

MERITS

Measurable Ethics: Rating, Incentivization, Tracking & Supervision Framework

2020 / 06



PREFACE

The spread of the COVID-19 pandemic in the spring of 2020 has tested governments' social governance capacity. One positive revelation amid the outbreak is that cutting-edge digital technologies have come to the rescue and proven effective in disease prevention and control.

At this important junction in history, let's take a moment to ponder on the lessons and wisdom we can draw upon to further bring out the potential in technology in promoting ethics and social well-being. Doing so may help to enable cutting-edge technologies to play a greater role in strengthening social governance towards the sustainable development goals.

Punishments have historically played a major role in maintaining social order. However, rewards are as much needed as punishments in modifying undesirable behaviors and motivating people to do the right things, as indicated by the age-old wisdom of the carrot-and-stick approach. Currently we are still facing the following three challenges due to technological constraints.

First, technologically, it was very difficult to measure, record, and validate good deeds or acts of kindness due to a lack of quantitative tools and the high cost associated with maintaining data on small acts of kindness.

Second, in terms of collaboration mechanisms, "punishments" are generally implemented by one single agency or organization, while the implementation of "rewards" demand collaboration among multiple parties. An organization with the ability and resources to acquire data on good deeds may not have the motivation to promote virtue and righteousness. On the other hand, organizations that wish to sponsor and incentivize ethical behaviors may not be able to identify those who practice good deeds. Without effective resources, value distribution methods, and a mechanism driving trust and collaboration among multiple parties, the goal of promoting ethics may still be hard to achieve.

Third, from the perspective of governance mechanism, neither see-through supervision of information and capital flows nor transparent, compliant governance can be attained in a world of information silo, disconnection, and fragmented governance.

Innovative use of cutting-edge technologies can play a role in improving social governance, advancing the sound development of society, and therefore realizing the Sustainable Development Goals (SDGs). Reasonably granular measurement of acts of kindness, coordination among various parties, and supportive incentives and accountability mechanisms will combine to promote ethics, small acts of kindness in particular, and contribute to optimized social governance.

Fortunately, the development of cutting-edge technologies such as AI, biometrics, 5G, IoT, and distributed technologies

(e.g. cloud computing, blockchain, etc.), may offer an answer to optimizing models of social governance. Amid the initial effort of COVID-19 prevention and control, these technologies have demonstrated their capabilities in monitoring and analyzing the outbreak, tracing the origin of the coronavirus, preventing infection, and allocating resources.

Since inception, WeBank has been actively exploring distributed technologies and embracing an open banking strategy to promote open-source technologies and foster open collaboration, while reflecting on how to employ technology to optimize social governance. To this end, after careful thought and an extensive period of validation, we have put forward MERITS - Measurable Ethics: Rating, Incentivization, Tracking & Supervision framework. MERITS does not offer any particular product or service, nor does it rely on any particular technology or underlying platform. Rather, it is a reference framework, based on which any corporation or organization can work with partners to develop use cases for specific scenarios using appropriate technology solutions.

To ensure compliance and efficiency throughout the process from MERITS issuance, distribution, sponsoring to exchange, clearing and settlement and supervision, we have designed seven major roles - MERITS Issuer, MERITS Distributor, MERITS Sponsor, MERITS Exchange, MERITS Clearing and Settlement Service Provider, MERITS Supervisory Body, and MERITS User, each playing a unique role and collaborating with each other within the framework to realize consensus formation and value conversion.

The effectiveness of MERITS will be guaranteed by three core mechanisms. First, rating. MERITS defines a new form of measurement, like temperature, height, humidity, angle, and longitude and latitude. With MERITS, we expect to leverage technologies such as 5G, IoT, and biometrics to measure, record and validate different types of kind acts, mitigating the cost concerns associated with recording small acts of kindness. Second, incentive compatibility. Under MERITS, each participant, with their respective contributions, gains, rights, and responsibilities, is incentivized to invest resources and contribute expertise in governance or technology towards a sustainable ecosystem that benefits all. Third, tracking and supervision. MERITS is designed with supervision as a built-in component, where see-through supervision, auditing, and tracking are enabled throughout the entire process using regulatory technology. Clearing and settlement services for consortium members must be provided by licensed banking institutions so that MERITS will be accessible for existing financial regulatory regimes. Additional requirements and initiatives, such as that value shall be circulated within a closed-loop system, that participation is only enabled with proper user authorization, and that strict data segregation is enforced for privacy protection, will be introduced to ensure a sound ecosystem.

For instance, the MERITS mechanisms, if applied to disease prevention and control, can play an important role and create much value. On the one hand, public health administrations may find themselves inadequate in responding to emergencies or crises. As a result, transparency of the work being undertaken might decline, giving rise to questions and diminished trust from the public. This lack of trust may trigger reluctance, or even resistance from the public,

in turn, undermining the efficiency of prevention and control measures. In this context, the rating mechanism of MERITS can be used to, with proper prior authorization, accurately measure and validate the data on information flow, human movement flow, logistics, and fund flow. Thus, public health management goals, such as rapid Identification of the transmission chain and targeted quarantine, may be achieved, while taking into account the balance between personal data privacy and public safety. The tracking and supervision mechanism can serve to realize see-through supervision, auditing and tracking throughout the entire prevention and control process, which in turn, deepens trust, enhances the credibility of administration, and reduces friction and attrition. On the other hand, effective disease prevention and control also relies on the preventative actions taken by the public, such as reporting epidemic information, self-quarantining, and supporting one another. However, solely relying on the ideal actions of certain individuals may not be enough, and the implementation of a punishment mechanism may incur high costs. In this regard, the incentive compatibility mechanism of MERITS can benefit from open collaboration and serve to guide the public to practice good deeds through positive tangible incentives, such that people may perform acts of kindness with or without initial good intentions.

Furthermore, the epidemic has profoundly changed our work, life, consumption, and health habits, the result of which being that digitalization and distributed collaboration have gradually become the "new normal." In this era, the MERITS framework can be used to accurately measure people and their behavior through mechanisms such as rating, incentive compatibility, tracking and supervision. This may further accelerate the process of digitalization and promote greater collaboration, as well as allow for stronger social governance in our "new normal."

It is worth noting that MERITS, as a reference framework for a range of social governance models, is inherently different from other blockchain applications, though it might use blockchain as one of the underlying technologies. Under MERITS, value circulates within a closed-loop system designed by an authoritative organization; users receive value only after performing acts of kindness, which cannot be exchanged with fiat currencies and shall be used within a controlled scope; and the exchange service provided for users must comply with sector-specific policies and rules. Such measures will ensure MERITS produce no impact on the financial system, monetary policy, or exchange rate policy at home or abroad.

With MERITS, we hope to work with partners to advocate ethics through technology and incentivize individuals and corporations to be active practitioners of ethics. With MERITS to ensure the acts of kindness promptly incentivized, we can jointly build a society that values and promotes environmental protection, health, public welfare, philanthropic efforts, mutual assistance, observance of laws and regulations, respect for the elderly and care for the young, brave actions for just causes, and CSR (Corporate Social Responsibility), which will duly drive sustainable development of the society.



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01 The Next Milestone in Technological Advancement: Promoting Social Governance

Technology has played a major role in advancing civilization and social development, and significantly benefited both the business world and the entire economy across the globe. Nevertheless, like a double-edged sword, technology has posed new challenges as well. As a brand-new digital society is being shaped by digitalization, technology has caused unprecedented changes to the pre-existing mechanisms of trust and collaboration, as well as the rules and order guiding social governance.

