

White Paper

Digitally-enabled and Governed Consortia Ecosystems: How to transform, digitally accelerate and disrupt the foundations of economic fabric

How a grounded approach can ensure success in everyday operations



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Introduction

The idea of businesses joining together to form a consortium has been around for decades. There are very real benefits to be found by organizations leveraging their complementary strengths to achieve a shared goal. And in today's business world, ecosystems can be further enhanced and enabled by Distributed Ledger Technology (DLT).

When implemented through the right approach, the technology promises new-found efficiencies, risk mitigation and reduced friction across complex business ecosystems. Solutions can be found for the ongoing issues resulting from fragmented supply chains and a lack of market data. The use of secure, trusted, and verifiable shared data is enabling organizations to unlock cross-industry interaction to reimagine their everyday operations. Enabling them to better serve their customers and to find new business models that have the potential to disrupt the foundations of economic fabric.

While industry interest is piqued and excitement grows, few are realizing the potential that the technology can bring and too many consortia fail. In this paper, we detail the possibilities for digitally-enabled and governed consortia and illustrate how the right grounded approach to digital transformation can lead to success.

Defining the essential business issue

Let us begin by looking at the concept of a consortium, by focusing on one of the most well-known examples of a for-profit consortium: Airbus. Towards the end of the 1960s, the US had four fifths of the world's commercial aircraft market. This supremacy was about to be further consolidated with the imminent launch of the long-planned 747 jumbo-jet.

The European aircraft manufacturing industry appeared to be in terminal decline. This was despite some successes including the French and British collaboration to launch Concorde. At a political meeting in July 1967 the consortium of the national aerospace manufacturers from France, Germany, UK, Spain, and the Netherlands, was created:

"For the purpose of strengthening European co-operation in the field of aviation technology and thereby promoting economic and technological progress in Europe, to take appropriate measures for the joint development and production of an airbus".

Within 25 years Airbus controlled 50% of the global aircraft market. In 2003 it became the world's largest supplier, pushing ahead of Boeing for the very first time.

The consortium began with a clear objective: to create an aircraft to rival that of the market-leader Boeing and break through the ceiling of what could be achieved on their own. It wasn't without its faults, some are well documented, but by leading with this common objective these were overcome.

Specifically, political tensions between the parties and a desire for no one country to take credit for the final assembly line led to a dispersed supply chain. The cockpit was made in France, the wings in the UK, the rest of the fuselage and a part of the center section in Germany, while the moving parts of the wing, the flaps and spoils were Dutch made, and the horizontal tail plane was manufactured in Spain.

The viability of a consortium with a dispersed supply chain relied heavily on *trust* and *agreement* or consensus, with a *clear ultimate SHARED goal*. It was this that meant that any collapse was avoided.

The importance of ongoing agreement

In many cultures, business transactions have always been underpinned by a handshake, with the beauty of a handshake being its simplicity. This simple gesture formed the basis of business trust between two or more parties, offering a signal of intent and agreement.

When you think of a consortium, it helps to look at it as a series of micro-agreements. It begins with an agreement of the overarching goal, which is then supplemented by multiple ongoing agreements to keep the consortium on track and the members working together. This is how Airbus navigated the ongoing political tensions between the nations.

Now consider the business ecosystems of today. There needs to be agreement at every level of the ecosystem, whether in the form of price agreements, transaction records, supply chain agreements, confirmation of shipping, or quality assurance for example. And this is often the case across ecosystems made up of multiple stakeholders, with changing variables and a multitude of processes and systems that likely lack any form of harmonization.

The question is, how do you replace this physical handshake and provide trust throughout the ecosystem in a way that simply wasn't possible for the consortia of old?

Digitally-enabled and governed consortia

Within digitally-enabled and governed consortia, physical handshakes are replaced by digital ones, created by a ledger entry on a decentralized network. As the data of every single transaction within the ecosystem is securely, immutably, and accurately stored nothing is left up to individual interpretation. This promises transparency, efficiency, and trust in previously untrusted environments.

Defining digitally-enabled consortia

A digitally-enabled and governed consortium, is defined as: "An organization of several actors in the economic fabric joining 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." Specifically, the use of distributed ledger technology 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)

Mitigating and controlling risk: By removing the need for a single party to accept responsibility or to be accountable for the data it creates, that party no longer needs to prove the data can be trusted. Every member within the consortium will therefore be able to answer the key question: Do I trust the data I am using is good and can I rely on it to assess my risk? Any previous uncertainty is then replaced by transparency, security, traceability, and finality.

