Fujitsu Distributed Ledger Technology (DLT):

Trusted, distributed business ecosystems

FUJITSU

shaping tomorrow with you

Industry-wide, organizations are improving their process efficiency, leading to market disruption and transformation through the creation of new business models. At Fujitsu, our outcome-focused methodologies pave the way to trusted, distributed business ecosystems and relevant business transformation.

The complex ecosystem conundrum

For centuries, in countless business transactions, traditionally a handshake always sealed, approved and underpinned an agreement. This simple gesture forms the basis of business trust between two or more parties, offering a signal of intent, confirmation and agreement.

What may once have worked, however, does not necessarily hold up in the complex business world of today, where speed and agility are essential.

In today's business ecosystems, there has to be clarity of agreement at each and every level. This could be in the form of price agreements, transaction records, supply chain contracts, confirmation of shipping and quality assurance. These are just a handful of examples.

Ecosystems are made up of multiple stakeholders, with changing variables and a multitude of processes and systems that often lack any form of harmonization.

How can you then rely on the countless contracts and agreements that are formed by multiple and dispersed handshakes? Or how can you change the form of agreements for today's complex world whilst still being able to manage the risk you are exposed to?

70% of organizations feel pressured to match competitors that are already using DLT.*

Maintaining business trust across parties creates intricate relationships and connections, which is often difficult to maintain or achieve. Traditionally one party would have to accept responsibility, accountability and risk (and be trusted to do so). That same party would also be required to generate and maintain trust in its data and the knowledge it creates.

Fujitsu Distributed Ledger Technology (DLT):
Trusted, distributed business ecosystems

Fujitsu's DLT approach has been showcased as the »best fit for customers« by Gartner. We have also been listed in Reality Shares and featured in Forbes as one of the top three progressive companies on the forefront of DLT in 2019.

With our Distributed Ledger Technology (DLT) solutions and services, we enable our customers to increase the speed, accuracy and quality of decision-making based on near real-time data to tackle fraud, rethink processes and disrupt markets in a way that cannot be done by existing technology.

What is Distributed Ledger Technology?

A distributed ledger can be compared with a data store that exists across multiple participants and/or several locations. The decentralized nature of the distributed ledger eliminates the need for a central authority or intermediary to authenticate and approve transactions. The records are also only stored once consensus has been agreed by the parties involved.

Blockchain is a type of DLT whereby transactions are recorded with an immutable cryptographic signature called a hash. Transactions are grouped in blocks with each new block including a hash of the previous one, chaining them together. There are a number of different approaches to blockchain technology whether private (permissioned), public (permissionless), or hybrid (for example Hyperledger). Fujitsu DLT uses an agnostic approach to technology implementation, with the unique nature of your business, organization and ecosystem defining the most appropriate solution and mix of technologies and services.

Increased operational efficiency is the key driver behind DLT adoption for two thirds of organizations.*

50% of business leaders are using or plan to use DLT to enhance data integrity.*

The benefits of DLT

With DLT, disparate contracts and agreements are replaced by more unified digital agreements, creating a new basis of agreement throughout the ecosystem, or across different ecosystems. DLT brings a range of tangible and quantifiable benefits.

- **Reduced risk.** Any previous uncertainty is replaced by transparency, ensuring that data can be trusted and relied on to assess risk.
- **Unlocked value** from the ecosystem, drives the establishment of new business models, new ways of working and new models of trust. Ecosystems soon become vital for success. A very real impact of implementing common data models is the ability to re-imagine and disrupt existing complex industries.
- **Improved efficiencies.** By exploiting new, adjusted or re-imagined business models, past inefficiencies and previous frictions can be reduced or become exactly that: a thing of the past.
- **Increased integrity,** resulting in better and safer ecosystems, thus creating trusted long-term connections.

Fujitsu's DLT approach: essential collaboration delivers outcomes-focused solutions

Fujitsu DLT incorporates an outcomes-focused co-creation approach to business transformation.

By being technology agnostic and understanding that DLT solutions need to integrate with existing systems and processes, we begin with the question of how to identify and solve a business need. The unique nature of your business, organization, and ecosystem defines the solution and the most appropriate mix of technologies.

We evaluate your organization and work alongside you to establish whether there is a need for DLT and if a use case exists and even provide support to scale these transformations to production.

The initial evaluation is completed within a maximum of five days with an exercise called Proof of Business. This ensures proper alignment and understanding of the jointly selected use case prior to moving to a larger implementation or deeper testing.

We never impose a one-size-fits-all technology platform, ensuring that we can adapt and change to suit all needs, which means key choices always remain in your hands.

Fujitsu DLT in action

» The more I learnt about the rice market, the more amazed I was at the antiquated way business was conducted. While there are difficulties in connecting with new suppliers and buyers, crucially there are no digitization or automation of trades.«

Stephen Edkins, CEO, Rice Exchange

Reimagining and disrupting even the most complex of global trades

Every day across the world, millions of metric tons of rice are consumed.

The global market for the world's largest agricultural and perishable commodity is plagued by inefficiencies. It is highly fragmented, under-financed and operates on little trust. At key levels of the supply chain, there is an over-reliance on hard copy paperwork, a lack of price transparency and scarcity of market data.

The result of this is lower revenues for producers, higher costs for consumers and lower profitability for businesses in the supply chain.

Fujitsu & Rice Exchange

One in three business leaders view the ability to build new revenue streams and business models as a key driver behind the use of DLT.*

Rice Exchange is a private permissioned DLT solution implemented by Fujitsu for the trade and commercialization of rice. Automation and DLT are used to address key inefficiencies, bringing security, transparency, traceability and finality to the complex trade, in addition to the commercialization of an ecosystem with multiple stakeholders.