How should we respond to such changes and leverage technology in promoting ethics? Evoking one piece of ancient wisdom, we may seek answers to such challenges through self-reflection and exploration of existing tools. Perhaps then, it is leveraging the potential of technology itself to optimize social governance models and promote people's wellbeing.

1.1 Trends and Levers: Maturing Distributed Technologies Catalyzing the Development of Collaborative business Models

We are now seeing the burgeoning of a range of cutting-edge technologies, and in particular, the maturing of distributed technologies, such as cloud computing, distributed architecture, distributed ledger, blockchain, federated learning, IoT, edge computing, and secure multi-party computation. Empowered by these technologies, we may expect to establish a new paradigm for multi-party collaboration characterized by transparency, equitability, and credibility, thus creating an opportunity to transform business models.

Cloud computing and distributed architecture technologies are currently driving the development of platform-based business models. Various business participants may contribute their respective resources and strengths in architecture design, product design, operation and risk control, sales, funding, and customer service amidst the efforts to provide integrated software services, licensed financial services, end-to-end products, or best industry practices. In terms of innovation, each business entity can grow through trial-and-error learning and rapid iteration, and achieve cost-effectiveness without the need to build IT infrastructure repetitively.

With the development of 5G technology, IoT, biometrics, and edge computing, it is now possible to gather and process massive troves of decentralized data to enhance the connectivity of goods, people, information, and capital.

Federated learning, secure multi-party computation, and distributed computing have the potential to break the constraints of data silos and enable multiple participants to accomplish collaborative machine learning without centralized training data or accessing raw data, contributing to increased security and an ecosystem that benefits all.

Furthermore, solutions based on blockchain and distributed ledger technologies enable the development of fully “distributed” business models. Organizations may now build a trusted point-to-point network of blockchain for point-to-point data exchange and sharing with ease-of-use and security; use distributed technologies for the recording of business data and the prevention of data tampering, forgery, or inconsistencies, while at the same time

ensuring full-process traceability and auditing; and leverage smart contracts to automatically generate documents in real-time and execute business logic and business contracts. Thus, further streamlined cooperation and inter-connection will be established, driving down costs of rapid prototyping and effectively enhancing fault tolerance in business.

Driven by the development of the aforesaid distributed technologies, it is conceivable to further reform business models at the level of production relationship. In this context, we put forward the concept of Collaborative Business in February 2017, defined as a new type of production relationship established by multiple equal commercial communities and a new set of economic activities to implement organization and management, division of functions, value exchange, joint offering of goods and services, and sharing of gains through pre-set transparent rules. Collaborative business models provide the opportunity to realize efficient cooperation across sectors, corporations, and government agencies as well as between the government and the business sector. Moreover, such models can contribute to further refined division of functions, increased agility of innovative products, and reconstructed distribution along the value chain, driving centralized and monopolistic business models to transition towards equal collaboration.

In recent years, we have seen active efforts by many organizations to explore the role of collaborative business models in finance, government affairs, justice, culture, consumption, and other commercial scenarios, which have served as testaments to the viability of collaboration as a business model. This brings us back to the

question raised at the beginning of this chapter: can we leverage distribute technologies, along with other cutting-edge technologies, to replicate the practice of the collaborative business proposition from business to social governance?



• photo source: pexels

1.2 Three Major Challenges in Social Governance

The essence of man is the ensemble of social relations.

With our faster pace of life and strengthened self-awareness fueled by globalization and digitalization, we tend to see increased cases of alienation between individuals or between people and society, with some exhibiting rather weak awareness of social ethics and morality. Undesirable personal behaviors are frequently reported

in the media, including littering, commandeering other passengers' seats on trains, forcing subway doors open, tossing coins into aircraft engines, running traffic lights, unsafe driving, and vandalism to name a few. Meanwhile, undesirable collective behaviors or phenomena, including environmental pollution, high carbon emissions, and waste of resources, occur as the byproduct of individual decisions as well.

Punishments have historically served as the primary approach to maintaining social order, yet with limited coverage and effect. As we now rethink truly effective ways to curb bad behaviors, we borrow from the age-old wisdom of the carrot-and-stick approach and recognize a general fact about human nature that humans pursue rewarding experiences. Indeed, rewards are as much needed as punishments in modifying undesirable behaviors and motivating people to do the right things. The ability to value, record, encourage, incentivize, and constantly recognize small acts of kindness, such as returning lost money, courtesy behaviors at pedestrian crossings, giving a hand to the elderly in need, garbage classification, and brave actions for just causes, will help prevent recurrence of "not refraining from doing bad deeds because they are insignificant and giving up practicing good deeds because they are minor".

Social governance is often defined as a framework of rules, systems, and guidelines on practices for curbing or encouraging certain behaviors of individuals and organizations. In contrast to social management, social governance incorporates the roles of social organizations and the private sector and encourages broad participation from various sectors, rather than directly resorting to control measures, hence greater focus is placed on the role of rewarding in promoting ethics.

We also draw inspiration from ancient wisdom on encouraging small acts of kindness, as reflected in the statement of “The ignoble people think that small acts of goodness are of no benefit, and do not do them” in the Classic of Changes, and “Do not do evil things though they may be insignificant; do not give up good things though they may be minor matters”, a piece of admonition by Liu Bei, a benevolent emperor of ancient China . The world today, however, is still facing challenges in this regard due to various constraints, notably in the following three aspects.

First, technologically, it was very difficult to measure, record, and validate good deeds or acts of kindness due to a lack of quantitative tools and the high cost associated with maintaining data on small acts of kindness. It is generally easy to identify and recognize great deeds and accomplishments, such as those performed by philanthropists donating to schools or medical facilities, which indeed instill positive values into society. However, the threshold for performing such great deeds is so high that the enthusiasm of the general public to do small good deeds might be damped. We have seen efforts made in China and some western countries to explore

an appropriate rating tool for small acts of goodness, such as LETS, a system implemented in Canada in 1983 that encourages trading between services and a locally created currency; Hureai Kippu, a credit system launched in Japan in 1994 to encourage people to help seniors in the community; the Philadelphia-based Equal Dollars Community Currency program introduced in 1996; Torekes, a project launched in Belgium in 2010 introducing the local currency Toreke that can be earned by community services; and the Credit Cloud Program launched in 2016 in Longgang District, Shenzhen, advocating virtue and ethics. These projects would offer valuable experience and insights much needed in our reflections on promoting ethics.

Second, in terms of collaboration mechanisms, “punishments” are generally implemented by one single agency or organization, while the implementation of “rewards” demand collaboration among multiple parties. An organization with the ability and resources to acquire data on good deeds may not have the motivation to promote virtue and righteousness. On the other hand, organizations that wish to sponsor and incentivize ethical behaviors may not be able to identify those who practice good deeds. Based on the MARS model, which identifies the four main factors that influence individual behavior and performance - motivation, ability, role perception, and situation, multi-party collaboration is required to advocate moral values. In practice, without mechanisms necessary to ensure multi-party trust and collaboration, resource sharing, joint decision-making, joint pricing, and reasonable value distribution, the goal of promoting ethics may still be hard to achieve.

Third, from the perspective of supervision, it has been historically difficult to achieve see-through supervision and transparent governance, giving rise to such problems as untraceable flows of funds or donations, charity fraud, lack of clarity around value, and erroneous or omission information or accounts, which, in turn, have significantly increased supervision and auditing costs. In addition, a lack of accountability has also made it difficult to expand and achieve sustainability of programs aimed at promoting small acts of kindness.

