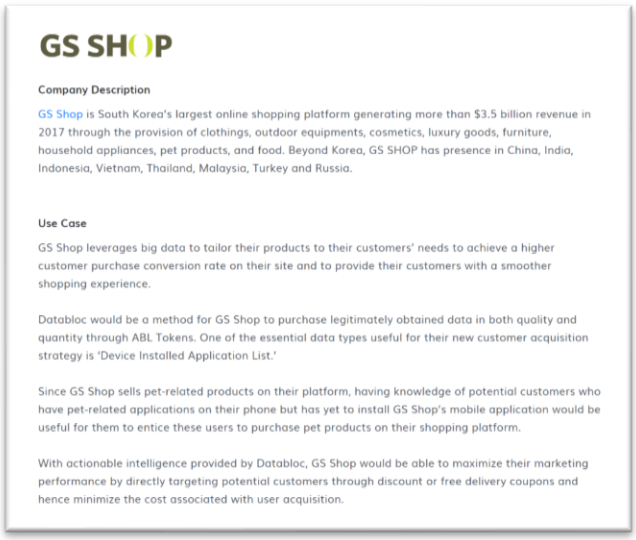
📌Partnered with The Korea Economic Daily, Korea's 2nd Largest Financial Newspaper for adoption

📌Partnered with D2C to expand regional presence to Japan and Taiwan

📌Partnered with YouNet Global to expand regional presence to Vietnam

📌Integrated advertisement execution function on Databloc

Adoption Use Cases for Enterprises, Applications and Websites



GS SHOP

Company Description

GS Shop is South Korea's largest online shopping platform generating more than $3.5 billion revenue in 2017 through the provision of clothings, outdoor equipments, cosmetics, luxury goods, furniture, household appliances, pet products, and food. Beyond Korea, GS SHOP has presence in China, India, Indonesia, Vietnam, Thailand, Malaysia, Turkey and Russia.

Use Case

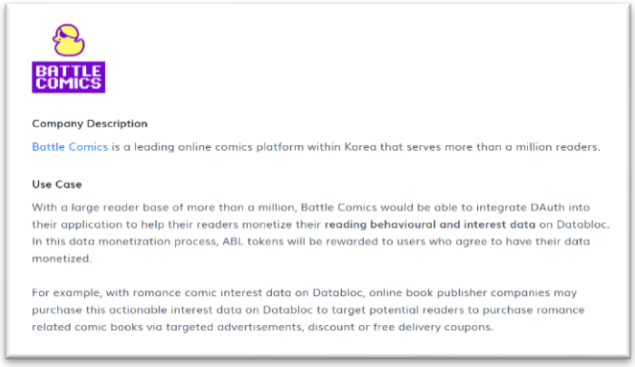
GS Shop leverages big data to tailor their products to their customers' needs to achieve a higher customer purchase conversion rate on their site and to provide their customers with a smoother shopping experience.

Databloc would be a method for GS Shop to purchase legitimately obtained data in both quality and quantity through ABL Tokens. One of the essential data types useful for their new customer acquisition strategy is 'Device Installed Application List.'

Since GS Shop sells pet-related products on their platform, having knowledge of potential customers who have pet-related applications on their phone but has yet to install GS Shop's mobile application would be useful for them to entice these users to purchase pet products on their shopping platform.

With actionable intelligence provided by Databloc, GS Shop would be able to maximize their marketing performance by directly targeting potential customers through discount or free delivery coupons and hence minimize the cost associated with user acquisition.

Source: https://airbloc.org/use/enterprises.html



BATTLE COMICS

Company Description

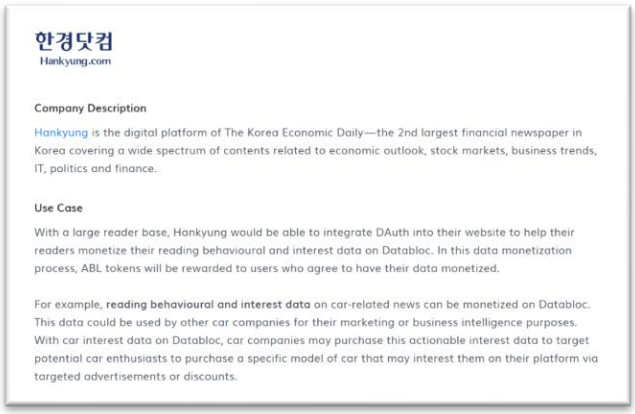
Battle Comics is a leading online comics platform within Korea that serves more than a million readers.

