fisher

FISHER REPORT

BLOCKCHAIN

Brought to you by:

KPMG

rtm

wayra

HUCK OTRANTO CAMARGO

MERCADO BITCOIN

88INSURTECH

INDEX

Be the first to share this analysis:

If you didn't receive this report first-hand.
Don't wait around for the next one!

SIGN UP!

WHAT IS

BLOCKCHAIN?

Reference

The term "Blockchain" was not literally cited in Satoshi Nakamoto's paper. But in 2014, Marc Andreessen, founder of Andreessen & Horowitz, described this mysterious innovation (Bitcoin) and explained the technology behind it as "the blockchain".

That's how the "Blockchain Revolution" was coined, a term that came to be used with loosely to name numerous solutions that use Distributed Ledger Technologies (DLT), along with economic incentive models and programming protocols.

In our report, we'll use the term Blockchain in the same broad manner and focus on where we are and where we are going.

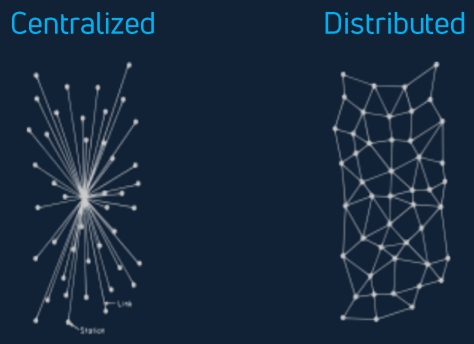
If you've watched Matrix and chose to "take the red pill," here are 3 podcasts of the best podcasts on the subject for deepening your knowledge:

hive.one // Blockchain Academy // Tudo o que se pode pensar sobre Blockchain

Blockchain

Blockchain is a **SECURE, DISTRIBUTED** and **TRACEABLE LEDGER** that does not need the intermediation and validation of a central entity.

Blockchain is a Distributed Ledger Technology, **DLT.** Its emergence is directly correlated with the implementation of Bitcoin, a transaction system validated through a distributed network that creates a ledger of this block. The validators are paid back with Bitcoin.



Thus, considering the application possibilities and network modeling, its potential for various business models quickly became evident.

How it works?

Three key concepts help us better understand how Blockchain technology works and how it can be used:

1

Ledger:

Where all the network transactions are registered and, depending on permission status, information can be completely accessible.

Hash: Alphanumeric set that represents an unique and encrypted identity of the transaction record on the respective network. This record carries the exact moment of validation.

2

Consensus:

Validation process of the transactions. The two consensus explained below are the most common. Other consensus include: acyclic graph, proof of importance, Stellar Consensus Protocol, RPCA, PBFT (Pratical Byzantine Fault Tolerance)

Proof of Stake

Election process to validate transactions. With more assets in custody, there is a greater relevance for validation.

Proof of Work

Competition between miners (mining is a computing process that requires energy expenditure to solve a mathematical problem) to validate the transactions. A higher processing capacity translates to a better validation.

3

Permissioned:

Blockchains can be public, permissioned and hybrid.

Permissioned: a controlled network with the presence of an access control layer. that makes it possible to restrict participation and acess to information. This technology is more commonly used in corporate environments.
ie. Libra, Hyperledger, Corda, Quorum

Public: an open and shared network, so everyone can access all the information available.
ie : Bitcoin, Etherum, Stellar
Since anyone can connect and participate, fraud is a possibility. To avoid it, Proof of Work is the safest consensus to apply. In order to perform fraud in this model it's necessary to dominate +51% of the network.