Therefore, the ability to effectively address the aforesaid challenges, proper rating of various acts of kindness, coordination among various parties, and supportive incentives and accountability mechanisms will be crucial to realizing see-through supervision amidst stepped-up efforts to advocate ethics and incentivize small acts of kindness in particular, so that existing social governance models will be further optimized to drive sustainable social development.

1.3 A Feasible Roadmap to Tackling Challenges in Social Governance

By fully tapping into the advantages of the range of distributed technologies, we may provide a feasible roadmap to tackling the three major challenges in social governance.

First, technologies such as IoT, 5G, edge computing, biometrics and intelligent security can play an important role in behavior-related big data acquisition and measurement. According to IHS Markit's report on the global professional video surveillance equipment

market, the market is expected to expand by 9.3% in 2019, following a growth of 9.3% in 2017 and a growth of 8.7% in 2018, primarily driven by robust investment by governments in video surveillance equipment to enhance citizen safety and to equip smart city projects. In China, further implementation of such project as Safe City & Safe Community and Xue Liang program across the country has resulted in a steady increase in the number of video surveillance terminals nationwide. The bicycle-sharing system, penetration of smart devices (e.g., smart electronic bus station signs, smart alarms, smart manhole covers, smart gas meters, smart water meters, wearable smart devices, smart routers, smart geomagnetic sensors, and smart ground locks), and improved infrastructure will combine to enable information connectivity and interaction between urban residents, corporations, government agencies, and physical facilities. As a result, behaviors relating to mobility, environmental protection and health, for instance, can be measured with high frequency and precision, which, in turn, will pave the way technologically for promoting small acts of kindness.



● photo source: pexels

Second, new breakthroughs have been made in technologies for behavior related big data management and collaboration. Effective storage and governance of acquired data can be enabled through cloud computing and big data platforms. Intelligent identification, classification, and research of behaviors can be achieved, leveraging AI and deep learning. Federated learning makes it possible to realize integration of multiple data sources and data collaboration across government bodies. Blockchain can help facilitate the process for multiple parties to reach consensus that reflects multi-party interests and needs, opening the door to building a mechanism for incentivizing ethical behaviors.

Finally, blockchain, big data analytics, and RegTech will make it possible to realize simultaneous access by supervisors, auditors, and legal and compliance functions for collaborative online supervision and see-through full-process tracking. It can be expected that maturing distributed technologies will further pave the way for optimizing social governance models.

development that is easy to follow and in line with laws and regulations.

It should be noted that MERITS does not offer any particular product or service, nor does it rely on any particular technology or underlying platform. It is a universal reference framework, based on which any corporation or organization can work with partners to develop use cases for specific scenarios through appropriate technology solutions towards the goal of large-scale application.

MERITS addresses each of the three major challenges in social governance through the three core mechanisms of rating, incentivization, and tracking and supervision. In the following chapters, we will further analyze the roles and positioning of MERITS participants, its core implementation mechanisms, application scenarios, and use cases.

1.4 MERITS: A Framework for Measurable Ethics

Based on the above analysis and the logic behind the path towards collaborative business, the conditions are ripe to optimize social governance, supported by distributed technologies and other cutting-edge technologies. To this end, we have put forward MERITS - Measurable Ethics: Rating, Incentivization, Tracking & Supervision Framework. The vision of MERITS is to optimize social governance mechanisms, promote ethics and good deeds, and provide innovators with a model of



● photo source:unsplash

02 Roles and Positioning of MERITS Participants

As a governance framework, MERITS focuses on a set of mechanisms that realize maximized benefits for each party involved in a given set of operations, including identifying participants with complementary capabilities and the contributions, gains, rights, and responsibilities of each participant, as coordinated by mechanisms across resources allocation, organizational support, risk management, and financial management.

To meet compliance and efficiency requirements throughout the process from MERITS issuance, distribution, sponsoring to exchange, clearing and settlement, and supervision, as well as servicing end users, we have designed seven major roles - MERITS Issuer, MERITS Distributor, MERITS Sponsor, MERITS Exchange, MERITS Clearing and Settlement Service Provider, MERITS Supervisory Body, and MERITS User. It should be noted that each participant may not necessarily fit into one single role; but rather, the same participant may assume several roles under the framework in specific scenarios provided that no conflicts of interest would arise.

To this end, it is important to clearly define the rights and responsibilities of each participant within the framework so they can perform their respective duties, contribute expertise, and access support through collaboration to realize consensus formation and value conversion. We will describe in detail the seven major roles in the following sections.

2.1 MERITS Issuer

MERITS Issuer is an advocate for certain subsets of social values or desirable behaviors, aiming to motivate people to proactively do good deeds or guide them towards encouraged activities, such as reading, working out, obeying traffic rules, low-carbon mobility, and so forth, through a suite of mechanisms and incentives aimed at developing a healthy civil ecosystem.

MERITS Issuer, as the initiator of the process, plays the

most active role among all participants in terms of contributions. Its responsibilities include organizing and inviting other participants, coordinating for final decisions on implementation plans and expected outcomes as well as supply-demand management and operations to ensure that the intrinsic values of services rendered within the MERITS framework are balanced and stable.

MERITS Issuer will benefit by the ability to enhance the public's awareness and recognition of positive values it advocates and guide and incentivize people to actively perform good deeds and ethical behaviors in a bid to foster the environment that values, encourages, and rewards acts of kindness and to achieve significant influences at scale.

A range of organizations can be a typical MERITS Issuer, such as environmental protection agencies, urban transit authorities, urban administrative and law enforcement bureaus, cultural affairs bureaus, sports authorities, and charitable organizations.

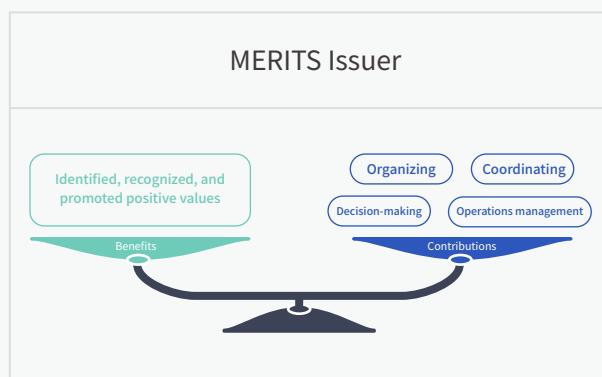


Figure 1: MERITS Issuer

2.2 MERITS Distributor

The role of MERITS Distributor can be assumed by a platform or portal able to attract user traffic or a credible provider of products or services. The aim of MERITS Distributor is to support broader practices of good deeds and provide value-added services to its own users.

MERITS Distributor is responsible for providing user traffic, distribution channels, and the actual practicing contexts in order to reach the widest possible public to realize maximized MERITS influence. It needs to obtain authorization from users via necessary agreements. It shall ensure distribution in line with laws and the principles of MERITS and conduct KYC(Know Your Customer) or AML (Anti Money Laundering) reviews on users. In addition, MERITS Distributor is required to have technical capabilities to ensure high availability, security and performance of the terminal distribution system.

The MERITS Distributor benefits from increased customer acquisition opportunities, monetization of aggregate data, and enhanced user stickiness through value-added services such as providing users the channel to be rewarded for goods deeds performed.

A vertical industry portal or an IOT device provider, for instance, can assume the role of MERITS Distributor.