Use Case

With a large reader base of more than a million, Battle Comics would be able to integrate DAuth into their application to help their readers monetize their **reading behavioural and interest data** on Databloc. In this data monetization process, ABL tokens will be rewarded to users who agree to have their data monetized.

For example, with romance comic interest data on Databloc, online book publisher companies may purchase this actionable interest data on Databloc to target potential readers to purchase romance related comic books via targeted advertisements, discount or free delivery coupons.

Source: https://airbloc.org/use/applications.html



한경닷컴
Hankyung.com

Company Description

Hankyung is the digital platform of The Korea Economic Daily—the 2nd largest financial newspaper in Korea covering a wide spectrum of contents related to economic outlook, stock markets, business trends, IT, politics and finance.

Use Case

With a large reader base, Hankyung would be able to integrate DAuth into their website to help their readers monetize their reading behavioural and interest data on Databloc. In this data monetization process, ABL tokens will be rewarded to users who agree to have their data monetized.

For example, **reading behavioural and interest data** on car-related news can be monetized on Databloc. This data could be used by other car companies for their marketing or business intelligence purposes. With car interest data on Databloc, car companies may purchase this actionable interest data to target potential car enthusiasts to purchase a specific model of car that may interest them on their platform via targeted advertisements or discounts.

Source: https://airbloc.org/use/websites.html

TOKEN SALE AND ECONOMICS

KEY METRICS	
Token Name	ABL
Token Type	ERC-20
Total Token Supply	400,000,000 ABL
Private Sale Allocation	34.15% of tokens
Private Sale Price	1 ETH : 14,500 ABL
Private Sale Amount Raised	9,700 ETH
Private Sale Vesting	Total tokens subjected to a monthly distribution of 10%/10%/10%/10%/ 20%/20%/20% that starts on 12 August 2018 and ends on 12 February 2019
Public Pre-Sale Allocation	17.54% of tokens
Public Pre-Sale Price	1 ETH : 11,500 ABL
Public Pre-Sale Amount Raised	5,300 ETH
Public Sale Allocation	12.50% of tokens
Public Sale Price	1 ETH : 10,000 ABL
Public Sale Amount Raised	5,000 ETH

Token Supply Breakdown

- 64% Tokens sold in private, public pre-sale, and public rounds.
- 16% Ecosystem Growth Fund
- 10% Team
- 10% Reserve (marketing, listing, etc)

Current ABL Token Utility

Enterprises, websites and applications utilizing Airbloc's data infrastructure would be required to use ABL to pay, settle and participate in Airbloc such as payment settlement by data consumers for data exchange, and staking to register and maintain an Airbloc node. Meanwhile, individuals would be able to receive ABL as a means of reward when their data is monetized.

TECHNOLOGY DEVELOPMENT ROADMAP

Q3-Q4 2018 technology development focused the back-end technology architecture and features within Airbloc's data infrastructure.

Source: https://medium.com/airbloc/q3-4-development-progress-and-codes-released-on-github-38101de9088a

📌Key back-end development pillars: Data Management and Warehouse, Identity Data Management, Data Relay, Data Exchange and Export, Airbloc Web and Mobile SDKs, Airbloc APIs, Aero Sidechain Development, Airbloc Node Development, Development Language Migration from Python to Golang.

2018 Q3 Development Progress [Completed]

- **Data Warehouse**
  - Integrated **Data Encryption Layer** to protect data providers' data from unauthorized access and download.
  - Integrated **Data Cleansing Layer** to ensure uniform data formatting by data providers.
  - Integrated **Data Bundling Process** for efficient management of big data.
  - Implemented **Data Warehousing** functionality.
  - Introduced **Bundle System** for storing datato allow data to be stored according to its own category.
  - Enhanced **Data ID** representation—Data ID is now represented by <Bundle ID>/<User ANID> , which allows easier user-centric data management.
  - Integrated data streaming through gRPC stream—This allows efficient data ingestion and further ability to integrate with continuous data pipeline.
  - Improved bulk data management system by introducing **Batch** concept—Batch is a cached set of data record IDs, which enables more memory-efficient data handling by using trie-like data structure.
  - Integrated data warehouse with **Data Registry Smart Contract**.
  - Integrated data warehouse with our meta-database, BigchainDB.
  - Implemented Amazon S3 storage driver and protocol—essential for integrating Airbloc into Airbridge's back-end data pipeline.