50% of business leaders are using or plan to use DLT to enhance data integrity.¹

Efficiency: By giving every stakeholder the ability to 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 be gone.

Within the consortium itself, each organization can leverage the benefit of the technology for their own specific needs. This creates the opportunity to better streamline business processes that are of concern to all consortium members, driving efficiencies across the consortium. By exploiting the adjusted or new business models, past inefficiencies can be reduced or eliminated.

Increased operational efficiency is the key driver behind DLT adoption for two thirds of organizations.²

Digital acceleration: The idea of a group of organizations leveraging their complementary strengths to disrupt, and reimagine an existing industry is the key reason to create a consortium. The real benefit that DLT brings is the ability to digitally accelerate quickly and cost-effectively with increased trust, security, and efficiency.

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.³

Digitally-enabled Consortia Advantages

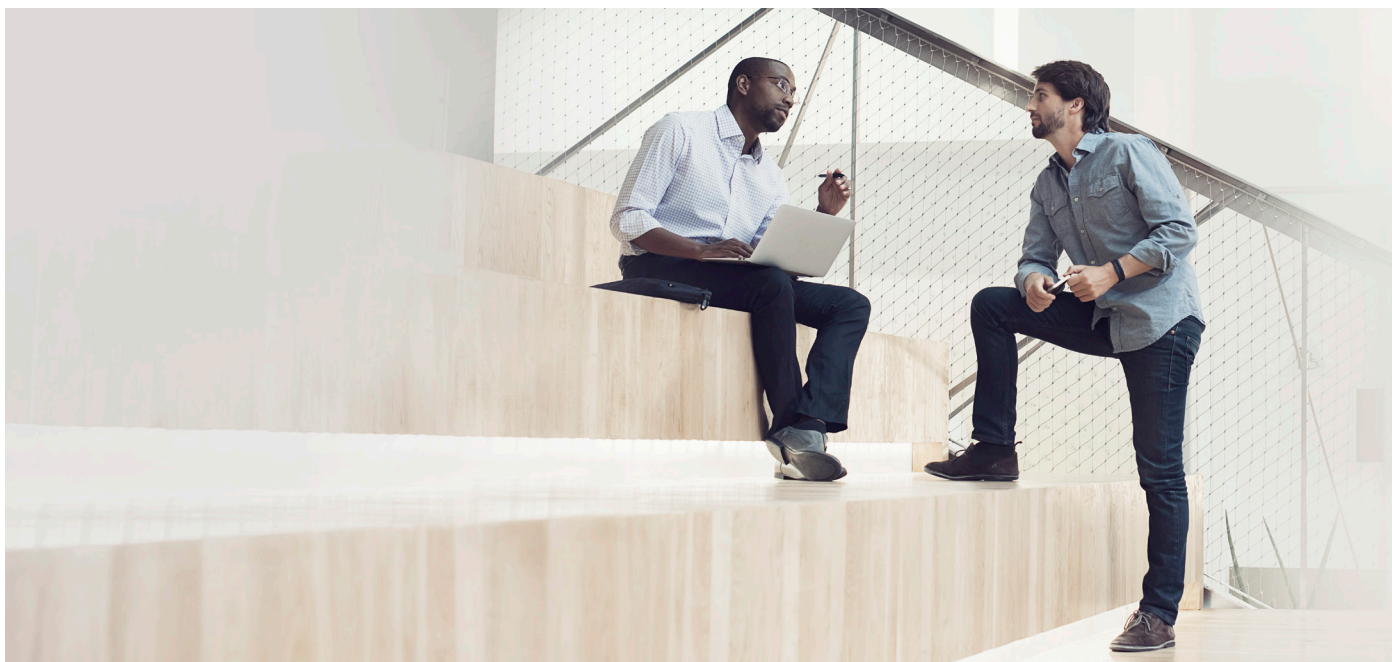
- Mitigate and control risks
- Reduce transaction costs
- Unlock value through new business models
- Create new models of cross industry interaction for customer benefit
- Maintain or increase market relevance
- Challenge existing budget constraints
- Increase efficiency in everyday operations



1. A commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.

2. Taking The Pulse of Enterprise Blockchain, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.

3. Taking The Pulse of Enterprise Blockchain, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.



The different types of digitally-enabled consortia

Whilst digitally-enabled consortia share several features, including data security, privacy of confidential data, data traceability, and immutability of data and access, there are different types and structures to be considered.

