



v.1.1

**A Decentralized and Cooperative Protocol
for Next Generation Logistics**

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1. Executive summary

The logistics industry serves as the veins of the economy. The industry is poised to grow enormously to reach USD 15.5 trillion by 2024. At the same time, the industry is facing transformational change; the rapid growth of the e-commerce market, the transition from business-to-business (B2B) to business-to-consumer (B2C) and consumer-to-consumer (C2C), and the expansion of cross-border trade. With such changes in the market, customers now have a higher expectation for more cost-effective, flexible and faster logistics services. Moreover, existing services focused on storage and delivery transportation must go beyond to meet the growing demand for a wider variety of services. Nevertheless, incumbents are stuck in the old ways, competing against each other and are failing to improve services to meet their customer demands.

The logistics industry is facing a structural problem – due to different interests of participants in the logistics network, no credible protocol exists that enables transparent sharing of data. This makes collaboration inefficient or nearly impossible. The participants are fiercely competing against each other to achieve economies of scale by investing heavily in all ranges of service from first-mile to last-mile delivery. However, this has led to double-investment and crippled the industry with inefficiency. Even in international logistics where collaboration should be relatively easy to achieve, complicated procedures are hindering collaboration because of inefficient data sharing. This inefficient structure for collaboration has left no choice for logistics service providers but to concentrate their services in freight transportation and storage. Henceforth, the possibility of creating greater added-value is decreasing and the cost is rising, and yet the quality of logistics service is falling.

As a blockchain-based logistics protocol, dKargo aims to address challenges that hinder collaboration in the logistics industry and build a new type of an efficient logistics network. dKargo will enable participants to use credible and generally standardized data on a blockchain-based public ledger. dKargo's plans for the development of the logistics industry are as follows:

1 Maximizing Efficiency of the Logistics Industry : A.I. Route Optimization

Suggest optimal logistics route in which various participants can collaborate and thereby maximize the overall efficiency of the logistics network

2 Evolution of Logistics Ecosystem : Whole-mile Logistics

Build whole-mile logistics and a network that can utilize different modes of transportation other than the conventional freight transport modes and ultimately create an entirely new logistics ecosystem

3 Boundary-Crossing Innovation in Logistics : Interconnected Logistics

Provide a wider range of logistics services to deliver new value by offering various logistics-related services

Furthermore, dKargo has a reward system where participants can gain additional incentives for just playing their parts. They can contribute to building a more efficient logistics network by providing logistics services and uploading data, and in return, they can earn additional incentives.

dKargo is providing a new form of logistics service enabling various players to participate in the platform which was previously impossible. For example, not only traditional logistics service providers like courier companies but also motorcycle carriers, users of public transportation, individuals and SMEs can all participate. Moreover, dKargo enables other competent participants who are operating freight transportation and storage businesses to collaborate. Through collaboration, logistics-related sectors such as payment, repairs, and inspection, which are all important to meet the consumer needs, will add new value to the logistics industry.

To achieve dKargo's objectives, dKargo will expand partnerships with the incumbents. deleo, a startup company specializing in international delivery service, will join dKargo as an early flagship partner. deleo is a rapidly growing company, raising Series C funding with the valuation of KRW 100billion. Currently, Kakao Investment, Lotte Global Logistics, and other major Korean venture capital firms are deleo's shareholders. deleo also formed a strategic partnership with the U.S. Postal Service (USPS). deleo has a strong competitive edge in cross-border delivery – deleo's major business network in each country and its infrastructure will be keys to dKargo's success.

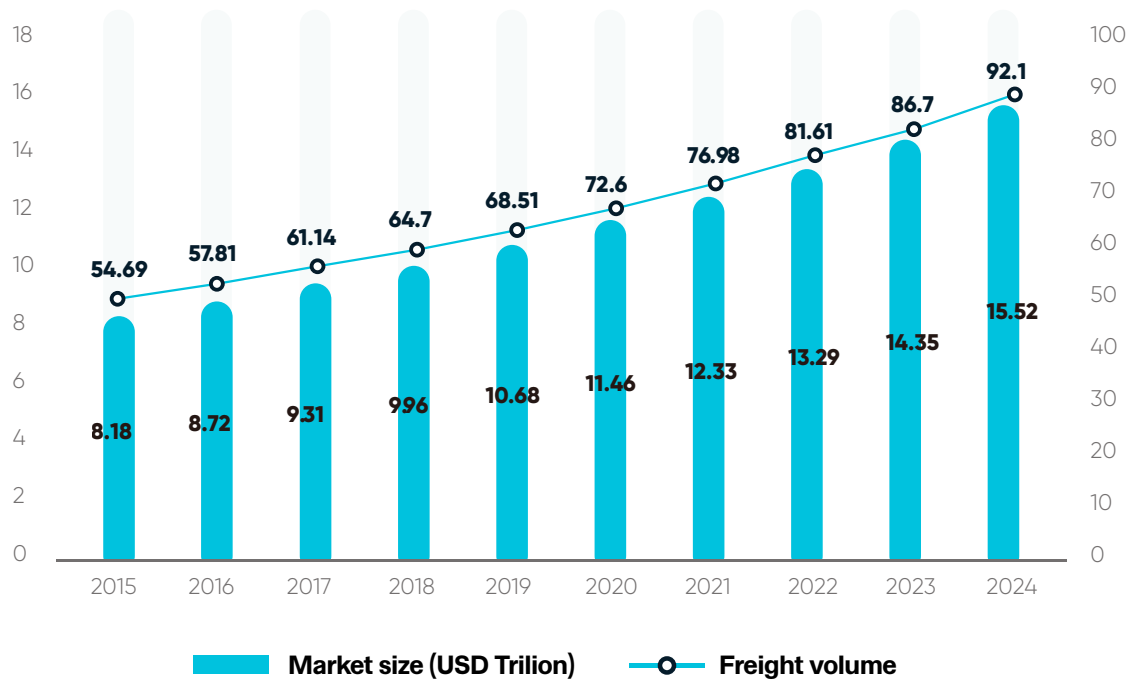
Another flagship partner of dKargo is KakaoPay Express, a logistics service provider from Kakao. Kakaopay is an easy payment service provider from Kakao which is Korea's no.1 mobile platform with more than 80% of Koreans using this platform. Kakao, alongside Lotte Global Logistics, a major Korean logistics service provider, established a joint venture Easygo, which is responsible for providing KakaoPay Express. More than 50 million active users are familiar with Kakaotalk's interface; Lotte Global Logistics has a wide range of logistics system and delivery location points such as convenience stores, and deleo is an expert in cross-border delivery. Combining all these strengths together, KakaoPay Express is providing flexible logistics services.

As an open platform, dKargo encourages all businesses that have relevance to the logistics industry to participate in the platform. By building a logistics ecosystem that fairly distributes incentives according to the participant's contribution, dKargo aims to attract various partners to the dKargo platform.

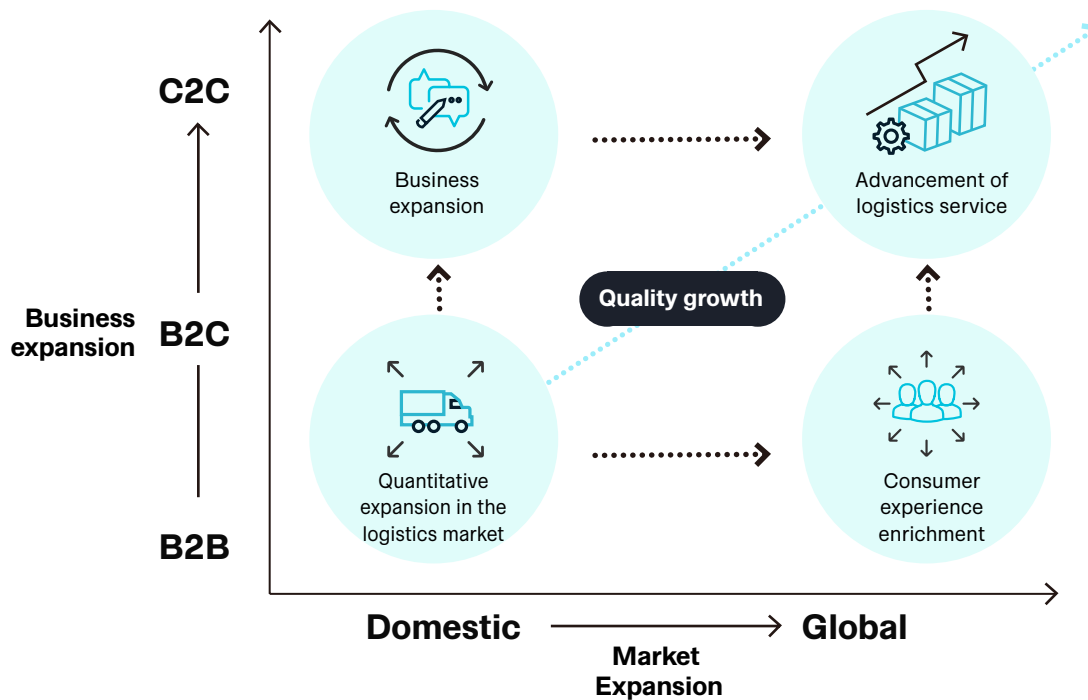
Ultimately, dKargo aspires to provide efficient logistics services where everyone, including users, logistics service providers, and consignees, can gain greater benefits.

2. Introduction

○ Increasing consumer demand for flexible logistics services



The global logistics market is expected to grow from USD 9.9 trillion in 2018 to USD 15.5 trillion by 2024, registering a compound annual growth rate (CAGR) of 7.5%. Many changes are taking place in the industry as the market is witnessing substantial growth in an ever-changing business environment. For example, the industry landscape is shifting from B2B based industrial structure towards B2C and C2C structure, due to the increasing growth of the e-commerce market. Cross-border trade is surging, thanks to the globalization of technology. On-demand solutions have expanded to offer various logistics services to customers and now, customer's expectations are higher than ever before. Such changes in the market have translated into a demand for flexible logistics services: faster delivery reaching customers anytime, anywhere at a reasonable cost regardless of the logistics companies' business cycles.



Incumbents failed to meet the needs of flexible services

Despite the growing demand for more flexible and efficient logistics services, many logistics companies are struggling to keep pace with rapidly changing customer demands. Customers are now looking for local, real-time, and personalized deliveries. However, the market currently relies on the hub-and-spoke model where individual shipments are hauled from regional warehouses to a central shipping hub where they are sorted and bundled. Under this model, it is difficult to meet customer demands. Inflexible logistics services can trigger other challenges in different business environments. For example, logistics service providers in rural areas have less freight traffic and are likely to deliver one or two goods to the delivery destination. On the other hand, in urban areas where delivery destinations are concentrated, excessive traffic leads to inefficient deliveries.

Developed countries struggle to meet diverse customer needs

With the expanding e-commerce market in developed countries, there is a greater demand for more flexible logistics services that ship all different types of goods. But, if the incumbents want to provide more flexible logistics services to customers, then the cost increase is inevitable.

In Korea, the logistics industry has achieved substantial growth thanks to the development of e-commerce and the logistics network, but growth in terms of quality has stalled. According to the Korea Integrated Logistics Association, the average unit price to deliver a single parcel in Korea's courier, express and parcel (CEP) market decreased only by 7% from 2010 to 2016. Under such market conditions, providing flexible logistics services would only lead to price hike and efficiency loss.