- **Airbloc API**
  - Introduced ***gRPC*** ***and*** ***Protobuf***—To ensure Airbloc Protocol is more polyglot and capable of dealing with massive data, gRPC is the best choice for our API implementations.
  - Implemented ***APIs*** essential for exchanging data.
  - Improved API design by separating ***User-side APIs and Provider-and-Consumer-side APIs.***
- **Data Provider Registration Process**
  - Application Registration Contract for applications to register themselves as data providers.
- **Second-Party Data Exchange Protocol**
  - Implemented an Exchange System through smart contracts—The new contract system is designed to support any types of data exchange (pre-configured or custom segment data and payload data).

2018 Q4 Development Progress [Completed]

- **Third-Party Data Exchange Protocol**
  - Implemented **Order Booking Contract** to include three stages of ***Order, Open and Close***—to allow for more customizable data exchange process through smart contracts.
- **On-Chain Data Handling**
  - **Data Registry Contract** for data providers to register their data on-chain
- **Data Re-Encryption**
  - **Data Re-Encryption** using Umbral
- **Wallet-Free Account System**
  - Integrated **IAM System (Identity Access Management)**
  - Implemented **Temporary Account Creation Process**
  - Implemented **Account Management System**—Users can now use Airbloc (e.g. control their own data, withdraw ABL rewards) using either their own private key or password.
  - Introduced **Proxy Accounts**—This allows users to use their alphanumeric password instead of using wallet apps or MetaMask, and delegate transaction fees.
  - Implemented **Temporary Accounts**, which can be used during DAuth data collection authentication—Allows users to create a temporary account on Airbloc without the need of Metamask or a private key.
- **P2P Networking**
  - Networking stack implementation using libp2p for inter-node communication

2019 Q1 Development Roadmap

- **On-Chain Data Handling**
  - **Data Exchange and Registration using Sparse Merkle Tree** (SMT) to facilitate larger scale data registration on-chain.
- **Data Re-Encryption**
  - **KMS** (Key Management Service) Integration
- **Second-Party Data Exchange Protocol**
  - **Ricardian Contract Support** for Enterprise Data Consumers
- **Third-Party Data Exchange Protocol**
  - **Data Discovery API** to provide data consumers with a list of data available for purchase based on their existing identifier data.
- **Account Proxy Integration (Transaction Fee Relaying)**
- **Data Relayer (1Q)**
  - **Data Query Support** for data consumers through data providers' anonymized data
- **Airbloc Tracker Full Release**
- **Airbloc Web SDK Full Release**
- **Mobile SDK Full Release**
- **BetaNet Release**

2019 Q2 Development Roadmap

- **Data Processor**
  - **Data Appending Service** for data processors to add more user attributes to user profile data.
  - API for data processors to integrate Airbloc Protocol with their own data pipeline.
- **Identity Matching Engine**
  - Second-Party Data Exchange
  - User Segment Data Import
- **Mainnet Release**

2019 Q3 Development Roadmap

- **Data Validator Node Development**
  - A node that acts as a "policeman" to verify the data availability of data providers to verify, challenge and replicate their data.
- **Data Availability Challenge**
  - Challenge process issued by data validator nodes to ensure claimed data availability by penalizing data providers who do not provide the data upon demand.
- **P2P Network System**
  - **Fault-Tolerant Message Delivery** to ensure effective message delivery between nodes in Airbloc's ecosystem
- **Databloc Full Release**

2019 Q4 - 2020 Q1 Development Roadmap

- **Proprietary Privacy Shield Technology Development**
  - Data de-identification process
  - Data decoupling process
  - Private Identity Matching using Zero-Knowledge Proof
  - Private Data Processing (TEE Support for Data Processor)
  - Anonymous ID integration
- **Data Provider Registration Process (4Q)**
  - **Token-Curated Registry** to filter malicious applications.