These are defined by their funding models, membership structures, and data access, with the chosen structure depending on the goal of the consortium and the needs of each of the members. Whichever route is chosen, there will be both advantages and disadvantages.

Securing the value from a digitally-enabled consortium

When a common shared goal is in place across a consortium, as well as agreements on data sharing and the rights of members, the decentralized nature of DLT can be revolutionary. Where members can unlock and extract knowledge and value from the shared data, even the simplest 'expected' or 'accepted' areas of friction can lead to the largest business opportunities.

With digitally-enabled consortia there is now trust, security and transparency where there may once have been friction. Even for the most complex of global trades and ecosystems featuring multiple stakeholders spread across the planet there is now the potential to increase efficiency and mitigate risk. It is something we are already seeing today.

Summary of the types of Blockchain consortia

	Consortium with leading members	Consortium supported by an external and neutral service provider	Consortium with equality between every member
Members rights	<ul style="list-style-type: none"> ■ Different layer of membership 	<ul style="list-style-type: none"> ■ Third party independently guiding consortium members 	<ul style="list-style-type: none"> ■ Overall equal rights between every member
Opportunities / purpose	<ul style="list-style-type: none"> ■ Build critical mass of adoption ■ Accelerate learning 	<ul style="list-style-type: none"> ■ Evidence of influence ■ Membership policy or rules ■ Sustainable and maturing relations ■ Maintaining 	<ul style="list-style-type: none"> ■ Sharing risk ■ Affordable membership fees
Advantages	<ul style="list-style-type: none"> ■ Flexibility in the contribution 	<ul style="list-style-type: none"> ■ Highest efficiency 	<ul style="list-style-type: none"> ■ Better representation of the overall market
Drawbacks	<ul style="list-style-type: none"> ■ Inequality regarding the ability to influence decisions among members 	<ul style="list-style-type: none"> ■ Influence of the external provider on the success/failure of the project 	<ul style="list-style-type: none"> ■ Lack of efficient communication ■ Lack of guidance/leadership

Solving today's problems

Millions of metric tons of rice are consumed daily, and it has been a food staple for millennia. While it may be the world's largest traded agricultural and perishable commodity, the global rice market 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 hardcopy 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.

"The more I learnt about the rice market, the more amazed I was at the antiquated way business was conducted. It's difficult to connect to new buyers and suppliers; it is unable to adapt to changes such as bad harvests; there is no digitization or automation of trades."
Stephen Edkins, CEO, Rice Exchange

Rice Exchange is a private permissioned DLT solution implemented by Fujitsu for the trade and commercialization of rice. It uses automation and distributed ledger technology to address these inefficiencies. By improving the traditional rice trade, it hopes to deliver greater profits for small farmers, less waste and social good. It was implemented to bring security, transparency, traceability, and finality to this complex trade, as well as 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.

At its launch, the platform had over 50 importers and exporters, as well as six service providers, expecting to handle over £250 million in trades per quarter during its first year. 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.

The success rate of consortia

Rice Exchange illustrates the possibilities for ecosystems in the digital world, but not every attempt is a success story. As a business leader it is easy to see the benefits and understand the potential, but that doesn't guarantee that it is always the right business decision.

Too often businesses enter into an agreement to create a digitally-enabled consortium and it doesn't work in practical terms. In fact, in 90% of cases they fail, without ever realizing the true business benefits.

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

70% of organizations feel pressured to match competitors that are already using DLT.⁴

Businesses that focus on putting in place the rules of the consortium immediately, rather than focusing on the outcome, struggle from the beginning. If you are searching for a clear business setting to act in, without an obvious business need, you will likely be doomed to fail.

However, one in 10 consortia do eventually realize the benefits of DLT. So, with that in mind, what unites the successful 10%?

Why do most Blockchain consortia (90%) fail?