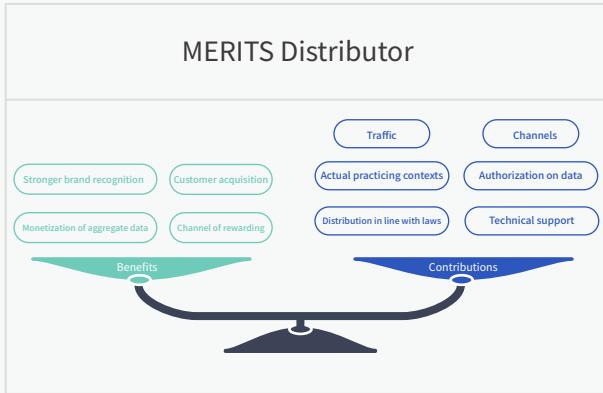


Figure 2: MERITS Distributor

2.3 MERITS Sponsor

MERITS Sponsor, as the intrinsic value provider of the MERITS system, could be either a not-for-profit organization or a for-profit commercial organization. The aim of MERITS Sponsor is to provide returns and incentives for good deeds performed.

The MERITS Sponsor is required to provide goods, services of value, or funding to encourage continued practices of acts of kindness. In addition, it joins MERITS Exchange to provide guidance on the matters of intrinsic value exchanging, redeeming ratio and cap, and terms and conditions.

For MERITS Sponsor, participation in the MERITS ecosystem will bring about a range of benefits - realizing commercial value through expanded opportunities for sales or trial offers of goods or services, enhancing branding awareness, recognition and influence, creating a positive image among customers, and strengthening customer trust, while simultaneously fulfilling CSR (Corporate Social Responsibility) and increasing the commitment and satisfaction of employees. CSR (Corporate Social

Responsibility), as an overall strategy, can help drive superior performance and sustainable development of an organization in various aspects. Going forward, when MERITS as an ecosystem brings changes and is truly contributing to optimizing social governance models, MERITS Distributor or taxation authorities may consider, to the extent permitted by law, providing tax benefits or returns to organizations in the role of MERITS Sponsor, drawing experience from the established practices in the charitable industry.

The role of MERITS Sponsor can be undertaken by any organization that wishes to fulfill social responsibility, enhance brand influence, or reach out to those who practice good deeds.

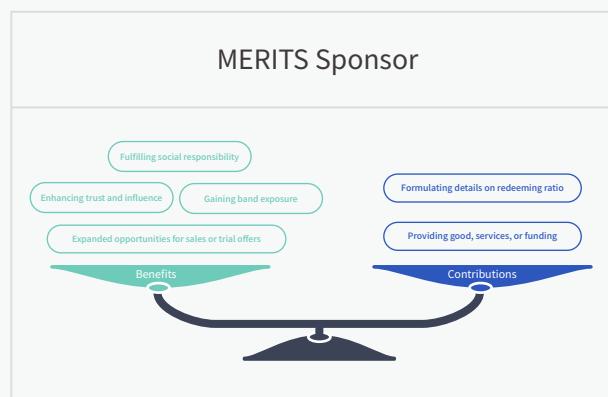


Figure 3: MERITS Sponsor

2.4 MERITS Exchange

MERITS Exchange, as the exchange service provider, ensures continuity of MERITS' operation and effective match between value and goods or services.

MERITS Exchange serves as a platform for swapping good deeds into MERITS intrinsic value. It also works with MERITS Sponsor to set the redeeming ratio and exchange conditions. MERITS Exchange may provide MERITS Sponsor with brand recommendation or display spaces on an exclusive or priority basis in order to motivate the latter to provide MERITS value, which will help ensure commercial sustainability of the framework.

The MERITS Exchange benefits from fees or intermediate business income generated from exchange services, which also serves the goal of fulfilling social responsibility.

The role of MERITS Exchange can be assumed by legitimate environmental exchanges, carbon emission rights exchanges, pollution rights exchanges, points exchange platforms, or online shopping malls using points.

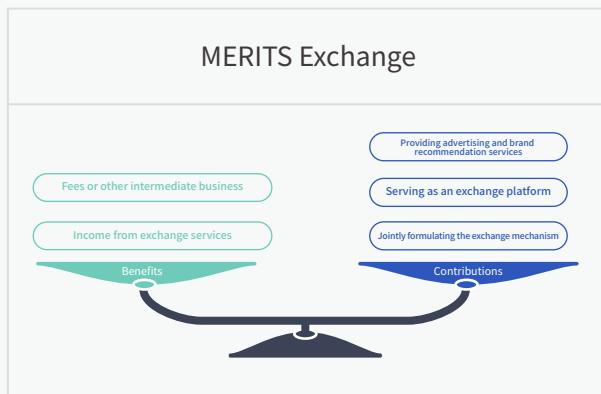


Figure 4: MERITS Exchange

2.5 MERITS Clearing and Settlement Service Provider

The MERITS participants mentioned above would require clearing and settlement services for payments, transfers,

and other account-related activities that are permitted by laws. Such services may be provided according to jointly formulated rules.

Catering to the aforementioned needs, MERITS Clearing and Settlement Service Provider could be a banking institution that provides clearing, settlement, and account management services or a licensed clearing and settlement service provider.

In terms of roles and responsibilities, MERITS Clearing and Settlement Service Provider is required to provide clearing and settlement services and custodian account services, and implement KYC(Know Your Customer) and AML(Anti Money Laundering) obligations for other institutional participants.

In terms of benefits and income, the MERITS Clearing and Settlement Service Provider earns service income from clearing and settlement services and custodian account services.



Figure 5: MERITS Clearing and Settlement Service Provider

2.6 MERITS Supervisory Body

A MERITS Supervisory Body supervises and performs audits of the entire MERITS framework and its operation process. This role can be undertaken by a single party or multiple parties.

The MERITS Supervisory Body supervises and endorses the operation process, sets the rules for admission of participants, and conducts regular, comprehensive inspections and provides guidance with respect to the entire process as well as participants, so as to ensure a sound MERITS ecosystem, safeguard the interests of all participants and prevent risks.

The MERITS Supervisory Body benefits from realizing the see-through supervision to gain insights into and learn about risk characteristics of behaviors in the context of social governance, which represents an effort to explore new approaches to supervision and apply the latest achievements of RegTech with the aim to strengthen supervision capabilities. Professional bodies, such as arbitral institutions and auditors, earn revenue for professional services provided.

The role of MERITS Supervisory Body can be undertaken by regulators or government bodies for various vertical sectors, judicial and arbitral institutions, auditors, and social organizations, tasked with full-process supervision, guidance, ruling, and auditing within the MERITS framework.

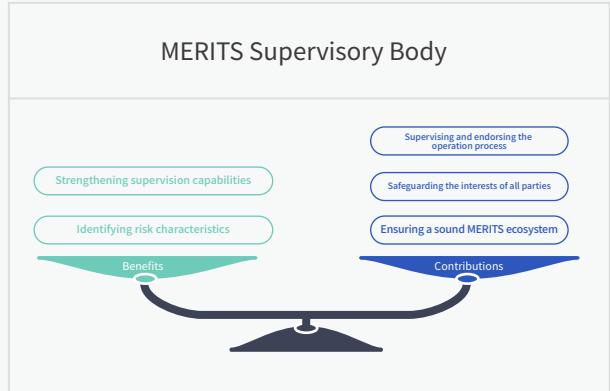


Figure 6: MERITS Supervisory Body

2.7 MERITS User

A MERITS User is either an individual or an organization that earns rewards under the framework in return for good deeds performed. This conveys a message that virtuous deeds will be rewarded, in turn driving the development of a society that values and promotes ethics.

The MERITS User is required to authorize the use of relevant data on the good deeds they have performed for big data analytics by other participants. In return for good deeds, MERITS User earns MERITS value provided by MERITS Sponsor.