The United States is also witnessing an increase in freight traffic with the rise of e-commerce. Customer expectations for more flexible logistics services are now high whilst many customers remain price-sensitive to delivery fees. Industry titans like Amazon are using cutting edge technology and integrating logistics and distribution together to meet such conflicting needs of the market. Nevertheless, this has left the incumbents with no choice but to increase the price so they can provide flexible logistics services.

● **Emerging markets struggle to maintain efficient logistics infrastructure**

In emerging markets, logistics services have not scaled into the market due to a lack of efficient infrastructure.

For example, India has experienced rapid economic growth. As the economy grew, India's shipment volume has also rapidly increased and logistics related industries such as warehouses, freight forwarders, and container businesses have all grown. However, due to inefficient business operation and a lack of infrastructure, India's logistics network has reached its capacity and failed to support India's continuing economic growth. For example, the logistics network is divided up by freight transportation companies, so it is difficult to operate the network efficiently. India's limited infrastructure coupled with a lack of ICT creates more challenges to India to raise the efficiency of its logistics network through collaboration.

Limited infrastructure is also a problem for Southeast Asia. This is one of the major issues for many Southeast Asian countries because relative to the size of their territories, many countries lack the infrastructure to connect major cities with remote areas or little villages in islands. Only 10% of the roads are paved in Cambodia and Laos, making it difficult for vehicle-based logistics services to reach many areas in these countries.

Indonesia consists of more than 17,000 islands so it is difficult to build a logistics network that connects all the islands. Also, among the 47 ports in 9 South East Asian countries, with the exception of Singapore, Thailand, and Malaysia, most of the ports have very low levels of performance and capacity for cargo handling, making it even more difficult to build a logistics network.

In order to address these challenges in Southeast Asia, an expanded logistics network which includes alternative transportation modes such as bicycle delivery, and a system to efficiently utilize logistics infrastructure have been suggested as solutions. Nevertheless, at the moment there is no credible protocol that enables the operation of the expanded logistics network.

● **Data without trust makes it impossible to provide flexible logistics services through collaboration**

International delivery service providers and local logistics companies are cooperating in cross-border trade. For example, international courier companies like FedEx and DHL are partnering with small businesses and national postal companies around the world to provide international delivery. However, such collaboration is currently inefficient because no credible protocol exists and as result, exchanging data is very difficult. This is because each company runs its own label

system and only a fraction of data about each cargo is shared. Due to a lack of transparency in transactions, complex procedures are required to verify transactions. Such inefficiency in the system ultimately leads to cost increase.

For domestic logistics, every participant in the logistics network invests heavily in all routes from first-mile to last-mile delivery to secure economies of scale. However, this makes collaboration even at the smallest level difficult. Participants have, in fact, made double-investment by investing inefficiently throughout the industry and in return, failed to achieve economies of scale. In theory, collaboration should be possible by combining the freight volume from each route so that participants can achieve economies of scale and enjoy mutual benefits. However, the reality is quite different. There is a possibility of the data-tampering of the frights' conditions. Furthermore, standards of each data are all different and a sense of mutual trust is weak due to silo logistics structure. All these factors make collaboration often challenging.

Furthermore, logistics services are limited to freight transportation and storage due to lack of collaboration. This hinders the possibility to create added value to the industry. As customer needs diversify, customer expectations are growing for a variety of logistics-related services such as payment, packing, inspection, and repairs. Therefore, to some extent, collaboration with various service providers is essential to provide a wide range of logistics-related services to customers. However, under the current industrial structure, it is difficult to meet customer demand without collaboration taking place.

3. dKargo Platform

3.1 dKargo : A Decentralized and Cooperative Protocol for Next Generation Logistics

In order to solve the problems of the current logistics system, it is essential to connect the separated participants of the value chain to create a flexible one. In this regard, participants in the logistics system must trust each other and collaborate for their mutual benefit. However, the heavily competitive logistics system makes collaboration difficult as data resources aren't being shared. Even in international logistics where collaboration is relatively important, efficient collaboration is not taking place because no credible logistics protocol exists.

dKargo aims to build a decentralized and cooperative protocol for next generation logistics to address current challenges in the logistics industry. Efficient collaboration can be achieved with credible logistics data provided through dKargo. The platform will eliminate the risk of data tampering by using a blockchain-based protocol technology and provide a foundation for its users to collaborate without having to trust the other party. Also, smart contracts will solve the problem of unfair distribution of profit, which is a major obstacle to collaboration. This can be done without complex processes by allowing participants to earn incentives that reflect their contribution. This will allow dKargo to provide an environment for an efficient logistics network where participants can collaborate and focus on their strengths.

To build this platform, participants must voluntarily share their data. On the platform, each participant will receive incentives for providing data about their freights and logistics service. Incentives will encourage businesses such as freight transportation carriers, warehouse operators, and logistics-related service suppliers as well as individuals like deliverymen, warehouse employees, and customers to voluntarily participate in the platform. More incentives will be provided as the platform grows and participants will be able to receive fair incentives for their contribution to the platform's growth.

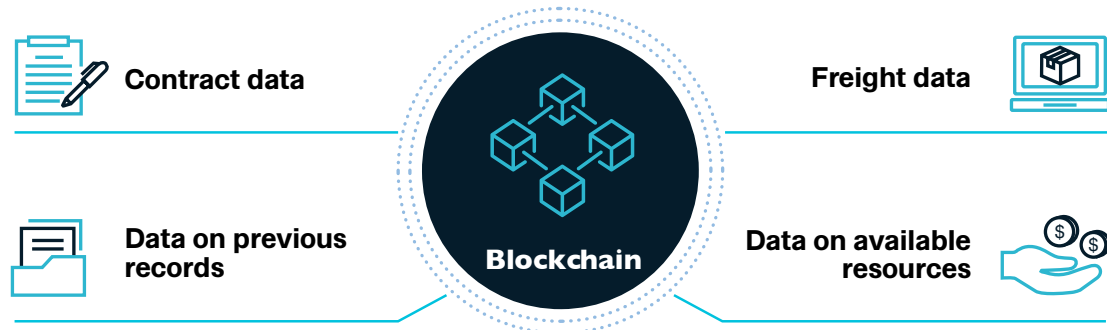
Voluntary participation will lead to further collaboration with a variety of service providers. The current scope of logistics service will be widened, and customers will be able to enjoy new services that meet their needs other than freight delivery. Such services include basic services in freight transportation such as packaging but also other services that create added value such as freight inspection and repairs. However, such needs aren't met most of the time except in specific sectors such as 3PL (Third-Party Logistics), and fulfillment. On top of that, currently available services aren't connected in an effective system but are instead relying on phone calls and cumbersome paperwork. dKargo aims to seamlessly connect such services within the logistics system to revolutionize the customer experience. The existing logistics system focuses on simply delivering freight. What dKargo is trying to provide is the advanced model of the existing logistics system that creates added value.

3.2 dKargo's Solution

o Providing credible data through a public ledger based on blockchain

dKargo will provide a credible public ledger by recording information that is needed for collaboration such as the freight's contract information, freight's condition, the participant's previous records, and their available resources on the blockchain. This will lay the foundation of the logistics platform. For example, the platform participants can easily access the recorded data. At the same time, the tamper-proof data will provide the transparency needed for collaboration. This will allow dKargo to provide a safe environment for collaboration and solve the problem of lack of trust which was a major drawback in the logistics industry.

In order to ensure collaboration among participants, it is essential to clearly acknowledge the contribution and responsibility of each participant to minimize disputes. Currently, data isn't being shared among logistic companies because each company is creating and managing their own data. If a problem occurs under such circumstances, trusting another company's data is difficult since data owners can tamper the data to their advantages. For example, a problem can occur if temperature control is mismanaged during the transportation of pharmaceutical products in cold chain. However, under the current structure, it is possible to tamper the data of the previous storage temperature and avoid any responsibility. Such unreliable data will make it difficult to clarify where the responsibility lies when a problem occurs during collaboration. Furthermore, the high costs spent to prevent such disputes often defeats the purpose of collaboration.



Blockchain technology is characterized by transparency and prevention of data tampering. These traits are suitable for providing credible data to the platform participants. Through blockchain, dKargo can provide credible data at low prices to the platform participants and minimize disputes that may arise due to untrustworthy data.

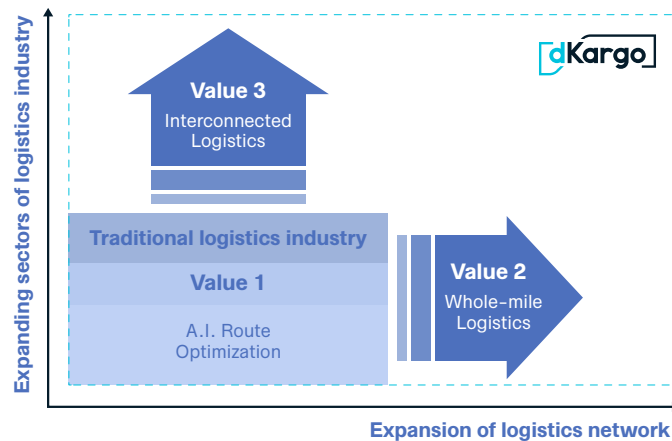
The credible data recorded on dKargo's platform will allow participants to clarify their contribution and responsibility for their services. The logistics service's goal is to provide safe freight delivery. When this falls through, identifying who is responsible for compensation becomes a contentious topic.

This forces companies to make complex contracts to minimize collaboration risk or just refuse to collaborate all together. However, on dKargo's platform, all contract and freight information of every stage will be recorded on the blockchain, so it will be clear who bears responsibility. Hence, participants will be less likely to face disputes without having to deal with any complex and cumbersome paperwork.

Participants are sharing their available resources and transaction history on the dKargo platform, which allows them to find their optimal partners. Under the current structure, even if participants want to collaborate, it's difficult to find ideal partners. Even if they do find them, it's difficult to confirm if they have the necessary resources at the time of collaboration. Limited information makes collaboration difficult because it increases the costs of finding a partner or creates an entry barrier. dKargo's participants can access credible data about their partners' history on the public ledger. Also, data on available resources will help participants find their ideal partner at the time of collaboration. This will allow each participant to not only increase the efficiency of their own logistics service but also make the entire logistics network more efficient by optimizing the use of their limited resources.