Involvement and achieving the defined goal	Funding and economic model	Governance
<p>If...</p> <ul style="list-style-type: none"> ■ Participants don't see any progress ■ The group is not active enough ■ The participants can't find common ground 	<p>Creating a Blockchain consortium is expensive:</p> <ul style="list-style-type: none"> ■ Gathering the right people with the right skills is costly (Organizations, staff, developers, etc.) ■ It only delivers value over the long run. 	<p>The assignment of authority and responsibility among the consortium members determines who can:</p> <ul style="list-style-type: none"> ■ Read / write data ■ Contribute in the consensus mechanism participation decisions ■ Update the system ■ Allow new actors to join the network
<p>Then...</p> <ul style="list-style-type: none"> ■ Members are starting to wonder if the consortium is a smart allocation of their resources. Therefore, it's easy for an imbalance in contributions to develop. ■ If one company doesn't feel like the others are involved, the company can decide to pull out, creating a domino effect. 	<p>Therefore, without a sustainable economic model the Blockchain consortium cannot last long enough to realise its objectives.</p>	<p>This power distribution between a group of competitors has an impact on:</p> <ul style="list-style-type: none"> ■ The business model of the use case ■ The involvement of the participants

4. Taking The Pulse of Enterprise Blockchain, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.

How to approach building a successful digitally-enabled consortium

Successful consortia do not start by defining a process, they look first to establish an overarching goal and then define the level of trust and agreements to support that goal. Once this is agreed upon, the appropriate processes and approach can be established. Often pragmatism is needed, as was the case with Airbus.

Digitally-enabled and governed consortia are no different. The first consideration must be the business need, the outcome and how to solve a clear problem in a defined business setting. This was the case with Rice Exchange. This pragmatic approach is also essential for existing consortia to become successfully digitally-enabled. New technologies must always be adopted carefully through a grounded approach, that considers legacy environments, existing processes and current legal standards.

Many business leaders become excited by the technology and rush into establishing a digitally-enabled consortium, or consider DLT for their existing consortium, purely due to their desire to utilize the technology. This often leads to failure. From the very outset, what we can see from the clear successful examples, was that it was today's business problem that was being solved, not a technology one. DLT must always be the enabler.

Digitally-enabled and governed consortia are no different. The first consideration must be the business need, the outcome and how to solve a clear problem.

A grounded approach

Only 10% of DLT solutions have been fully rolled-out.⁵

From the start of any digital transformation journey to develop a digitally-enabled and governed consortium it is fundamental to implement a grounded approach from the beginning. This should consist of the following steps:

Defining the business case

Remember the definition of a digitally-enabled consortium: "An organization of several actors in the economic fabric joining 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."

There must be a reason other than the potential of the technology for members to **join together to operate via a DLT network**. It is therefore essential to establish the business value and the true benefits of working together, and fundamental to define the objective of the consortium, by:

- Spearheading and identifying the key pain points that each member or business faces.
- Focusing on the outcome and the problem to solve as opposed to the questions of collaboration and structure of the consortium. Never lose sight of this.

By first establishing this overarching shared objective, you can develop a cross-ecosystem business case for the creation of a digitally-enabled consortium. You will then know if this is the right approach.

5. Taking The Pulse of Enterprise Blockchain, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.

Agreement between all parties

Defining, from the outset, the roles of each member organization, especially in terms of shared data, is fundamental for a grounded approach to consortia creation.

Standardized data models are essential to ensure that every member has a clear understanding of the information that is to be shared within the group. This ensures that any transactional information can be synchronized without breaching data privacy laws or impacting on the different business interests within the consortium. Traceability and transparency of who uses which data is also key.

Consider the following steps:

- Define the rules of engagement from the outset. Ensure all parties know what the fundamental goal of the consortium is and develop the rules of engagement that will lead to this end point.
- Agree up front what data will be shared and focus on the flow of this data. Consider the fact that it is the knowledge and value from the data that must be shared, not necessarily the entirety of the data.

Building your consortium

As you are developing your consortium approach, it is vital to construct your ecosystem at the same time. For a grounded approach to consortium creation it is key to focus on the difference between tight and loose ecosystems.

Tight ecosystems reflect an environment in which members can influence behaviors or actions across the entire ecosystem. This often occurs in regulated industries such as the financial services industry whereby transactions are governed by stringent rules. Where interactions are rules-based, members are often able to enforce their will over other members of the ecosystem.

Conversely, loose ecosystems provide an environment whereby no individual member has significant influence over the ecosystem. Interactions between members are based on value, with a limited ability for any specific member to enforce their will over other members.

Consider the following steps when building your consortium:

- Cultivate the right team to collaborate and work together to develop the consortium. Be as multi-disciplinary as possible bringing together an agile team with a collaborative mindset.
- Focus on the flow of data and value within the ecosystem, to define the most appropriate structure, whether tight or loose.

A pragmatic and flexible approach is always essential and can often get you the right results.

Growing and scaling: Once you have your feet on the ground after implementation of the consortium, it's important to start small, only growing and expanding when the time is right. If required, you should also consider the right moment to step out.