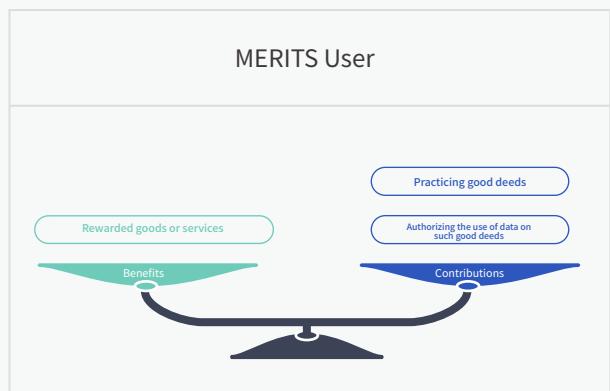


Figure 7: MERITS User



03 Core MERITS Mechanisms: Promoting Ethics through Technology and Creating Values for All

The effectiveness of MERITS will be guaranteed by three core mechanisms, which will combine to ensure accountability, sustainable cooperation and development, and an ecosystem that benefits all.

3.1 Rating: Measuring, Recording, and Accumulating Acts of Kindness

Rating, the fundamental mechanism of MERITS, serves to measure, record, and validate different types of kind acts. In this regard, MERITS defines a new form of measurement, like temperature, humidity, angle, radian, height, and longitude and latitude. Through the rating mechanism, good deeds are quantified while bearing the same attributes. With MERITS, the embed-

ded value of good deeds becomes quantifiable.

It needs to be clarified that MERITS is not a universal measurement system in an absolute sense for all types of good needs; instead, it is an abstract concept and may take various forms corresponding to various sectors, scenarios, roles of participants, and product designs. This concept can be further illustrated by the following scenario examples. In a low-carbon mobility scenario, MERITS rating can be based on emission reduction; in a lifestyle scenario, MERITS rating can be based on calories; and in a reading scenario, MERITS rating can be based on reading time; in a voluntary, unpaid blood donation scenario, MERITS rating can be based on the amount of blood donated. For MERITS, it is advisable to select a form of measurement that offers an appropriate level of objectivity, certainty, stability, and precision,

benchmarking against the standards of physics for such basic metrics as length, mass, time, force, and temperature. Ultimately, the appropriate form of measurement shall be determined and implemented by MERITS Issuer, such as environmental protection agencies, urban transit authorities, cultural affairs bureaus, sports authorities, urban administrative and law enforcement bureaus, charitable organizations, or other authoritative organizations.

After an appropriate form of measurement for rating is determined by MERITS Issuer, MERITS Distributor will gather, record, and store relevant data leveraging useful technical tools. We provided a long list of smart IoT devices in Chapter One. According to GSMS' report The Mobile Economy 2018, the number of IoT connections will reach 25 billion by 2025. Going forward, a large number of IoT devices and smart city infrastructure are expected to support the gathering or automatic generation of data relating to measurements for further transmission and analytics (or for processing directly at terminals through edge computing). In addition, face, voiceprint and other identity recognition technologies can be used to create digital IDs for users and match data with users on a one-to-one basis. Ultimately, data and data relationships will be stored in a big data center or distributed blockchain network. IoT combined with blockchain, in particular, would ensure traceability, consistency, and immutability of recorded data.

MERITS does not assume or rely on any technology platforms or solutions. Innovators may select core components of IoT, biometrics, or blockchain technologies suited to specific application scenarios as well as identity management, event management, middleware, and other systems or modules as appropriate.

Empowered by a variety of cutting-edge technologies, we will be able to quantify, store, and validate different types of good deeds, addressing the quantification and measurement difficulties and mitigating the cost concerns associated with recording small acts of kindness.

3.2 Incentive Compatibility: Fostering Open Collaboration and Building a Closed-loop Ecosystem

After rating is done, we need to convert the duly recorded measurements to tangible rewards and create a mechanism that can realize win-win outcomes for all parties to ensure a sustainable ecosystem of MERITS.

Incentive Compatibility is the mechanism behind MERITS that ensures all MERITS participants commit resources and expertise, perform duties, fulfill obligations, and at the same time be granted rights and rewarded returns. Incentive Compatibility is a term coined by Professor Hurwicz of the University of Minnesota in the Mechanism Design Theory in 1972, which earned him the 2007 Nobel Prize in Economics. Integrating Game Theory and Social Choice Theory, Incentive Compatibility discusses if a mechanism (rules or systems) can be designed to achieve stated objectives under the conditions of freedom of choice, voluntary exchange, incomplete information, and decentralized decision-making.

Given information asymmetry and unequal distribution of resources in a real society, no individual or organization can possess all the information or resources. Therefore, participation by multiple parties and decentralized decision-making are required to ensure sound social

governance. However, individual rationality and collective rationality are not always consistent due to differences of individual preferences and interests.

As shown by modern economics theory and practices, Incentive Compatibility can play an effective role in resolving the conflicts between individual and collective interests, driving individual behaviors and results toward maximized collective value, and enabling every participant to realize individual value while making a positive contribution to collective goals. Thus, the goals for individual value fulfillment and for achieving the common good are aligned.

Based on the above, we assume that every rational participant in MERITS would pursue self-interest, acting to serve their own interests. It is hoped that with the defined roles of participants and the mechanisms of the MERITS framework (see Chapter II), individual behaviors, while serving self-interest, will be utilized to achieve the goal of maximized collective value, which meets the requirement of incentive compatibility.

Agreed exchange terms for swapping good deeds into MERITS intrinsic value, such as redeeming limits, ratio, and conditions (the “Exchange Mechanism”), sit at the core of the Incentive Compatibility mechanism. MERITS intrinsic value provider could be one or several MERITS Sponsors, while the parties on the demand side of MERITS intrinsic value include MERITS User, MERITS Distributor, MERITS Exchange, and MERITS Clearing and Settlement Service Provider. Given different scenarios and constraints, different Exchange Mechanisms should be applied to satisfy the needs of both MERITS intrinsic value providers and receivers. We will further analyze the Exchange

Mechanism in Chapter IV with use cases.

Finally, it is necessary to clarify that the Incentive Compatibility mechanism in MERITS is inherently different from the token incentive scheme of the public chain. Public chain participants become stakeholders through ICOs (Initial Coin Offerings). The tokens are essentially a form of quasi-security. With the launch of token exchanges, tokens are purchased and traded in the primary and secondary markets. It is not uncommon to see token prices spiking and collapsing and sometimes even crashing to zero, causing heavy losses to investors, due to information asymmetry. In contrast, under the MERITS framework, as MERITS value provider aims to promote ethical values while fulfilling social responsibility, users bear no risk of losses and can simply benefit through performing good deeds exchangeable to goods, services, or other objects of value. Within MERITS, users receive value points only through and after performing acts of kindness, which cannot be exchanged with fiat currencies and shall be used within a controlled scope. The exchange service provided for users must comply with sector-specific policies and rules. Such measures will ensure MERITS produce no impact on the financial system, monetary policy, or exchange rate policy at home or abroad.

3.3 Tracking and Supervision: Balancing Innovation and Risks

In order to balance innovation with risk, MERITS is designed with supervision as a built-in component, where see-through supervision, auditing and tracking are enabled throughout the entire process using regulatory

technology. Additional measures should be put in place to meet existing regulatory requirements such as financial stability, KYC(Know Your Customer), AML (Anti Money Laundering), anti-tax evasion, counter-terrorism financing, and data protection.