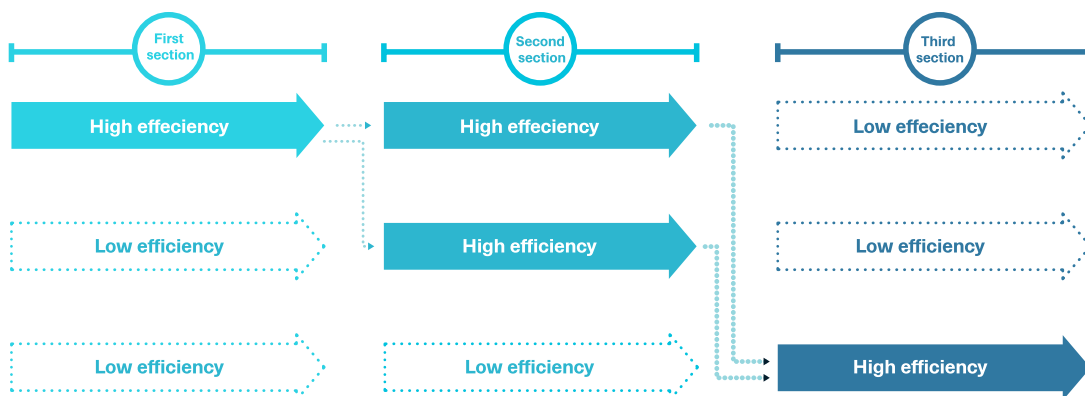
3.3 dKargo's Value Proposition

dKargo's goal is to use blockchain technology to create an efficient, flexible logistics network that was impossible to create in the current, centralized logistics industry. dKargo plans to maximize participation by connecting users and providing more incentives to voluntary participants. dKargo will provide the following to create an efficient, flexible logistics network:



o Maximizing Efficiency of the Logistics Industry: A.I. Route Optimization

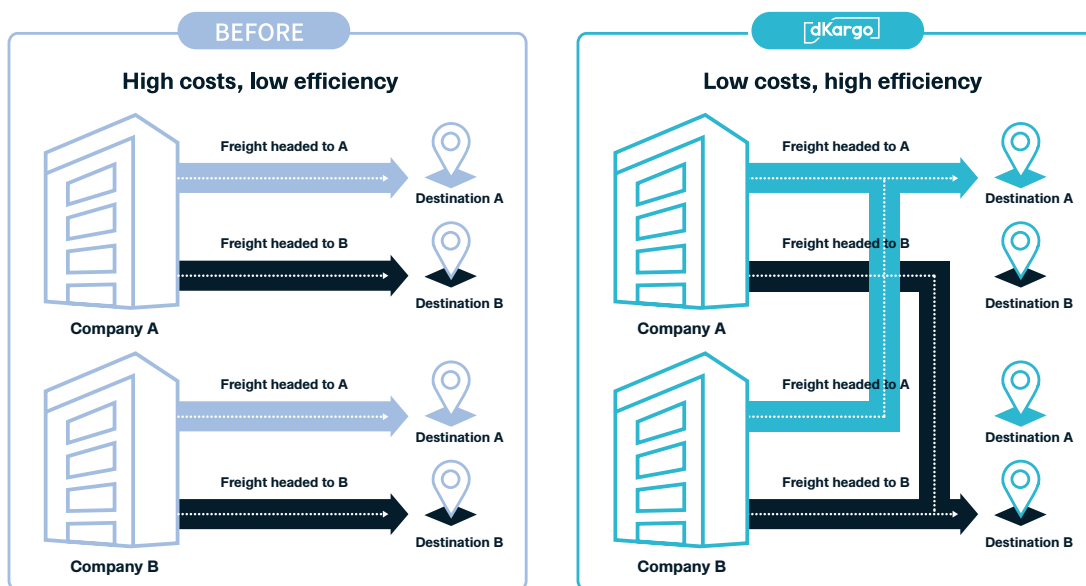
dKargo will provide a new level of logistics services through flexible collaboration among participants that was impossible to achieve in the existing system. From the customer's perspective, freights were often delivered and stored in an inefficient way due to a lack of



collaboration. For example, a freight from one city can be sent out to a distribution center outside the city, only to be delivered back to the city. Another example would be customers having to wait for their parcel to be collected at their homes. These problems can be solved if logistics service is performed with diverse participants in a flexible, purpose-driven manner. dKargo will design an optimal route through data sharing and collaboration to build a better functioning logistics network.

Currently, logistics service is carried out by a single company or through a few participants who are closely connected to one another. This can be problematic because that single company is solely responsible to carry out all the tasks even in sectors where they don't have expertise. As a result, relatively less competent participants will provide poorer services than more qualified participants existing in the market. This leads to a cost increase and poor customer experiences.

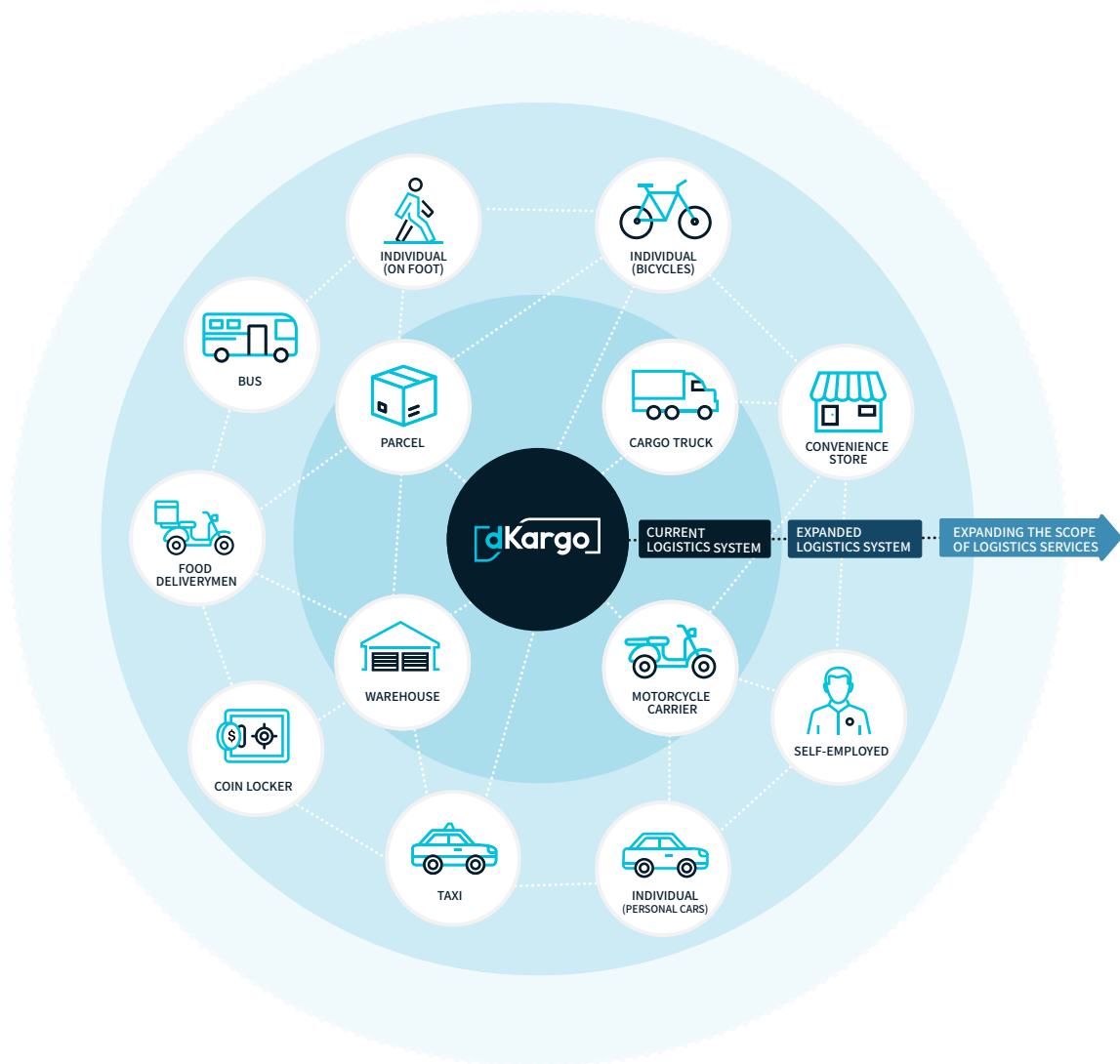
The most efficient participant for each sector of the supply chain will provide services which will increase the efficiency of the overall logistics network. Customers can find the most optimal logistics network route based on the recorded data of each participant on the blockchain. This will allow customers to have their goods delivered to them in the most efficient way. And logistics service providers can focus on their strengths and make better, more efficient use of their limited resources. dKargo provides an opportunity for each participant to enhance their strengths, thereby raising the efficiency of the entire logistics network.



The logistics industry is one of the main industries where economies of scale play into factor, which means that the more freight volume a company has, the lower their operating costs will be. Until now, logistics companies competed to gain more freight volume by using economies of scale to their advantage. Realistically speaking, there are limitations to the freight volume a single company can handle. There are also situations where delivery trucks are starting their delivery half-empty or where the delivery period is delayed because trucks have to wait to be fully filled. Such inefficient operation ultimately results in a unit price increase and poor customer experiences.

In this regard, dKargo offers a solution to maximize economies of scale by encouraging collaboration among participants to gather the freight volume for the same route. Each participant can find each other's contractual information on the public ledger available on dKargo's platform and trade their delivery volume, if necessary, to maximize the freight volume for each route. Available resources and logistics data that is generated by real-time tracking on dKargo's platform will also be used for machine learning and help participants to fully utilize their resources. Individual participants can minimize the time required to obtain the freight volume needed for each route and also create economies of scale that wasn't possible in the current system. dKargo can provide a better customer experience by drastically lowering the cost of logistics services while reducing unnecessary operational time.

● Evolution of Logistics Ecosystem: Whole-mile Logistics



Flexible collaboration can create a new level of logistics services. Currently, logistic service providers don't collaborate with each other but they also do not collaborate with other logistics-related service providers in the same line of business. For example, Korea's courier companies and short-distance motorcycle carriers have the same goal of delivering goods. However, these two service providers don't collaborate to provide the same service. Each logistics service provider has their own strengths and weaknesses which can complement each other if they collaborate together. Ultimately, collaboration among various participants can provide an efficient logistics service that was impossible to provide in the past.

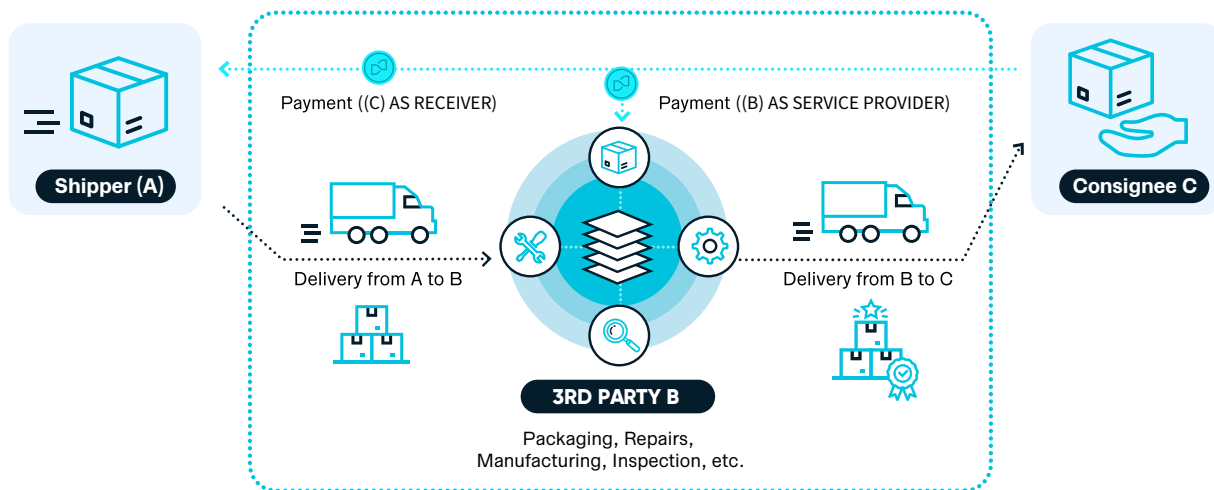
The new environment of collaboration that dKargo is offering will attract new participants into the logistics ecosystem. Not only existing participants such as courier companies, motorcycle carriers, cargo truck carriers, and logistics warehouse operators but also new participants who were irrelevant to the logistics service such as commuters, food deliverymen, taxi drivers, self-employed people, and coin locker service providers will be able to work together on the platform to provide better logistics service to customers. For example, instead of a deliveryman collecting parcels door-to-door, individuals in that area can collect and move the parcels to a self-employed person's warehouse, which acts as a city warehouse or access center. The deliveryman then can collect the gathered parcels, which will help provide a more efficient logistics service. Moreover, individuals can place parcels in a coin locker and another individual can deliver them to their destinations via public transportation such as subways and buses. Completely new types of services can be provided, such as a courier service companies moving the freight to a local warehouse where individuals can deliver the parcels via bicycles to the destinations that are difficult to reach by car. The logistics ecosystem is transforming to embrace diversity and is now moving away from the existing method of strictly dividing the first mile and last mile delivery. It is becoming a whole-mile logistics which uses the entire logistics network in a more efficient way. dKargo provides an environment where a variety of participants collaborate together on each step of the supply chain and create new services. So, participants can record their data and easily participate in the logistics network and experience new services on the platform and hence, earn extra revenues.