TEAM AND ADVISOR OVERVIEW

Airbloc has a total of 37 team members. 90% of which are developers: Blockchain Engineers, Full Stack Developers, Front End Developers, Back End Developers, UI and UX Designers. The rest are involved in Business Development and Revenue Generation, Strategy, PR and Marketing. The team is expected to expand to 40-45 by Q2 2019.

Roi Nam is the Chief Executive Officer of Airbloc and Airbridge

Roi was selected as the **National TOP 8 software developer in Korea** and awarded by the Ministry of Science and ICT in Korea back in 2015. Roi majored in Business Administration in College of Liberal Studies, Seoul National University.

Before Airbloc, he co-founded two startups.

Sam Lee - Chief Revenue Officer of Airbloc and Airbridge

Sam Lee has been a global sales expert throughout his entire career. In early days of his LG life, he was an Enterprise Sales Executive and Account Manager representing LG in Australia. Later he joined SAP and oversaw after Government, Finance, Manufacturers, Media, Healthcare, Retailer, Logistics, training Vendors and partners. After leaving SAP, he joined Oniontech as an Asia-Pacific Sales Director where **he led the sales team to generate $8M per year**.

The pinnacle of his career came with his appointment as the Asia-Pacific Sales Director of Braze, a world no. 1 marketing automation company valued at $1B. He led **successful sales and marketing of Braze in APAC region** that Braze finally set up an office in Singapore to better support Asian customers. **Thanks to Mr. Sam Lee, Braze is now trusted by big names in Korea, Japan, China, Vietnam, and Indonesia**. Sam's role is to help Airbloc realize more partnerships around Asia Pacific region.

Hunjae Jung is the Chief Product Officer of Airbloc and Airbridge

Hunjae is the Chief Product Officer of Airbloc and Airbridge. He is deeply involved in the product management and back end development of Airbridge and Airbloc.

He is a graduate of Sogang University Mathematics and a Computer Science major. **In 2015, he was selected as the National TOP 40 developer in Korea.**

Before Airbloc, he co-founded one augmented reality technology start up that developed a tourism mobile application that helps tourist explore Korean tourist attractions

Wonkyung Lyu is the Chief Technology Officer of Airbloc and Airbridge

Wonkyung was selected as the **National TOP 8 software developer in Korea** of Software Maestro and awarded by the Ministry of Science and ICT in Korea back in 2015. Wonkyung majored in Computer Science and Economics in Sungkyunkwan University.

He co-founded one startup before joining as a CTO of Airbloc.

Naeun Kim is the Chief Operating Officer of Airbloc and Airbridge

Naeun was formerly from Naver in the UX design branch. Her projects in Naver include coupon services, search advertisements, video advertisements and micro-shopping website builder. In Naver, she was deeply involved in improving UX of search keyword advertisements. Naeun brings her experience in designing UI and UX for Naver into Airbloc.

Nauen is now undergoing a PhD course in Design Seoul National University.

She was a founding member in two startups, **one of which now became no. 1 home interior information platform in Korea. In 2014, she successfully issued**

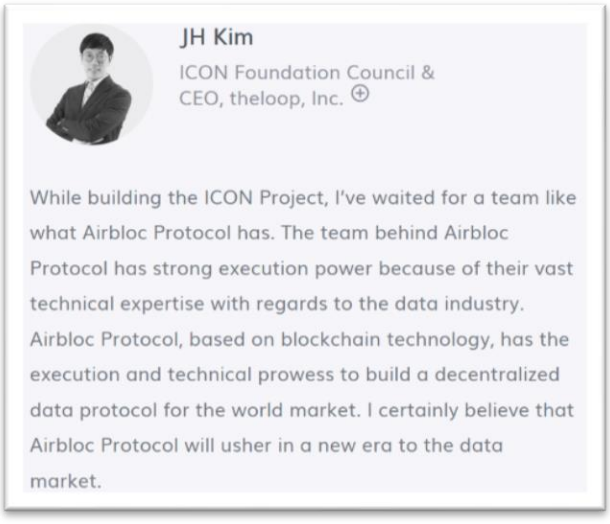
multiple patents related to building a streamlined user experience in mobile advertisements.

Lee-On is the Chief Strategy Officer of Airbloc and Airbridge

As Chief Strategy Officer, Lee-On works closely with the CEO - helping to formulate and refine Airbloc's strategy, direction and narrative. He brings his experience and skill sets from diplomacy, law, studio productions, editorial, strategic communications, and venture capital to Airbloc and Airbridge.