First, as MERITS provides a reference framework for social governance, MERITS Issuer shall be committed to promoting positive values and healthy lifestyles and preventing the dissemination of negative values. We may gain inspirations from traditional Chinese values, such as Ren, the foundational value of Confucianism denoting humaneness and benevolence, “a person should restrain their words and deeds in order to comply with social norms”, another proposition by Confucius, and the Four Virtues of benevolence, righteousness, propriety, and wisdom (developed from the four seeds of concern for others, sense of shame, sense of humility, and sense of right and wrong) advocated by Mencius. We may also refer to the four cardinal virtues of temperance, prudence, fortitude, and justice identified by Plato.

The 17 SDGs[1] (Social Development Goals) set by the UN also provide valuable perspectives towards the goal of building a harmonious society that fosters and rewards virtuousness and kind acts . In summary, MERITS defines ethics and acts of kindness beyond any particular set of values or norms of any particular historical period; rather, it seeks to promote positive values through a suite of reasonable and actionable mechanisms.

Second, MERITS value shall be circulated within a controlled closed-loop system. Users are rewarded only through and after performing acts of kindness. Rewards or incentives cannot be purchased with fiat currencies or their

exchange and can only be used within a controlled environment. The exchange service provided for users shall comply with sector-specific policies and rules. Clearing and settlement services for consortium members shall be provided by licensed banking institutions so that MERITS will be accessible for existing financial regulatory regimes. Such measures will ensure MERITS produce no impact on the financial system, monetary policy, or exchange rate policy at home or abroad.

In addition, MERITS shall incorporate requirements with respect to authorization-based user participation and data privacy and protection. User participation shall be enabled only with proper user authorization. Other participants cannot obtain consent from information owners by way of general authorization regarding the gathering, processing, use, and provision of their information to external parties. Measures shall be put in place to keep personal information secure and prevent information misuse. A clearly defined full-cycle approach is required to personal information gathering, transmission, and destruction with strengthened protection protocols for access control and other processes. Use of participants’ information shall be restricted within the narrowest possible sphere and strict data segmentation and segregation shall be enforced for privacy protection.

Finally, MERITS shall ensure effective supervision and auditing. It is advised, prior to its launch, MERITS be structured with supervision as a built-in component with proper tracking indicators incorporated. Further, dynamic tracking protocols and a tracking and supervision system would be required for the purpose of implementing see-through supervision. Compliance and

admission standards shall be set regarding MERITS participants and all relevant records on their activities within the framework must be traceable and accessible. Supervision and auditing regimes shall be established and strictly implemented. Irregularities will result in operation suspension and rectification actions are required to address the issues. Any issuance, distribution and exchange behaviors in violation with relevant requirements shall be strictly prohibited.

annotation:

[1] the 17 SDGs are: no poverty; zero hunger; good health and wellbeing; quality education; gender equality; clean water and sanitation; affordable and clean energy; decent work and economic growth; industry, innovation, infrastructure; reduced inequalities; sustainable cities and communities; responsible consumption, production; climate action; life below water; life on land; peace, justice and strong institutions; and partnerships for the goals.



• photo source:pexels

04 Use Cases: Driving Sound and Sustainable Social Development

As a reference framework to optimize social governance, MERITS can be applied to a wide range of use cases advocating ethics and encouraging individuals and organizations to perform acts of kindness. The range of such use cases encompasses environmental protection, health and fitness, public welfare, charitable activities, mutual assistance, observance of laws and regulations, acts of helping the elderly and children, and corporate responsibility. In the following sections, we will explore the viability and applicability of MERITS through a number of typical use cases.

4.1 Environmental Protection

Environmental protection and sustainable development are vital to human survival and development. They are also among the top concerns of social governance, with the world facing environmental degradation and frequent weather disasters. In a report presented at the fourth session of the UN Environment Assembly in Kenya this year, the United Nations Environment Programme warned that millions of people might be exposed to the risk of reduced life expectancy due to environmental issues by the middle of the century unless prompt actions are taken to address them.

Environmental protection covers wide-ranging initiatives and practices. In addition to efforts to protect the air, land, and water, environmental protection also involves the prevention of Over-mining, deforestation, disorderly wastewater discharge, disorderly emission of pollutants, overgrazing, excessive land development, unconstrained exploitation of natural resources, and destruction of ecological balance. It also includes the practices of protecting the living environment, preserving public sanitation and a green environment, conserving diversity of species, conserving plants and vegetation, returning wild animals to natural habitats, increased efforts to protect endangered species and expanding their habitats, and other efforts to protect and preserve biodiversity. Finally, it also involves reasonable and prudent use of GMO (Genetically Modified Organism) products. All these efforts contribute to realizing a harmonious coexistence between humans and the nature.

With MERITS, it would be possible to develop innovative use cases for environmental protection, tapping into the resources and expertise of each party. Multiple participants can be engaged to build a sound ecosystem for environmental protection to enhance the general public's awareness of environmental protection through long-term incentives.

In specific use cases for environmental protection, environmental protection agencies, urban development and natural resources planning bureaus, urban administrative and law enforcement bureaus, environmental protection industry associations, industrial alliances, and non-governmental organizations committed to environmental protection can serve as a MERITS Issuer promoting lifestyles and production methods that contribute

to environmental protection. The process starts with the MERITS Issuer identifying the appropriate measurements for rating, such as carbon emissions, sewage emissions, electricity consumption, and garbage classification accuracy, as well as calculation methods. As the next step, the MERITS Issuer works with a MERITS Sponsor to set the rules regarding reward points and redeeming practices. Vertical industry portals or other online platforms with access to users' data on environmental protection practices can be MERITS Distributors. With proper user authorization, they collect data and grant reward points for environmental protection practices through IoT devices. Environmental organizations, public benefit organizations, and organizations with a commitment to social responsibility can be MERITS Sponsor, providing long-term incentives in the forms of products or services, such as tickets or vouchers for transport or tourist sites, property management fee waivers, carbon emission rights, and pollution rights with the aim to encourage environmental protection practices. The role of the MERITS Exchange can be assumed by online platforms or shopping malls where reward points can be used and redeemed, with all redemption records uploaded and stored onto the blockchain. The role of MERITS Clearing Settlement Service Provider can be undertaken by licensed banking institutions and the role of the MERITS Supervisory Body can be undertaken by environmental protection agencies or other government bodies. They will ensure risk control through transparent supervision and evaluate the effects with the ability to access data on a real-time basis.



Figure 8: MERITS Participants in the Use Case for Environmental Protection

4.2 Personal Fitness and Health

As a result of a rising health awareness in recent years, an increasing number of people have become active gym members and are keen on posting workout results like steps and calories burned on WeChat Moments. From the perspective of social governance, encouraging people to stay fit and healthy through regular workouts will contribute to reduced aggregate medical and pension costs borne by the society and mitigate the pressure brought by an aging population.

Although the importance of regular exercise is widely recognized, most people fail to persevere in the long run due to a lack of incentives. Based on limited data, the largest national gym franchises see an average of only 17% of members renew membership and 35% stop going to the gym about one month after registering membership. Many people joke that they have lost the drive long before the expiry of their membership.

With MERITS, it would be possible to engage MERITS participants engaged in sports and healthy lifestyles to build a sound closed-loop system to encourage people to keep working out through long-term incentives.