● **Boundary-Crossing Innovation in Logistics : Interconnected Logistics**

During the freight delivery process, there are some market needs that cannot be met by simple delivery and storage services. Services directly related to freight delivery such as packaging, transportation, storage, categorizing, and customs clearance are needed as are other related services such as payment, verification, inspection, and repairs. For example, when cargo is shipped for commercial purpose, the shipper must receive payment securely from the buyer. That is why in regions where finance is underdeveloped like in Southeast Asia, payment is included in the logistics service. An example of such a service would be cash on delivery. Another example would be a third-party regularly checking the freight's condition for freight that needs special packaging or extra attendance.

B2B services offering comprehensive proxy fulfillment services such as storing, packaging, and transportation already exist to provide a more convenient customer experience. However, these services aren't available for individual customers. Even for some businesses, such services are performed under a closed private contract and thus have limitations to provide flexible services.

Smart Contract



dKargo will create new logistics services, which were not possible before, by connecting smart contracts with diverse services necessary for users. In order to do so, dKargo will design a contract to deliver the freight to the consignee while enabling other necessary offline services without any extra effort, and also will use smart contracts for performance guarantee and payment. This will allow dKargo to provide a wider range of logistics services that can also increase the value of freight transportation. Such new services include packaging, storing, inspection, repairs, washing, and conditional payment. dKargo's goal is to connect relevant services to logistics together to provide a more customized experience.

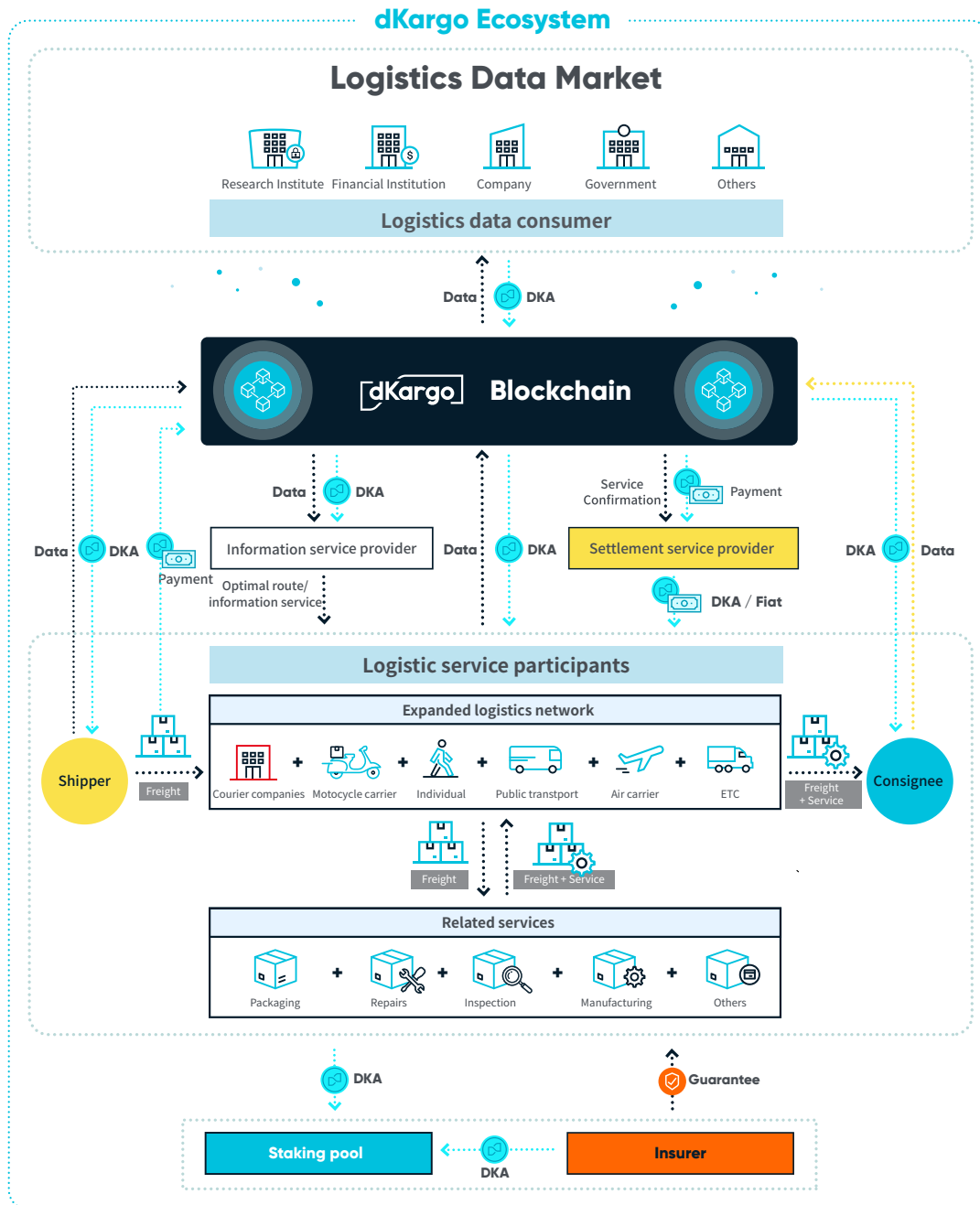
This expanded scope of logistics can address some of the problems exist in many different sectors. In order to better understand, some case examples in the P2P second-hand trading market are useful. For instance, the entire P2P second-hand trading market's size has almost reached KRW 18 trillion. However, second-hand goods are often traded inefficiently due to the market's structural limitations. The risk for fraud or dispute is constantly present because it is difficult for the seller and buyer to trust each other and also trust the quality of the goods. For example, there are cases where the seller ships the goods but fails to receive payment, or when the buyer sends the money but fails to receive the goods. Even if both sides have no intention of cheating, disputes can arise because the two parties may disagree on the value of the goods. Oftentimes, a middleman is paid a high commission or despite the inconvenience, both parties meet face to face to strike a deal in order to minimize such risks.

dKargo has come up with a solution to solve the problems riddling the second-hand trading market. It is to connect a variety of services. Imagine a scenario when a buyer and seller are trading a second-hand good. In this case, the biggest problem is that the both parties are unsure whether the counter party will send the promised payment and good to each other or not. If they want to close the deal, then they have no other choice but to trust each other. And often, some incidents occur where a buyer makes a payment and receives a brick in a parcel, or a seller

sends the good but never receives a payment. dKargo can easily solve this problem – when making a logistics contract at dKargo, a verification service of the goods by the participants responsible for first-mile and last-mile delivery can be added. So, when receiving the goods, the participants of first-mile and last-mile delivery can verify whether the goods are the correctly ordered goods and record them on the blockchain, which can be further used as an evidence when dispute occurs. Furthermore, by linking these records for payment with smart contracts, any issues regarding receiving payments can be resolved too. These processes allow the logistic network participants to earn extra income and thereby provide additional value to all users and participants of the network. Moreover, if the parties find difficult to reach a mutual agreement about the value of a traded good, a third-party expert can make an intervention during the trading process to appraise the value of the good and hence, this type of issue between the two parties can be resolved. On top of this, a variety of other necessary services in the second-hand trading such as repairs, cleaning and storage will be available so that users can enjoy these services more easily.

The abovementioned example of the second-hand trading market is a mere fraction of the type of services that can be provided. Connecting logistics to various services can be realized in more diverse ways. Through the flexible collaboration of participants and smart contracts, almost all types of online and offline services can be connected to logistics, which will solve many challenges we face.

4. dKargo Business Flow



4.1 Provide Optimal Route

dKargo's service starts with a shipper making a request for a service they want and then receiving a recommendation for an optimal route. The shipper will record information such as the freight's type, size, weight, destination, delivery deadline, transportation costs, safety precautions for handling, and need for other logistics-related services onto dKargo's platform. dKargo will then recommend the optimal route. During the early stages of dKargo, the recommendations will be made based on the information on dKargo's blockchain. However, in the long-run, business operators with expertise in route optimization will eventually provide solutions. This, in turn, will allow dKargo to provide the most efficient logistics route to its users.



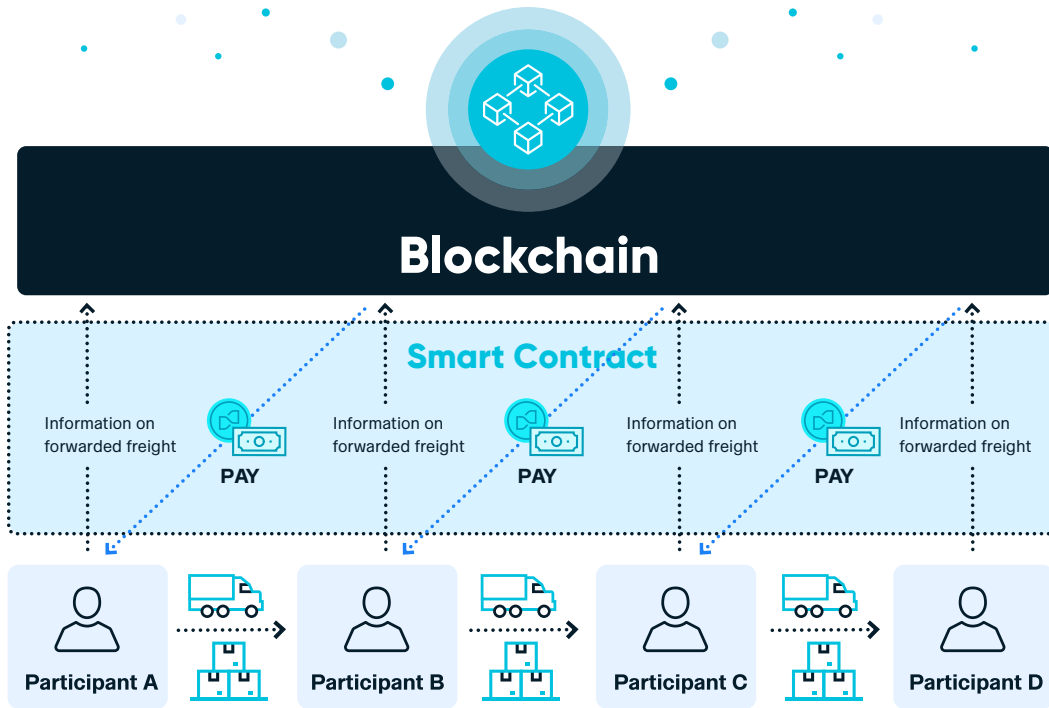
The shipper then can select the route that best suits their purpose among the various recommendations. The shipper will sign a logistics contract with the service providers of the route of their choice. The contract will be recorded on the blockchain and a smart contract for payment will be written up. Also, the shipper can draw up a conditional smart contract with their service providers. For example, if a service provider successfully makes a delivery within a timeframe required by the shipper as a condition, they will be rewarded with incentives. Users can make such options to create a logistics service that best fits their purpose.