A grounded approach in action

By taking small steps, implementing an iterative approach, and not losing sight of the initial objective for the consortium, Rice Exchange was able to implement a grounded approach for the launch of its early adopter program in 2019.

Following the development of a minimal viable product (MVP), the company needed to find a strategic IT partner with DLT experience to take it to a market-ready form. Rice Exchange chose Fujitsu to build a production-ready, private, permissioned DLT scale-out solution running on Hyperledger Fabric and hosted on Microsoft Azure, with advanced automation features. In addition to this, experts from the Fujitsu Blockchain Innovation Center (BIC) in Brussels are collaborating 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

The 2019 launch involved more than 500 importers and exporters in 60 countries, with the initial program also including insurers, shipping lines, inspection services, lawyers, loss adjusters and marine surveyors.

Buyers, sellers, and service providers can find new counterparts in new markets across the globe in a secure and trusted environment, dramatically speeding up progress from agreement to contract to settlement.

The Benefits of the Rice Exchange DLT Platform

- Trusted buyers, sellers and service providers conduct business seamlessly and transparently
- The speed, security and flexibility when transferring, storing, and managing virtual goods is increased
- Platform delivers 20% savings for stakeholders and 90% savings in the time it takes to complete a trade

“ Rice Exchange has worked closely with users and services providers. We're making sure, we're making their lives easier. ”

Stephen Edkins
CEO, Rice Exchange

Creating consortia that deliver real and sustainable value over the long-term

When implementing a grounded approach to create a consortium that brings real and sustainable long-term value it is essential to define the following key criteria:

- The funding model
- The membership structure that will be used
- Which parties have access to which data
- The interactions with other processes by the participating members
- The legal structure that should be established
- The ownership of data and intellectual property rights
- How it will integrate with existing systems
- The process of dispute resolution

By establishing a working model in this manner, the need for a consortium, as well as its potential viability and success can be judged. This process is central to Fujitsu's co-creation approach to building trusted distributed business ecosystems and digitally-enabled consortia.

Industry and business solutions are our core focus

Fujitsu understands that DLT is not the answer to all business problems. Our systematic decision tree approach qualifies if the customer use cases justify the use of the technology to share data in a trustworthy way.

Our digital transformation and acceleration experts offer a pragmatic, down to earth and grounded approach that focuses on the issues and business needs of the customer as opposed to a technology solution. We ensure that the use of the technology is only identified as a solution if it brings real added value to the needs of the consortium, through a grounded approach to digitally-enabled consortia creation.

We implement collaborative and co-creation methodologies

Within our global Digital Transformation Centers, our talented and experienced Blockchain and Co-creation experts facilitate collaborative engagement between specialist participants from across Fujitsu and key consortia stakeholders.

The creative, multi-disciplinary and use-focused nature of this collaboration provides a dynamic mix of knowledge, creativity, ideation, and concept development. The application of our Human Centric Experience Design (HXD) methodology – our unique, flexible, and proven iteration of design thinking – enables innovative concepts to be created at speed.

This collaborative HXD workshop shapes the use cases (and in some instances creates the user stories) that alongside an analysis of the related business processes underpin the proof of concept design.

We have a global ability to deliver end-to-end solutions

Our multi-disciplinary team includes IT developers, technology specialists, business engineers & analysts, process engineers, scrum masters, enterprise & IT architects, and legal experts. The right people, with the right mindset, come together as agile teams, paired with our global reach and business transformation capabilities that have been built over 80 years.

By offering an end-to-end suite of modules, platforms, offerings, and services, we enable efficient and quick resolutions to be sought. As a top five global integrator, our specialist knowledge ensures DLT systems are integrated deep within the consortium, driving additional value across the wider ecosystem.



Summary

When established via a grounded approach, digitally-enabled and governed consortia can be transformational for the organizations involved, promising increased efficiencies, transparency, and reduced risk in their everyday operations. Whilst there is the potential to disrupt and reimagine existing complex industries, with a success rate of just 10% however, too often they fail.

For those that do make it work, a grounded approach to consortia creation is essential. Through an understanding of how and why the technology should be used to solve today's industry and business problems and with the right pragmatic and flexible approach, trusted business ecosystems can be created. New successful business models and cross-industry collaborations can be found that truly do challenge the very foundations of economic fabric.

[Learn more about Fujitsu's collaborative and grounded approach to digital consortia.](#)

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