This use case can be designed in a way similar to that for environmental protection. The General Administration of Sport, provincial and municipal sports bureaus, or related reward points platforms can be MERITS Issuers advocating healthy lifestyles. The process starts with using the calories burnt during sports activities as the appropriate measurement for rating. The next step is to identify the method for calculating the reward points that can be earned through working out and to work with a MERITS Sponsor to set the Exchange Mechanism for redeeming reward points for products or services. Step tracking apps or online sports platforms can be the MERITS Distributor, collecting workout data and distributing workout reward points through wearable devices and mobile apps after obtaining proper user authorization. Health insurance companies, medical institutions, fitness centers, and wearable device manufacturers can be

MERITS Sponsors, providing products and services as long-term incentives to encourage people to work out, such as discount vouchers for medical insurance or critical illness insurance products, discounts for purchases of medical devices or fitness products, and customized fitness plans based on an individual's workout data, e.g., exercise intensity, frequency, and heart rate (with proper authorization obtained). The role of MERITS Exchange can be assumed by online platforms or shopping malls where reward points can be used and redeemed, with all redemption records uploaded and stored onto the blockchain. The role of MERITS Clearing Settlement Service Provider can be undertaken by licensed banking institutions, and that of MERITS Supervisory Body by the General Administration of Sport or provincial and municipal sports bureaus, which will ensure risk control and enable the evaluation of the effects of promoting healthy lifestyles on a real-time basis.



Figure 9: MERITS Participants in the Use Case for Promoting Fitness

4.3 Cultural Enrichment

Books are the ladder of human progress. Reading helps one learn about the world, acquire new skills, and solve problems in life or relationships. It also contributes to fostering virtues and ethics and driving the development of a harmonious society. It is one of the healthy lifestyles that we should encourage and promote. According to Amazon's 2019 Reading Report, there is an increasing number of people preferring e-books for reading. The report also found that 23% respondents have been reading e-books primarily in the past year, 4% up from 2018.

The growing popularity of digital reading provides a good basis for obtaining and analyzing reading-related data. With MERITS, cultural affairs bureaus can engage multiple MERITS participants to build a sustainable reading ecosystem to effectively incentivize more people to develop the love for reading.

Cultural affairs bureaus, cultural entities, or publishing houses can act as MERITS Issuer promoting reading as a habit. They would be responsible for identifying appropriate measurements for rating, such as reading time or the number of books, and working with a MERITS Sponsor to set the redemption value. After receiving the users 'authorization, Online bookstores, reading apps, and e-book reading device manufacturers can be a MERITS Distributor, granting reward points for reading activities, based on data such as the time spent on reading and the number of books purchased. Reading apps, bookstores, publishing houses, and culture or education bureaus can provide products or services as rewards and incentives. Online platforms can serve as a MERITS Exchange. Licensed banking institutions can be MERITS Clearing and Settlement Service Provider. Culture or education bureaus can assume the role of the MERITS Supervisory Body.



Figure 10: MERITS Participants in the Use Case for Promoting Reading Activities

4.4 Philanthropy and Community Service

There is a wide range of use cases for promoting public welfare and philanthropy. MERITS can help optimize these cases of this nature, such as blood donations, charitable donations, and volunteering activities. In these cases, health bureaus, public security bureaus, volunteer service centers, and blood centers can act as the MERITS Issuer or MERITS Supervisory Body. Rating will be based on the amount of blood donated, the number of acts of helping the elderly and the children, or heroic and honorable acts. Rules will be set for calculating reward points for public service and pro bono work.

An exchange mechanism for redeeming the reward points will also be formulated. Apps for promoting public welfare philanthropy and social media platforms can act as MERITS Distributor. Organizations with a commitment to social responsibility can serve as the MERITS Sponsor, encouraging the public to contribute to building harmonious communities and a harmonious society. Administrative bodies for household registration and other affairs can be a MERITS Sponsor as well, providing priority services in respect of household registration procedures, residency, and school admissions to those having performed public service or charitable activities, fostering a virtuous cycle in the society where good deeds are encouraged and rewarded. Online platforms can serve as MERITS Exchange and licensed banking institutions can act as MERITS Clearing and Settlement Service Provider.



Figure 11: MERITS Participants in the Use Case for Promoting Public Welfare and Philanthropy

In use cases for promoting public welfare and philanthropy, MERITS can effectively connect government bodies, trade associations, and public welfare and charitable organizations, assisting to promote ethical values and build a harmonious society. Meanwhile, MERITS provides a sound platform for organizations committed to social responsibility, which will further enhance their competitiveness, reputation, and social responsibility. All these efforts will combine to contribute to a sound and sustainable ecosystem.

4.5 Public Health

The public health system is responsible for the prevention, monitoring and treatment of major diseases, especially infectious diseases, the regulation and supervision of food and drug safety and public environment and sanitation, health promotion and education campaigns, and immunization and inoculation. COVID-19 prevention, control and treatment is a typical function of the public health system.

In the scenario of public health management, apart from a set of top-down mechanisms such as urban planning, investment in medical facilities, disease prevention and control, and emergency response and management, it is key to encourage communities and individuals to perform desirable actions of their own accord. For instance, amid the COVID-19 prevention and control efforts, an incentive mechanism can be designed to encourage individuals to declare travel history or other related information, take temperature, and self-isolate, which will help effectively contain the spread of the infection.

Based on the MERITS framework, National Health Commission, CDC, and community administration bodies can act as

a MERITS Issuer or Supervisory Body. Ratings will be determined based on the body temperature readings, travel history or information about whereabouts, number of reports of coronavirus related information, number of reports of illegal wildlife trade, and the amount of volunteer work for coronavirus control. Rules will be set for calculating reward points for practices and actions for coronavirus prevention and control purposes. A redemption mechanism will also be designed for redeeming reward points for such rewards as masks, sanitizers, disinfectants, and daily necessities. Telecom operators, customs administration bodies, and property management platforms with access to relevant data can serve as MERITS Distributors. Upon proper user authorization, they may collect data via various devices and distribute rewards points to users for their coronavirus prevention actions. Medical and pharmaceutical companies or other organizations committed to social responsibility can serve as MERITS Sponsors, encouraging people to contribute to coronavirus prevention with tangible rewards. Government bodies can also act as MERITS Sponsor, providing intangible rewards or recognition to encourage people to actively participate in the prevention and control efforts. Telecom operators or trusted online platforms can serve as a MERITS Exchange. Licensed banking institutions can serve as MERITS Clearing and Settlement Service Providers.



Figure 12: MERITS Participants in the Use Case for Promoting Public Health

By applying the MERITS framework, public health administration bodies can join hands with other parties in encouraging organizations and individuals to actively participate in and contribute to coronavirus prevention efforts. This can be done through an appropriate incentive mechanism, which will both help strengthen the coronavirus prevention and control systems and mechanisms in place, as well as further improve the national public health emergency management system.



● photo source: unsplash

05 Case Study: The Green Mobility

Growth in China's household wealth has led to a rapid increase in vehicle ownership. By 2019 there were more than 348 million motor vehicles in China, of which 207 million were privately owned. Now, 66 Chinese cities hold more than 1 million cars. Traffic-related carbon emissions take up 20% of the global greenhouse gas emissions, and so, pose a big threat to the environment as both a major cause for global warming and extreme weather in recent years. To control greenhouse gas emissions, encourage green mobility and promote low-carbon lifestyle in market-based approaches is not only a key theme in social governance in China but a task on the UN Agenda for Sustainable Development.

In relative terms, China has already established a comprehensive low-carbon mobility infrastructure. According to China Communications News, China owns 670,000 trams for urban transport, among which 340,000 (51%) are new energy buses, ranking first in the world; with 37 cities boasting an urban rail transit system and over 40 million daily active users of shared bicycles, nearly 300 million green trips are made throughout the country every day... Most of these activities are a voluntary choice of residents. But from a social governance perspective, how should these low-carbon commuting behaviors be acknowledged and how can more people be incentivized and motivated to embrace a low-carbon lifestyle?