4.2 Payment

After a logistics service contract is signed, the users must make payments. The payments include not only the costs accrued during logistics processes but all financial transactions that took place between the shipper and the consignee. All payments can be processed in a batch. dKargo offers users a variety of payment for their convenience. Users can select existing payment methods such as cash and credit cards along with DKA tokens, which is a cryptocurrency issued by dKargo. Those who are not familiar with cryptocurrency can still enjoy the values and benefits which dKargo provides. Furthermore, collaboration with existing payment service providers such as Kakaopay will help to lower the entry barrier and help the platform scale into the market.

Some participants on the dKargo platform may have different preferences for fiat money or DKA tokens as their payment methods. Also, the time when a contract is made and when the payment is settled may differ. To resolve any confusion that may occur due to the time differences between payment and settlement, or methods of payment, a settlement service provider is needed. Any settlement service provider with proven capability to convert fiat money and DKA tokens can participate in the platform. Further information about 'settlement service provider' will be explained in section 4.9 Value-Added Service Providers.

4.3 Settlement



The settlement made by logistics service users will be paid to participants through a smart contract. Each participant can request payment for their contribution and will receive payment when the freight is confirmed to be intact. Once it is verified that no problems occurred to the freight when the participant was carrying out their service, the payment will be made automatically via the smart contract. Each participant decided in advance about the ratio of fiat currency and cryptocurrency they would like to be paid in, and the payment will be made according to their wish. If the freight is damaged, the payment will be deferred and temporarily held by dKargo. Once the consignee uploads data about the freight's status and confirms it is intact, the deferred payment will be made. If the freight is damaged, compensation will be made through either a deposit (4.7 Guarantee and Insurance) or an insurance firm (4.9 Value-added Service Providers).

4.4 Recording Data



In order to operate the platform, diverse platform participants must record data about freights and logistics services. dKargo will provide DKA tokens as incentives to encourage participants to voluntarily provide data in the platform. This will encourage participants to use dKargo to earn

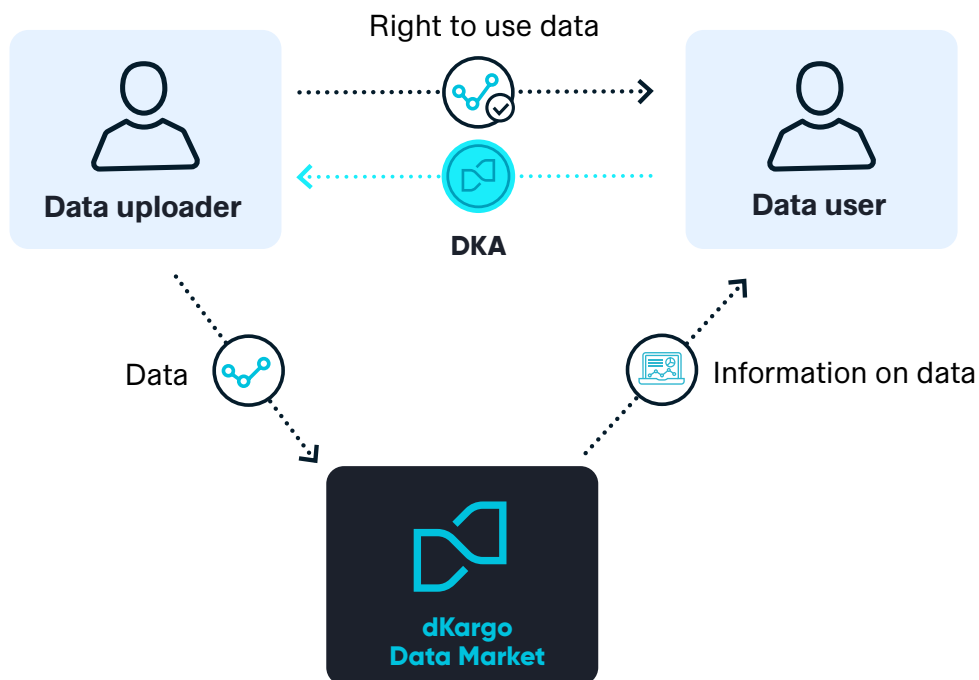
extra incentives that they couldn't have received in the current logistics system.

Participants can earn incentives by uploading various types of data on dKargo. Shippers can receive incentives for uploading freight and contractual data and writing a review on the participant who collected the freight. Logistics service participants can earn incentives by uploading data about their available resources and how the freight is transported and stored. For consignees, they can input data about the freight's final conditions and review the participant who provided the last-mile delivery.

Participants will be encouraged to input data at the moment they received the freight to raise data credibility. The reward system is designed to provide less compensation the longer it takes for the participant to input the data. Also, in the long-term, an IoT sensor will be used to monitor the freight's condition in real-time, which will solve the problem of data credibility.

incentives will be provided from the incentive pool, which is established with tokens from transaction fees and partially from the reserve. The amount of compensation will depend on how much each participant contributed to the platform. This will be further explained in dKargo's Economic Model.

4.5 Logistics Data Transaction Market



The data on dKargo's platform can create immense value for various industries related to the logistics industry. The public sector, including the government, research institutes and the private sector such as logistics and IT companies and financial firms are all data consumers. dKargo will provide a data transaction market for data uploaders and data consumers that reflects the market's needs to maximize the value of data on dKargo's platform.

Data consumers can use the data transaction market to easily search for data owners with specific traits and have the right to use data by paying DKA tokens to the data provider.

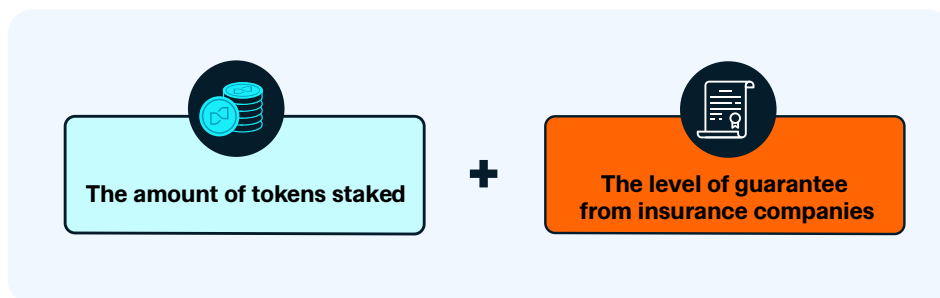
When uploading data, data uploaders can select to what extent their data will be disclosed on the platform which will allow them to autonomously exercise their data rights. The average market price will be set as a default price of data. This will allow data uploaders to use the data transaction market without difficulty. However, the uploader reserves the right to adjust the price of the data if they wish to. In this regard, dKargo will provide participants further opportunity to earn extra revenues by uploading their data.

4.6 Transaction Fee

A portion of the payment and settlement must be paid to the platform as a transaction fee. The transaction fee will be used to provide compensation to platform operators and users. The total transaction fee will be set at a lower rate than the fees of existing payment settlement providers, which will be of more profit to the platform participants. If participants make and receive payment in DKA tokens, they can use the platform at a lower rate than using fiat money. This will encourage participants to use DKA tokens, as they will reap more benefit from it than using fiat money.

4.7 Guarantee and Insurance

The number of contracts a participant can sign



Participants must stake DKA tokens as a guarantee for their service. For collaboration-based logistics service to be possible, all participants must faithfully perform their tasks. If participants fail to carry out their tasks, they must take responsibility for any costs that occurred. dKargo participants must stake a certain amount of tokens as a deposit, which will be used as compensation when a problem occurs.

The tokens that each participant staked is a guarantee of that participant's service. To receive more contracts on dKargo's platform, participants must stake more tokens that are proportionate to the number of contracts they signed. The amount of tokens each participant must stake is

calculated based on their ratio of risk, which is based on their transaction history. Token staking provides participants a reason to faithfully carry out their contract. Participants can increase the amount of staked tokens per contract, which will help to raise the participant's credibility. It will also put them in a more favorable position to earn more contracts on the platform.

If the participant wishes to sign more contracts than the amount that their staked tokens guarantee, an insurance company can step in to provide a guarantee for the new contracts. Participants will pay the premium via tokens, and the insurance company will pay a portion of their earnings to dKargo as a transaction fee.

4.8 Mediation of Disputes

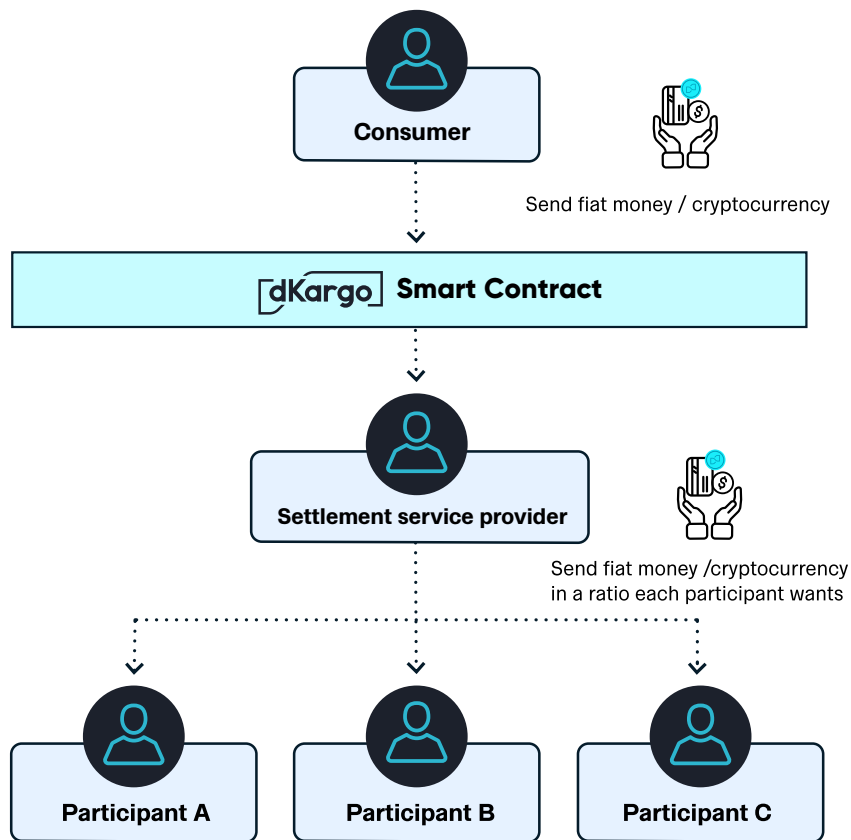
As dKargo provides logistics services based on collaboration, various type of operational disputes can emerge. dKargo can minimize such disputes by recording the entire logistics process on the blockchain. However, there will be instances where a third-party must mediate the dispute.

When a conflict occurs, The steering committee mandated to mediate will take actions. The steering committee members will be selected from diverse groups such as logistics service providers, related service providers, and service users to ensure a fair mediation as in governance perspective.

4.9 Value-added Service Provider

In addition to logistics service providers and related service providers, dKargo needs value-added providers that support the seamless operation of dKargo. Value-added service providers' businesses are either directly or indirectly connected to the dKargo platform. They provide value-added services that dKargo alone finds challenging to provide to participants. As of now, settlement service providers, insurance service providers, and information service providers are dKargo's main value-added service providers. In the future, dKargo will be able to attract more additional service providers as the platform grows.