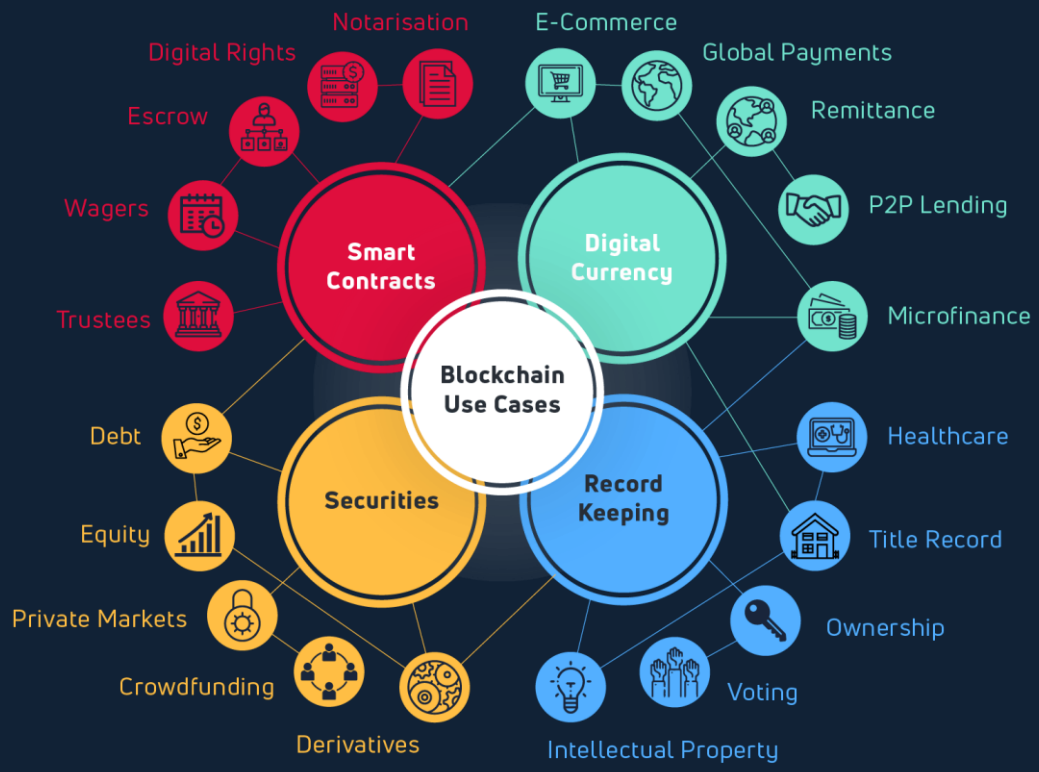
Why is it safe?

Combined, these 3 key concepts assure the safety and functionality of Blockchain technology: the **Ledger** is responsible for the constant network distribution and sharing.

Permissioned controls and assures information access, promoting transparency and auditing. And **Consensus** confirms and verifies transaction authenticity.

- Irreversible transaction record
- Encryption and digital signatures
- Real-time consensus
- Data consistency
- Real-time liquidation
- Traceability

The system can be implemented in the most varied sectors



> Blockchain has the potencial to reduce complexity in data exchange between financial institutions. Besides allowing greater control and traceability, (Blockchain) creates a pattern for national and international transaction.
>
> **Rodrigo Bonfim** - Head of IT Infrastructure & Cyber Security, Banco Pine

CRYPTO

CURRENCIES

> Blockchain is an 'arquitecture' with many applications. Cryptocurrency is just one of them. Carlos Duarte, CTO IBM

Cryptocurrencies are global digital currencies, that use Blockchain technology to assure the transaction.

Fiat Money

It is a goverment-issued currency that is not backed by a physical commodity but rather by the issuing entity, so the value is defined by stability of issuing government and the relationship between supply and demand (ex: Real, Euro e Dollar).

VS

Criptocurrency

The value of the currency is not controlled by any entity, rather, it is decentralized and has an intrisic value. Unlike the Fiat Money, the quantity of cryptocurrencies is limited (Government can print Fiat Money). Basically, they are new platforms that replicate the properties of money (store of value, unit of account and medium of exchange).

Total Market Cap: $272.892.382.456

Cryptocurrencies 2.871

24h Vol: $66 B

Dominance BTC: 67.2%

The Bitcoin

The first successful cryptocurrency was the BITCOIN. Developed by Satoshi Nakamoto (a pseudonym) in 2008, it introduced Blockchain technology to the world.

Bitcoin was the sole cryptocurrency for 3 years. In 2011 other alternative cryptocurrencies emerged. Nowadays, there are more than 2800 different ones.