Many internet-based sustainability-oriented products can now be seen on the market which have served to help motivate the public to perform green, low-carbon, environmental practices by recording low-carbon behaviors and integrating online and offline activities. If upgraded and optimized under the MERITS framework, these sustainability-oriented products are expected to attract more participants to construct a closed-loop ecosystem to ensure open and transparent processes of issuance, distribution, sponsorship, exchange, clearing and settlement, supervision and auditing with real-time traceable and verifiable records. This may boost trust among parties while meeting compliance requirements and enhancing credibility. What's more, MERITS helps expand user coverage of these products and build a more widely low-carbon society since the incentivization mechanism encourages more people to perform good deeds who might otherwise have no intention to do so.

In order to promote the implementation of the MERITS framework, WeBank recently joined the Green Mobility Alliance jointly founded by China Beijing Environment Exchange, Beijing Environment Federation, Beijing Green Finance Association and certain commercial banks, insurance companies and automobile enterprises. The stated purpose of the Green Mobility Alliance is to jointly build an open and collaborative green mobility platform and actively participate in formulating emission reduction standards for green mobility, covering cars, buses, bicycles and walking; leveraging technology to promote green mobility, to establish personal green mobility records and to strengthen individuals' engagement and achievement in the cause of environmental protection; and to drive more socially

responsible enterprises to support individuals' green mobility behaviors through a market-oriented incentivization mechanism by motivating them to take green and emission cutting transportation and turning it into habitual behavior. After unremitting efforts and exploration, the Green Mobility Alliance has now been recognized by the United Nations and approved as a UN Partnership Sustainable Development Goals Action. The organization will continue promoting a green, low-carbon and sustainable lifestyle under the guidance of the UN Agenda for Sustainable Development.



● photo source: pexels

At present, based on the MERITS framework, with WeBank providing blockchain technical support, the "Green Mobility Platform" created by China Beijing Environmental Exchange and Beijing Green Inclusive Network Technology Co., Ltd. has been launched. At present, the platform focuses on limiting the use of motor vehicles to reduce emissions. In the future, the platform will expand to more green mobility scenarios under the different modes of transportation such as bus, subway, etc.

In this use case, China Beijing Environment Exchange acts as the MERITS Issuer, advocating the values of low-carbon mobility. It develops standards for converting the non-use of private cars to carbon emissions reduction contribution and manages demand and supply

of incentives to ensure that the exchange value of Green Mobility products is stable and balanced.

Beijing Green Inclusive serves as the MERITS Distributor, which serves end users with official accounts and mini-programs on WeChat platform. It aims to facilitate more practices of green mobility while providing its own users with low-carbon mobility rewards and value-added services, which increases user engagement and stickiness of its platform. It obtains authorized access to user data of mobility and non-use of private cars recorded on IoT devices and assumes KYC and anti-fraud obligations in line with laws and regulations and the MERITS principles.

MERITS Sponsors within the Green Mobility Alliance include insurers, banks, and auto companies, which have shared value in promoting environmental protection. These sponsors, both non-profit common wealth organizations and for-profit businesses, provide rewards or incentives for low-carbon mobility, including but not limited to free public transport including subway rides, free insurance coverage and protection and other goods or entitlements. This, in turn, helps improve a MERITS Sponsor's CSR performance by promoting practices of good acts through conversion of users' emission reduction contribution into tangible benefits and attract customers or other commercial benefits with strengthened corporate image.

Beijing Green Inclusive is also the MERITS Exchange for Green Mobility. End users of MERITS are directly rewarded with goods and services provided by a MERITS Sponsor based on their contribution to carbon emission reduction.

China Beijing Environment Exchange acts as the MERITS Supervisory Body. In addition to supervision and endorsement, it develops official, rigorous and consistent carbon emission calculation methodology and rating metrics; oversees other institutional participants implementing compliance, anti-fraud and consumer rights and interests protection obligations; and prevents risks.

MERITS Users of Green Mobility are private car owners who accept the value of green and low-carbon mobility. End users demonstrate their low-carbon mobility with records on IoT devices and receive their rewards.

The MERITS Supervisory Body may take on an expanded definition as more participants join the MERITS framework. In addition to China Beijing Environment Exchange, other financial, transportation, government, audit and judicial bodies may access the Green Mobility Platform to implement see-through supervision, guidance, evaluation and audit. The MERITS Clearing and Settlement Service Provider can be licensed banking institutions, which provide account services, clearing and settlement services and custodian account services, and perform KYC and anti-money laundering obligations for other institutional participants. With diversified sponsors and incentives, the MERITS Distributor can calculate individual users' carbon reduction contribution and provide them with various rewards and services. By utilizing incentives of value, MERITS

reaches a wider population and ultimately brings about beneficial results for the whole society even if not all users are intentionally reducing emissions or performing altruistic acts.

So far, the three core mechanisms of MERITS are well implemented through these roles and processes: users' green and low-carbon mobility behaviors are recorded by internet and IoT devices and precisely measured based on carbon emissions (Rating); each participant may receive what they require and realize common benefits, while successfully advocating for lower-carbon emission (Incentive Compatibility); features of the Open Consortium Chain exhibit tamper-resistance, full-process traceability and multi-party consensus to facilitate supervision and audit, and balance innovation with risks (Tracking & Supervision).

Throughout the entire process, the MERITS-based Green Mobility Platform offers positive incentives to help engender widespread low-carbon behavior. It does this by encouraging users to strengthen their interest in green and low-carbon mobility, to adjust lifestyle habits, and to take actions to reduce emissions. Moreover, it can guide socially responsible companies to become carbon neutral and encourage their customers to reduce emissions, which can lead to closed-loop transactions that reward green mobility.





06 Advocates of MERITS: Work Together to Build a New Blueprint for Social Governance

In order to drive the evolution of the blockchain technology and the optimization of social governance, WeBank put forward a framework called MERITS - Measurable Ethics: Rating, Incentivization, Tracking & Supervision – which aims to unite various participants to accomplish the mission of technology-enabled promotion of good deeds.

It is worth noting that the idea under the MERITS framework of encouraging multi-party collaboration and public participation is a continuation of the idea of developing Open Consortium Chain proposed by WeBank in September 2018. The main objectives of Open Consortium Chain are to service the public, to govern on a consortium basis, and to build a collaborative business ecosystem. Through this new commercial application of blockchain technology, WeBank hopes to unite participants across industries and organizations for more effective and efficient inter-organizational collaboration in serving a wider population, enhancing public experiences, and lowering costs of and risks involved

in public services. From Open Consortium Chain to MERITS, distributed technology has realized the penetration and leap from the business world to social governance.

We expect more MERITS advocates and more use cases implemented based on MERITS in the future. We hope interested organizations and individuals who are engaged in optimizing social governance and building a harmonious society can develop and roll out their own products and services based on this framework, ultimately benefiting the whole society.

Indeed, we are still at the early stage of exploring and verifying the MERITS framework. The relevant theories, measures, and mechanisms need improvement and validation through real-life application. Therefore, we sincerely hope more fellow regulators, business organizations, and individuals join us on perfecting the framework to contribute to civil spiritual cultivation and promote a sustainable human civilization.

About Webank

WeBank

WeBank became China's first digital bank in December 2014 upon receiving its banking license. The bank is backed by reputable companies such as Tencent, Baiyeyuan and Liye Group among others. WeBank is devoted to offering underbanked individuals and SMEs with a variety of convenient and high-quality financial services.

Special thanks for the technical support from:



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