○ Settlement service provider

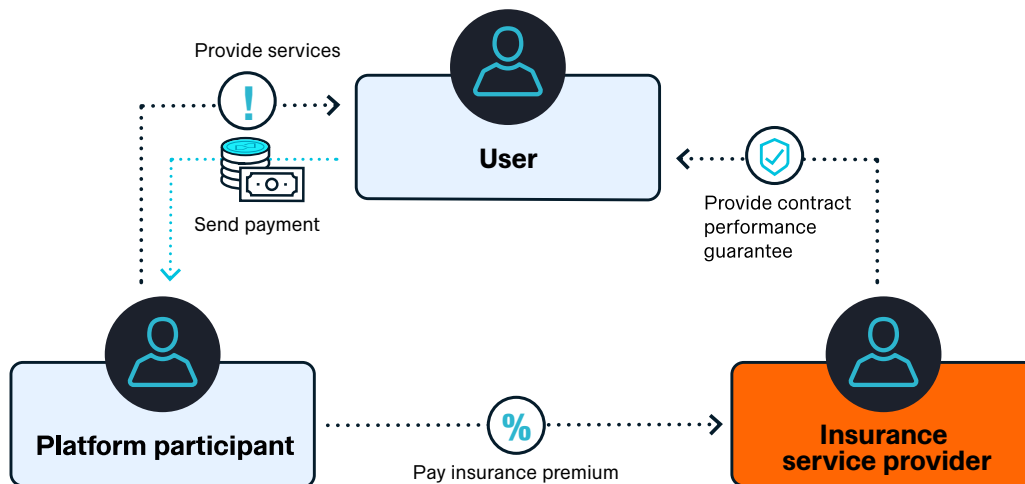


Settlement service providers offer flexibility in dKargo's platform. They convert DKA tokens with fiat money and also fill the time gap between when the payment order was placed and when the final settlement was made. Participants can select settlement service providers to settle the balance when there are different preferences for the payment methods between the parties. In this case, dKargo will include the settlement service provider in the smart contract to ensure that each party will receive payment in the manner of their choice. For example, if a service user wants to pay by credit card and the service provider wants a portion of their payment to be made in DKA tokens, the settlement service provider will receive the full payment via credit card. The settlement service provider will then pay the service provider in the payment method of their choice. Each settlement service provider will decide what their conversion rates and settlement fees will be, and participants can select the settlement service providers of their choice. Competition among settlement service providers will help provide more efficient service to platform participants and users.

Settlement service providers earn revenues through settlement fees and arbitrage trading of when a payment order is placed and when the actual payment is made. Logistics service by nature can be very time-consuming. Which means, that there can be a big time gap between when the payment order is placed and when the actual payment is made, which creates room to develop new revenue models based on various financial techniques. This allows settlement service providers to test many business models and hence, provide an efficient settlement that fit the needs of each participant.

dKargo's settlement service providers must handle both DKA tokens and fiat money. So, it is likely that existing cryptocurrency market players such as cryptocurrency exchanges and financial institutions with existing payment structure will be the biggest participants on the platform's early stages.

Insurance service providers



Insurance service providers vouch for dKargo participants in case they sign more contracts than the amount of tokens they staked. Also, insurance service providers ensure contract performance guarantee on behalf of participants. Participants can increase the number of contracts they can sign at the same time through insurance companies as they will provide contract performance guaranteed. The insurance service provider will receive tokens as premium.

Insurance service providers will provide compensation if the participant fails to fulfill a contract or if the freight is damaged. To ensure that insurance service providers can provide compensation, they too must stake a portion of their tokens. Insurance service providers are no exception to signing contracts proportionate to the number of tokens they staked. Insurance service providers can adjust the premiums for each participant according to the participant's transaction history and maximize their revenue by doing so.

Insurance service providers play an important role in the platform's growth. As the platform's freight traffic increases, second movers will have to increase their initial capital investment to join the platform. However, this is a leading cause of discouraging second movers to join the platform and will become a major obstacle to the platform's growth. Insurance companies will help second movers to join the platform at a lower cost and help the platform's growth. dKargo won't be a platform for a select few early movers but will be available for all participants of the logistics industry to gain value.

○ **Data service providers**

Data service providers create values by utilizing the data on dKargo. They manufacture raw logistics data to create values. dKargo participants receive relevant data they need from their data service providers and pay them with DKA tokens.

Data service providers contribute to the platform by recommending the optimal logistics route for each order and providing information to participants that can help raise their efficiency. Outside the platform, data service providers organize and analyze the big data on dKargo. The data is then refined to be a data product and helps the data transaction market to function better.

5 dKargo's Economic Model

5.1 DKA Token

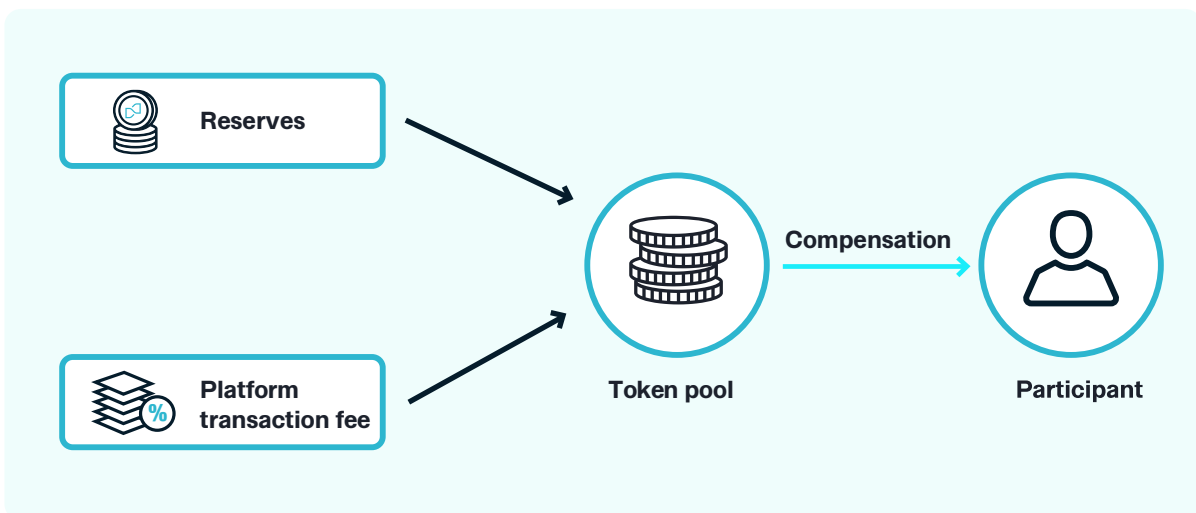
dKargo platform issues DKA tokens for participants' interaction on the platform. DKA tokens are cryptocurrency based on blockchain technology. They can be traded through exchanges and converted into fiat money.

DKA tokens can be used for all transactions made on the platform, including providing incentives to participants for voluntarily providing data, cost for data use and dispute mediation, payment for services, and guarantees for contract fulfillment. The value of DKA tokens will rise in proportion to the platform's growth. This is because there will be more logistics traffic handled on dKargo, which will mean an increase in token demand. Also, more tokens will need to be staked for service payments and as a guarantee for contract fulfillments.

DKA tokens are issued based on Ethereum's ERC20 tokens. However, they may be changed to a different protocol depending on the platform's needs. If there is a shift to a different protocol, the DKA tokens in circulation will be changed to tokens based on the new protocol.

5.2 DKA Token Incentive Pool

All dKargo platform participants will receive incentives for their participation in DKA tokens. The incentives will be paid from dKargo's incentive pool. The incentive pool will be filled by transaction fees and reserves from the initial token issuing.



A portion of the transaction fees from the platform will be reserved in the incentive pool to stably provide incentives to platform participants. This is to ensure that profits generated in the platform will be distributed to participants who provide quality service.

Until the dKargo platform settles down, the incentive pool based on the transaction fees of the platform won't be able to provide sufficient compensation to participants. As a solution to this problem, incentives will be paid from the tokens issued in the earlier stage. In the long term, there will be a sizeable incentive pool from transaction fees as the value of DKA tokens appreciates and as the platform grows larger.

5.3 DKA Token Incentives Distribution

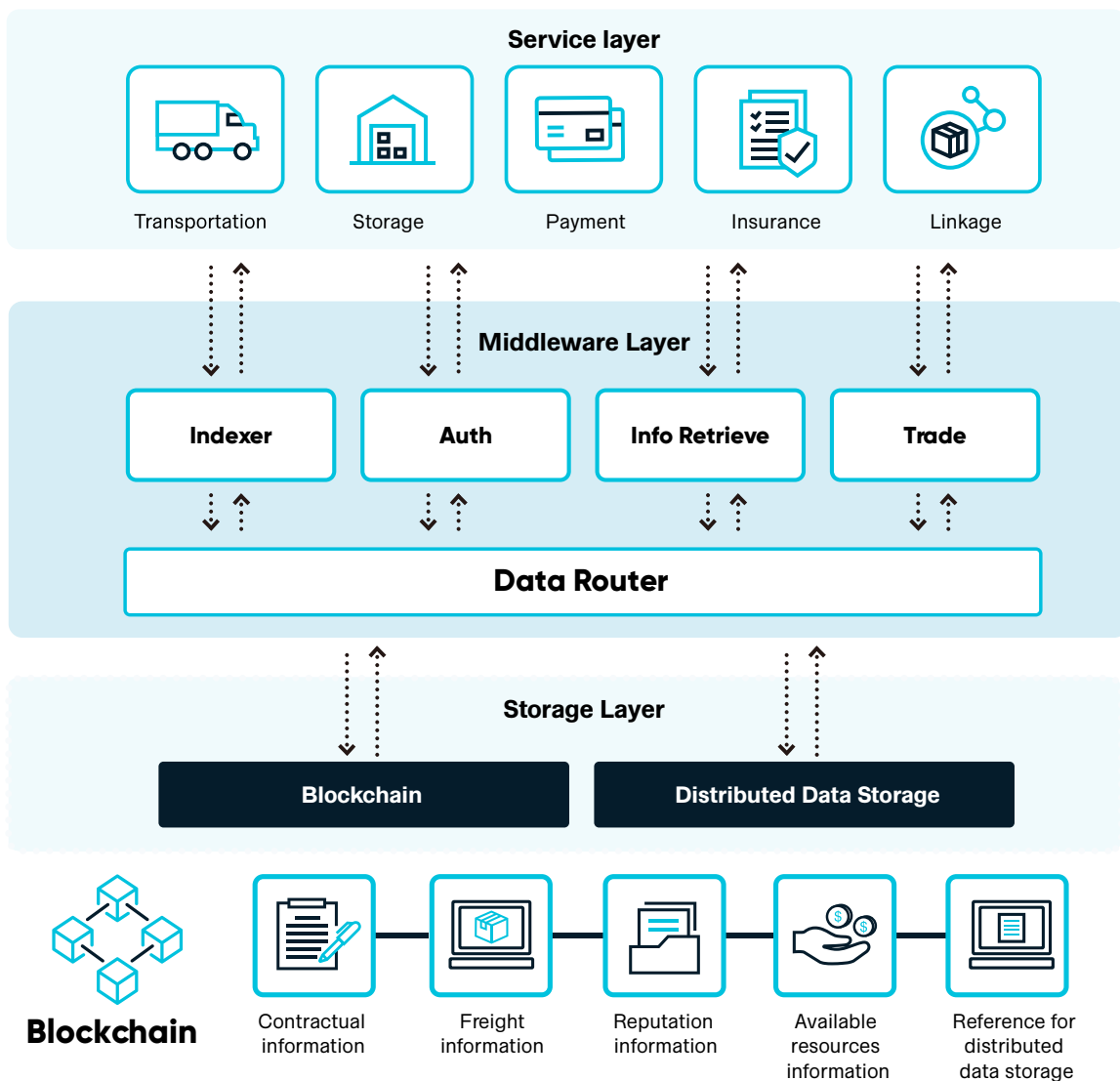
Each participant will contribute to the platform by uploading relevant data. Participant's data contribution is essential to the platform's growth and those who provide more data make bigger contribution to the platform's growth.