The first fully-integrated digital platform for this $450 billion global market enables buyers, sellers, and service providers to find each other in a digital form. They can conduct trades, arrange insurance, shipping, inspection and settlement through seamless integration and verifiable data.

Crucially, trades are no longer completed over thousands of emails.

Early estimates indicate that using the platform will result in at least 20% savings for stakeholders and a 90% increased efficiency in the time it takes to trade, with an end-to-end trade completing in as little as six minutes.

Fujitsu's collaboration with Rice Exchange received a key mention at the United Nations Conference of the Parties meeting in Madrid (COP25) as an exemplary solution to achieve the sustainable development goals (SDGs).

How co-collaboration delivered success for Rice Exchange

Having developed a minimal viable product (MVP), Rice Exchange required a strategic IT partner with DLT experience to take it to a market-ready form.

Fujitsu was chosen to build a production-ready, private, permissioned DLT scale-out solution running on Hyperledger Fabric and hosted on Microsoft Azure, with advanced automation features. Experts from the Fujitsu Blockchain Innovation Center (BIC) in Brussels are continuing to collaborate alongside Rice Exchange to develop the solution.

»Working with Fujitsu enabled us to remove the many barriers that have prevented transparent low-risk trading in rice. We now have a seamless, integrated, and robust platform where everyone can see the pertinent data and documents in real-time. It makes every step of the process more efficient and trustworthy.«

Stephen Edkins, CEO, Rice Exchange

More than 500 importers and exporters across 60 countries are involved. The initial program includes insurers, shipping lines, inspection services, loss adjusters and marine surveyors.

It has created a secure and trusted environment.

Fujitsu DLT:
Solving the problems of today

Today Fujitsu's co-creation approach to DLT is already:

Providing greater efficiencies, mitigating risk and accelerating the creation of digitally-enabled and governed ecosystems

Enhancing trust in complex and fragmented supply chains

Empowering citizens through digital identity solutions with integrity

Fujitsu Trust and Trace solutions

Tracking and tracing products across supply chains is an essential requirement for 30% of DLT-based networks.*

Through the Rice Exchange platform, every negotiation and agreement between parties is captured as messages on screen and recorded on the ledger, offering both finality and transparency.

This is essential for dispute resolution but also to eliminate the ability for substandard products to enter the supply chain. All stakeholders now enjoy greater profits and enhanced security.

Crucially, product quality and provenance can be inspected and verified through immutable data, offering essential transparency and traceability to this complex trade. Customers can now track where a grain of rice came from, how it was produced, and what chemicals were used.

The next step for the Rice Exchange platform is to provide the capability to further track rice on its journeys across the world. Containers of rice will be tracked on ships and to a last mile accuracy once a container is unloaded at a port and the bags of rice are transported onto a lorry.

Digitally-enabled and governed ecosystems

When a group of organizations come together to operate via a DLT network to create additional business value by sharing information, data or value and / or remove friction in a combined or shared process, we see the formation of a new digitally-enabled and governed ecosystem.

In this context, the use of DLT supports three major business ambitions:

1. The desire to mitigate and control enterprise risk
2. The search for greater efficiencies
3. The need to transform to grow relevancy in the market (digital acceleration)

The common pitfalls of digitally-enabled and governed ecosystems

Too often businesses enter into an agreement to create a digitally-enabled and governed ecosystem, yet it doesn't work in practical terms.

In many cases existing processes, procedures, data models, and ways of working are sought to be forced into the ecosystem as opposed to adopting new frameworks.

In fact, in 90% of cases they fail, without ever realizing the true business benefits.

Fujitsu's approach to digitally-enabled and governed ecosystems

Fujitsu DLT brings the right pragmatic and grounded approach so that success can be found.

As in the case of Rice Exchange, the crucial benefit that Fujitsu DLT brings to digitally-enabled and governed consortia is the ability to digitally accelerate quickly and cost-effectively with increased trust, security, and efficiency.

Sophisticated global supply chains have facilitated the rapid rise of complex markets and ecosystems that involve multiple agreements.

Where there is a lack of shared data and an overreliance on micro-agreements at every stage, it is too easy for the links of the chain to be broken or corrupted. This can result in inauthentic, substandard, or unethical parts or ingredients being introduced into manufacturing and other processes, both accidentally or intentionally.

Fujitsu DLT's application to complex supply chains

Increased transparency is the key driver for the adoption of DLT for 75% of organizations.[*]

DLT again facilitates the solution. In the context of global supply chains, as the data from each of these agreements is held on a digital ledger and cryptographically connected, businesses and consumers can access a transparent supply chain.

The distributed ledger ensures that all system users have access to identical data, with new data only added by consensus. Data also can't be altered, amended or tampered with.

There is now a trusted point of validation and a simple trusted solution to track and trace goods across complex supply chains. Any attempt to alter data by a single user will be transparent to all users, providing immutability of data.

As every stakeholder can check the same verifiable data and knowledge in real-time, large efficiencies can be gained, delays will be reduced and any potential friction between parties will disappear with disputes able to be settled quickly and effectively.

Fujitsu DLT & supply chain visibility

Fujitsu is currently collaborating with one of the biggest dairy businesses in Europe to ensure product quality and safety through supply chain visibility.

With a foothold in the international dairy market, the business is continuing to grow further across international markets, with subsidiaries in Russia, Scandinavia, the Baltics, USA, and China.

By implementing a DLT-based infrastructure across the supply chain, every transaction at every stage is recorded and logged on the ledger. This creates a link to the physical and digital world, providing:

- Essential visibility for all parties across every stage of the supply chain, including regulators, stakeholders, and end consumers.
- Verification of food quality and safety for consumers.
- Efficiencies and cost savings in facilitating the audit and compliance process.

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