He is a **recipient of the National University of Singapore (NUS) Global Merit Scholarship – Singapore's most prestigious and highly coveted scholarship** awarded to high calibre individuals who demonstrate academic excellence, present excellent co-curricular activities record and exhibit outstanding leadership qualities.

<< Featured Testimonies and Advisors for Airbloc >>



COMPETITOR OVERVIEW

While there are data related projects in the existing blockchain space, many fail to solve the key problem of adoption mainly because their solutions are not tailored for enterprise adoption and mass adoption. Enterprise adoption requires ease-of-use, easy integration, maintenance and scalability. Mass adoption cannot be realized because the go-to market strategy is expensive and cannot be scaled easily.

Name	Description	Airbloc's Differentiating Factor
Wibson Protocol	Blockchain-based, decentralized data marketplace that provides individuals a way to securely and anonymously sell validated private information in a trusted environment.	Wibson's core weakness is that it is only capable of gathering data from its own native application. This is highly inefficient to scale for mass adoption because data sources are centred solely on 1 application. With limited data sources and data volume it makes it difficult for enterprises to use Wibson's marketplace solution. Airbloc's Web and App SDK allows for mass adoption. Data sources can be gathered fast and seamlessly with a simple integration of Airbloc's SDK into third party websites and applications with their existing userbases. In addition, Wibson's marketplace only supports first-party data. Whereas Airbloc's data exchange provides support for first, second and third-party data.
DataWallet	Blockchain-based personal data management tool and a decentralized data exchange.	Similar to Wibson, DataWallet's weakness is that it is only capable of gathering data from its own native application which makes it hard to scale because for an application to reach millions of active users, heavy resources and costs are involved for scaling.

		Airbloc's Web and App SDK allows for ease of mass adoption. Data sources can be gathered fast and seamlessly with a simple integration of Airbloc's SDK into third party websites and applications with their existing userbases. DataWallet's weakness is also in its handling of big data. Data collected in DataWallet may not be able to be grouped according to segment and queried by enterprises who may wish to purchase the data. Airbloc's data exchange infrastructure allows enterprise data purchasers to query and purchase data based on their own customized segment.

Qualitative differentiating factors of Airbloc from its competitors is as follows:

- **Led by a leading big data company**: Most data projects in the blockchain space are early-stage start-ups without experience in handling big data. To actually launch a data service on top of a blockchain, it requires heavy-weight experience in data management and analytics.
    - Airbloc's parent company, Airbridge, is recognized in 2016 as a promising technology company by the South Korean government, and was recently awarded the one of the TOP 10 technology companies in Korea with expertise in big data technologies.
    - Airbridge is a big data analytics company that currently tracks 2/3 of the total mobile devices in Korea (equivalent to 50 million devices) and is working with leading enterprises including Ebay Korea, Woowa Brothers, CJ Olivenetworks, SK Stoa, GS Shop, – one of South Korea's largest e-commerce online shopping site.
- **Focus on Enterprise Adoption**: Technology development without close consultation with enterprise is akin to pointless development. For a data project to truly realize enterprise adoption, Airbloc leverages the networks accumulated

by Airbridge. Till date, Airbridge has worked with many of Korea's largest enterprise companies, and companies in Vietnam, Taiwan, Indonesia and Japan. Access to enterprises allows the development team consult enterprises in order to develop and tweak Airbloc's infrastructure according to enterprises' needs.

- Airbloc's SDK will eventually be integrated with Airbridge's SDK that has already been stress tested by 50 million devices and is capable of collecting 200+ data types and over 100 million useful data points in real time.

- **Focus on Mass Adoption:** Blockchain technology should be easily integrated and user friendly to the end user. Airbloc's data infrastructure includes modules, tools and base protocols that allow applications, websites and even end users to easily integrate and use Airbloc in a frictionless manner.
  - For example, users do not need to worry about the hassle of using Metamask for logging in.
  - Through the SDK, Applications and websites can choose from a list of pre-configured or customized data they would like to collect and monetize from their users.
    - The Airbloc team is already in close consultation with applications with more than a million users, and there is strong interest in them integrating the SDK once its live and fully functional.
      - See **"Expanded adoption use cases for enterprises, applications and websites"** section.