The incentives are going to be distributed all differently according to the data's value provided to the platform. The value of the data will be determined by considering the influence each data had on the platform and its relative value compared to the accumulated data. Various factors such as freight traffic, frequency, cycle, trait, and credibility are taken into consideration when calculating the data's value. dKargo is going to adjust periodically how the data's value are weighted. This will create participants attraction in the earlier stage when the amount of accumulated data on dKargo is relatively small.

6. dKargo Technology Description – Key elements

6.1 dKargo Platform Structure

dKargo's platform is consist of three layers: the storage layer, the middleware layer, and the service layer.



○ Storage Layer (Core Layer)

The storage layer is the foundation of dKargo, where all the major data about the freight and participants are stored. The storage layer has two main components, the blockchain and external data storage. The data will be saved into one of the components based on its trait and importance.

Data that is fundamental to collaboration will be recorded on the blockchain. It is to ensure data credibility and prevent data tampering and any data loss that may come from central server failure. Data such as contractual information, the location and status of freight at each stage, participant's reputation and available resources will be recorded on the blockchain. The blockchain that dKargo uses is one based on Ethereum, which is currently the most widely used and proven protocol. However, in the future, dKargo may switch to new-generation main protocols such as Kakao Klaytn.

The external data storage stores larger data that is needed for service operation. This will enhance service operation efficiency while solving the problem of blockchain's slow speed. For example, data that has value but is not a necessity such as pictures of freight and warehouse CCTV clips will be stored on the external data storage. dKargo will use widely used storage systems such as database and AWS S3 (Amazon Web Services Simple Storage Service) to help incumbent participants adjust to the platform. If it is required, dKargo will consider using distributed storage technology.

Among the data that dKargo needs, some can be made public while others need to be private. If personal information such as data on the shipper and consignee are revealed, it would be a violation of privacy. And if detailed data on freight is made public it can become a target of crime. This calls for dKargo to categorize recorded data into two sectors. Data that can be made public will be recorded on the smart contract to increase efficiency. While data that must be kept private will be encrypted and can only be viewed by participants of the contract.

○ Middleware Layer

The middleware layer is an interface that reads and records the data stored on the storage layer. dKargo's diverse services can be accessed on the storage layer through the middleware layer. Participants can use various tools that the middleware layer provides to easily connect their services to the dKargo platform.

dKargo platform can only succeed when the participants of the current logistics network can easily join the platform. dKargo will provide SDK (Software Development Kit) to many service providers currently in operation, to help them connect their services to dKargo's platform. SDK will be designed to be compatible with existing programming techniques. This will help developers who aren't familiar with blockchain technology to easily participate in the platform.

The middleware layer will also provide extra data on specific information for logistics services such as the standard specification of freight information, regulations in each country, and standards for payment. This is to help participants gain easier access to data they need to provide their services. It will help existing service players to enter the platform.

dKargo suggests making standards for ordering, storing, transporting and making payment through the dKargo Request for Comments (DKRC) document. dKargo will form a steering committee with partners to discuss and make decisions on these matters. This process will meet the standards for data and API (Application Program Interface) which will allow any partners within the ecosystem to participate in making any types of services, whether it be in the middleware, service layer or API. It will encourage partners to participate in creating the DKRC standards with the programming language that fits their existing system or commonly used by their developers. dKargo will provide at least more than one method of implementing the reference for each sector. Partners and individuals can use the reference to create APIs with more functions and new services while following the standards.

• **Service Layer**

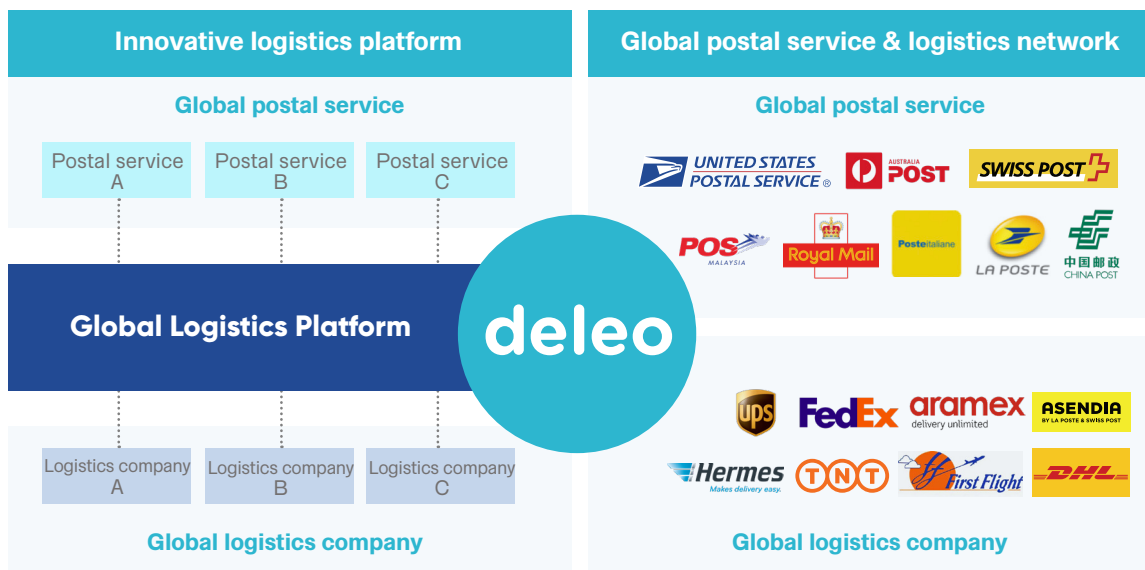
There are two types of dApp the service layer provides. One is the dApp that the platform provides and the other is the dApp that platform participants provide. dKargo provides dApp that is essential for the platform's function and provides a well-defined API to help anyone create a new service through dKargo. It will create an environment for invaluable services to be provided.

7. Business Partner

7.1 Flagship Partner

deleo

A Korea-based logistics company deleo will be dKargo's flagship business partner. Established in 2015, deleo is a startup company specializing in cross-border logistics service. Kakao Investment, Lotte Global Logistics, and major venture capital firms are deleo's shareholders. deleo recently raised a series C funding with the company valuation of KRW 100 billion. deleo has a competitive edge in cross-border logistics service and also has formed a strategic alliance with the U.S. Postal Service (USPS). deleo's network of postal carriers, logistic companies in major global locations and logistic service users, combined with its cross-border logistic infrastructure will lay important groundwork for dKargo's platform to form partnerships. deleo will be a key driver in the early stage of business but since dKargo aims to build an open platform, deleo will eventually become an equal partner of dKargo as that of other dKargo's partners.



Competitive edge (price/credibility/convenience) over its competitors in cross-border logistics market

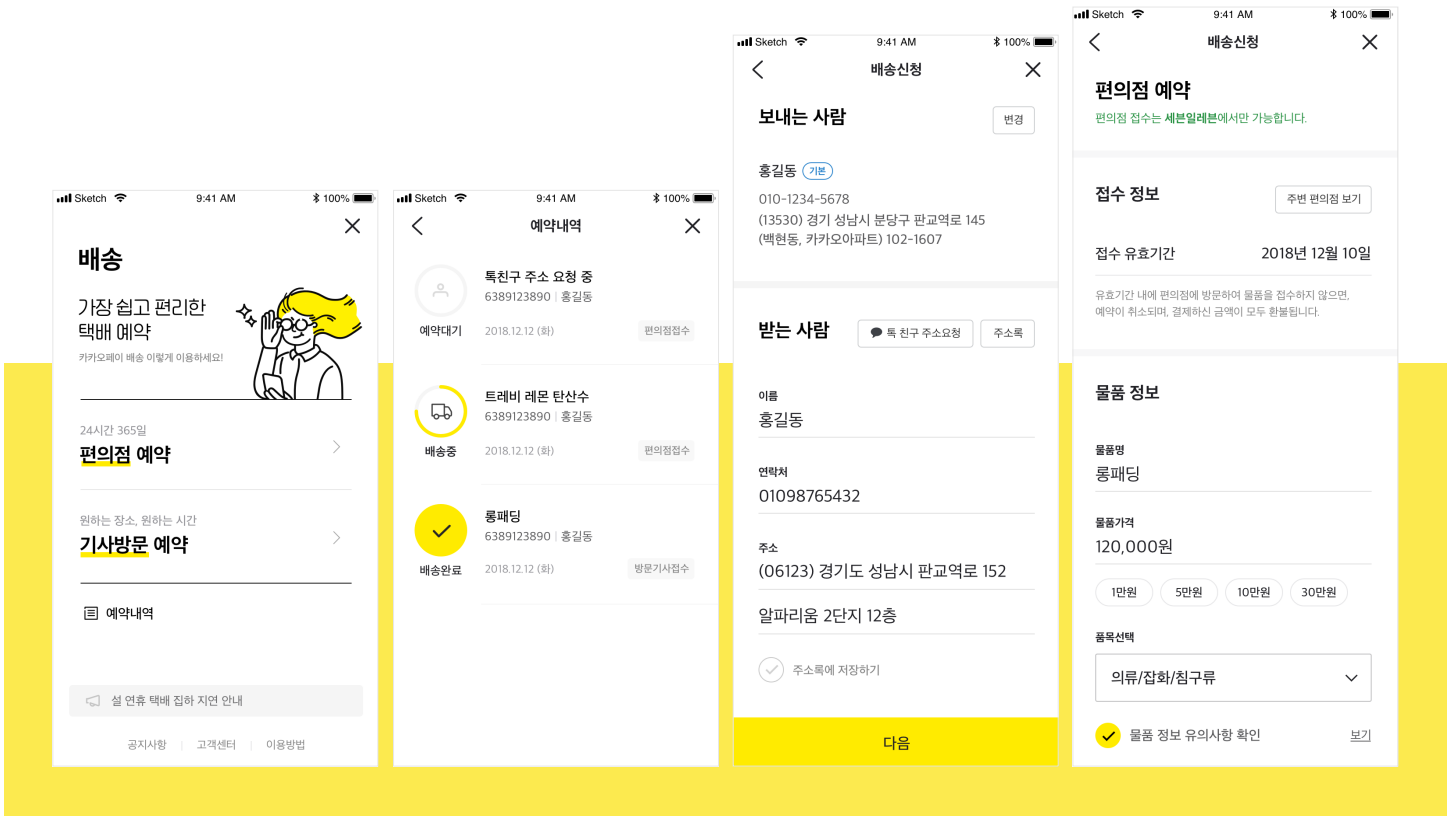
Through its strategic partnership with the USPS, the world's largest postal service, deleo has the authority to directly print USPS-approved official shipping labels via USPS e-VC. As USPS's official wholesaler and authorized customs agency, deleo has a competitive advantage to provide fast and accurate customs clearance and also save the cost of logistics within the United States. deleo provides the same delivery process as the Express Mail Service (EMS), the USPS delivery service, which costs 65% less than the EMS. This allows deleo to have a unique advantage in cross-border logistics between the United States and Korea. Furthermore, deleo provides outstanding service over its competitors in cross-border logistics routes other than the US-Korea route by connecting the system unit of the world's major logistics companies and national postal services.



deleo is running outbound B2B, outbound B2C, Inbound B2C, and inbound C2C logistics businesses. deleo established a joint venture firm Easygo with Kakaopay and Lotte Global Logistics and Easygo plan on scaling both domestic and international C2C/B2C logistics services. Furthermore, deleo’s affiliated company Box o’ Bliss has emerged as a key player in Korea’s rapidly growing overseas direct purchase market.

deleo is also closely partnering with large companies via its own logistics services. For instance, Korea’s major logistics service provider such as Lotte Global Logistics, and global retail companies network such as eBay, Macy’s, Bloomingdale’s, Neiman Marcus, Olive Young, and Etude House. Data provided by deleo and Box o’ Bliss will be utilized at each stage of dKargo’s business development and thereby deleo will increase the business value of dKargo as a core business partner from the early stage.

KakaoPay Express



KakakoPay Express is another key partner of dKargo from the early stage.



Centered on Kakaopay, an easy payment service provider from Korea's No.1 mobile platform Kakao, KakaoPay Express has launched a logistics service together with deleo and Lotte Global Logistics. deleo formed strategic partnerships with USPS and Lotte Global Logistics is one of Korea's major logistics service provider.

Kakaotalk provides a familiar user interface to more than 50 million of its active users. This can help KakaoPay Express provide flexible logistics service through Lotte Global Logistics' location points such as domestic convenience stores and logistics systems, along with deleo's expertise in cross-border logistics. deleo will oversee and process all logistics data, acting as an important facilitator to promote the dKargo platform.

KakaoPay Express aims to provide professional and efficient logistics service to 50 million active users on the Kakao platform. KakaoPay Express is one of the services from kakaopay, which provides the best user experience optimized for C2C logistics service by enabling more than 80% of Koreans on Kakaotalk to naturally use the entire process of logistics from payment to delivery. Together with Lotte Global Logistics, which owns Korea's top-tier freight traffic and has more than 8,000 convenience stores as delivery location points all over Korea, KakaoPay Express can offer the best logistics experiences. KakaoPay Express aims to become a market leader in C2C logistics using its competitive advantages. In the long term, KakaoPay Express will become a logistics service provider that offers an array of logistics services.

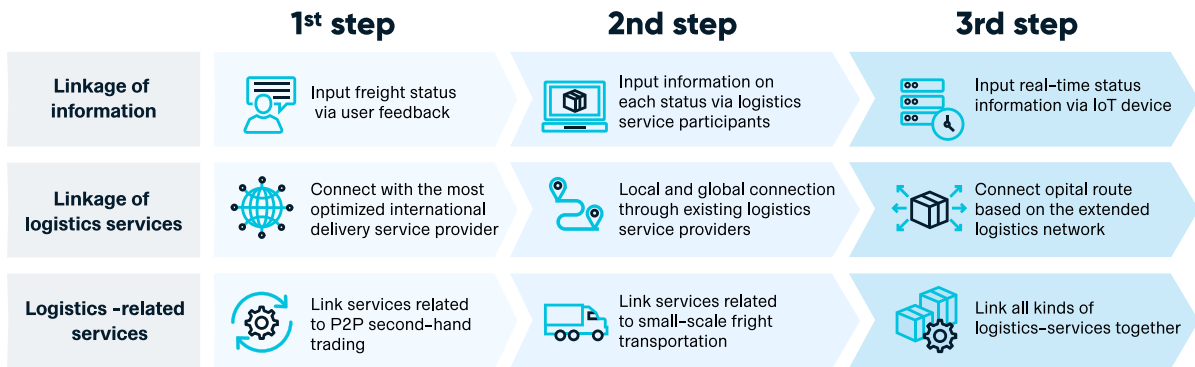
7.2 Attract Additional Partners

In order to build a flexible logistics network, it is critical to onboard many partners in addition to the partners mentioned above. So dKargo, as an open platform, aims to build an ecosystem where values created by participants in the platform are evenly distributed to the participants.

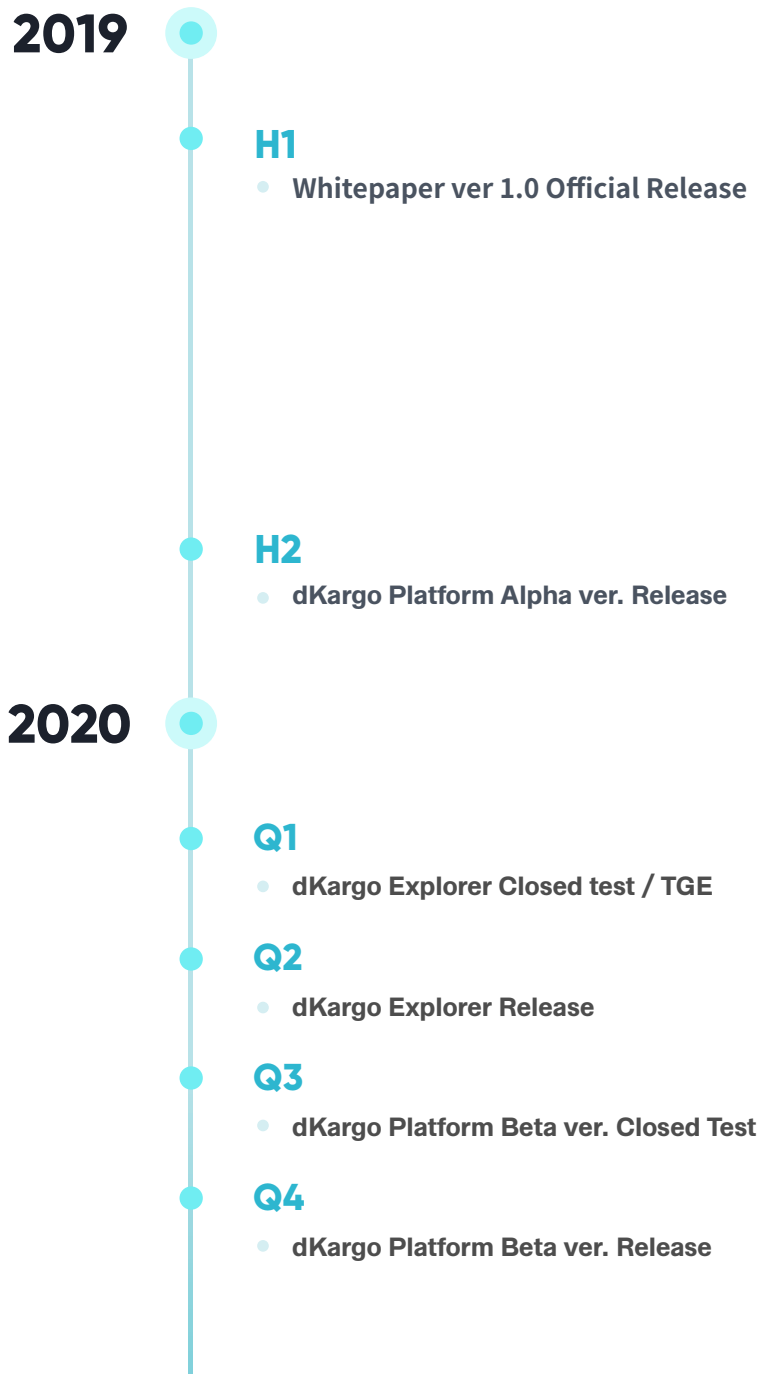
However, attraction of platform participants can be relative small in the early stage of dKargo. So, dKargo plans to operate partnerships program to reach the tipping point as early as possible. Thus, dKargo will allocate a special token pool for building partnerships. dKargo will use this special token pool to onboard main strategic partners who can contribute to dKargo platform.

8. Roadmap

dKargo ultimately aims to build a flexible logistics platform enabling collaboration among various participants. However, a sudden change can cause a backlash from the market, so a step-by-step approach is needed. dKargo will establish a strategy focusing on linking information, logistics services, and logistics-related services at every step of its business development so that dKargo can smoothly launch its logistics services.



9. Timeline



2021



Q1

- Local Expansion

Q2

- Data Marketplace Beta ver. Closed Test

Q3

- Data Marketplace Beta ver. Release

Q4

- dKargo Platform Integration Test

2022



Q1

- dKargo B2B / C2C Expansion

Q2

- Global Expansion

10. Team & Advisors

10.1 Team



Jinho Lee

CEO

- B.S. in Chemical & Biological Engineering
Seoul National University
- CEO at Easygo
- COO at Deleo
- Manager at A.T. Kearney
- Engineer at SK Energy



Jungwon Yang

CSO

- B.A. in Business Administration
Seoul National University
- CSO at Deleo
- Senior Manager at SK gas
- CSO at Terasquare
- Consultant at Arthur D. Little



Donghoon Seong

CTO

- CTO at Deleo
- Deputy General Manager at UCS System



Seungho Yeom

Business Development – Lead

- Business Development Team Lead at dKargo
- BD Director at Cobak
- Manager at Huobi Korea
- Manager at Samsung Electronics



Jonghyun Hong

Lead Developer

- IT Team Lead at dKargo
- IT Team Lead at SOOM Tech Inc.
- Senior Research Engineer at Solid
Wintech, Inc



Daeho Oh

Developer

- B.S. in Computer Science
Yongin University
- IT Team Manager at Deleo
- SW Engineer at Aveapp



Jean Kim

IT Planning Manager

- IT Planning Manager at Deleo- Software
- Engineer at Balance Hero India Pvt Ltd
- Europe & M/E Territory Manager at LG
Chemistry



Jihoo Nam

Global Business Dev

- B.A. in Economics New York University
- E-commerce Team Manager at Deleo
- Business Dev. at CJ Logistics(USA)
- Business Analyst at Standard Chartered
PRIVATE EQUITY



Wan Heo

Platform Manager

- B.A. in Business Administration
University of Southern California
- Platform Team Manager at Deleo
- Director at SM Global Shop(USA)
- Director at WOM Inc.(USA)



Myunghun Song
Logistics Team - Lead

- B.A. in Business administration
Korea National Open University
- Logistics Team Lead at deleo
- Head of Logistics Center(Backam)



Hyoin Kim
Logistics Team - Manager

- B.C. in Accounting & Finance
Monash University
- Logistics Team Manager at deleo
- Oversea Sales Manager at
Unicell Paper Pte.Ltd



Jinyoung Hwang
UI/UX Designer

- B.A. Industrial design
Konkuk University
- UI/UX Designer at deleo
- Desinger at Cogul Planet
- Desinger at Bluewell

10.2 Advisor



David Hyunbin Eun

- Founder/CEO at deleo
- President of USA at Simplex internet(Café 24)
- Co-founder at Goshen/E-Tree/BNA Global
- GE Lab Marketing



Kwanhoon Lee

- Advising Counselor at CJ
- CEO at CJ (Acquiring CJ Logistics)
- CEO at CJ media / CJ E&M
- CEO at CJ Hellovision
- Director of CJ Oshopping



Hussein Hachem

- Global CEO at Aramex

11. Legal Disclaimer

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Reference

1. <https://www.pwc.com/sg/en/publications/assets/future-of-the-logistics-industry.pdf>
2. <http://www.businessinsider.com/last-mile-delivery-shipping-explained>
3. http://globalbizresearch.org/files/6029_irrem_s-ramachandran-mayur-s-nakhava-kumar-pratik-141856.pdf
4. https://www.logisticsmgmt.com/article/asean_logistics_exploring_the_new_frontier