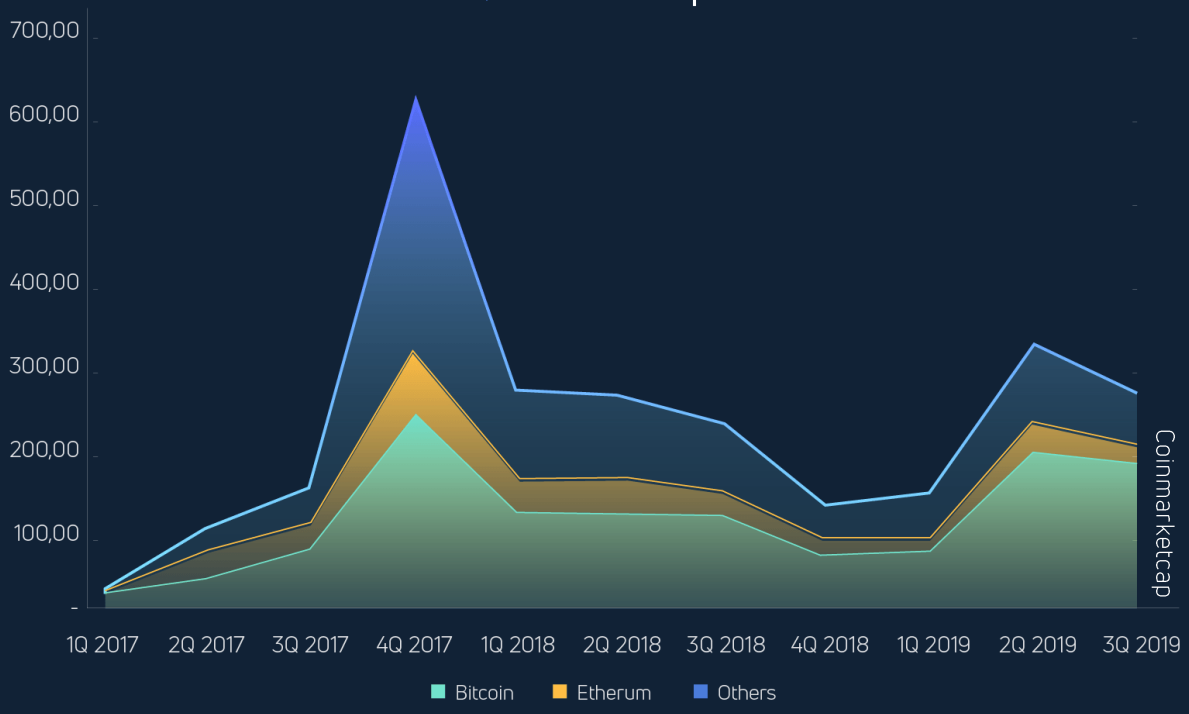
Stable Coin

STABLE COINS are cryptocurrencies pegged to a stable asset like fiat money (dollar) or commodities (gold). They are pegged to make the currency more stable, minimizing the volatility and permitting fast transactions.

Euphoria

The chart below shows that by the end of 2017, the cryptocurrency market went through an euphoric period, when market cap increased considerably. From this moment, there was a price readjustment and a 70% value loss.

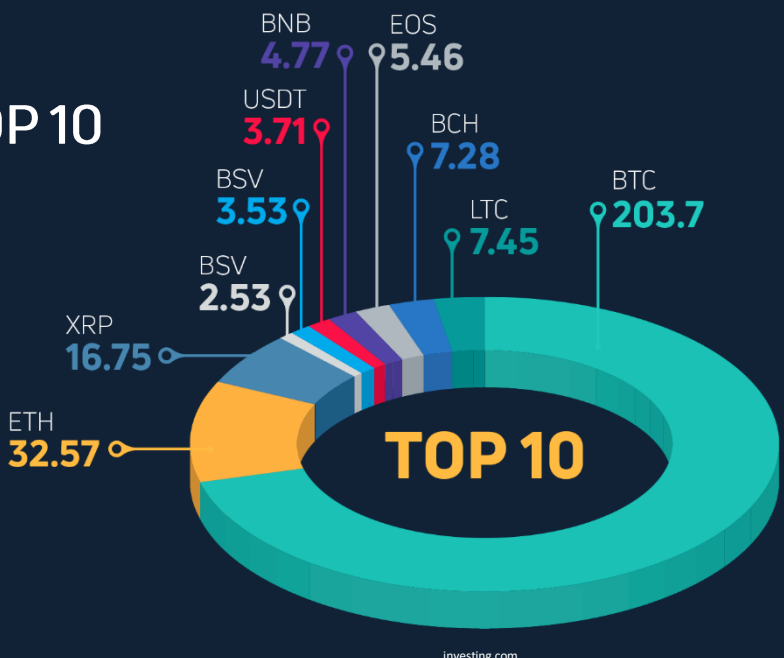
Market Cap



By the end of 2018, cryptocurrencies' value started to increase again. After this instable period, their volatility is now lower than some fiat coins.

Considering that the use of this technology tends to grow in the next years, the prices could follow this trend.

TOP 10



Cryptocoins Market Capitalization
(US$ bilhões)

TOKENIZED ASSETS

Brought to you by: MERCADO BITCOIN

WHAT IS A TOKEN?

TOKEN can be defined as a DIGITAL FILE formed by the combination of PUBLIC (public data) and PRIVATE (confidential data) SIGNATURES, and its possession or use can represent a LEGAL RELATION (property, right or obligation).

TOKENIZED ASSET

So, a TOKENIZED ASSET can be defined as a right and when linked with Blockchain, has validity with other agents.

For example...

The new tokenized assets negotiated by Mercado Bitcoin (Brazilian company) represents a partial right concession over an asset, which means that the owner of the precatório* can transfer fractions of this judicial debt to the token's owner, respecting terms and conditions established for this real asset.

**Precatório Is a receivable from a lawsuit against Government Agency*

an application of the technology represented by the native digital asset, creating a link with the 'real world.'

In other words

While Bitcoin already represents a technolody with a set of rights and protocols , tokens only represents the judicial relation between two parties and an asset, with its own specific rules and regulations, but still exposed to external factors.

Why now?

Brazilian Context:

1

The Central Bank reduced the interest rates to 5,5% - lowest level in history

2

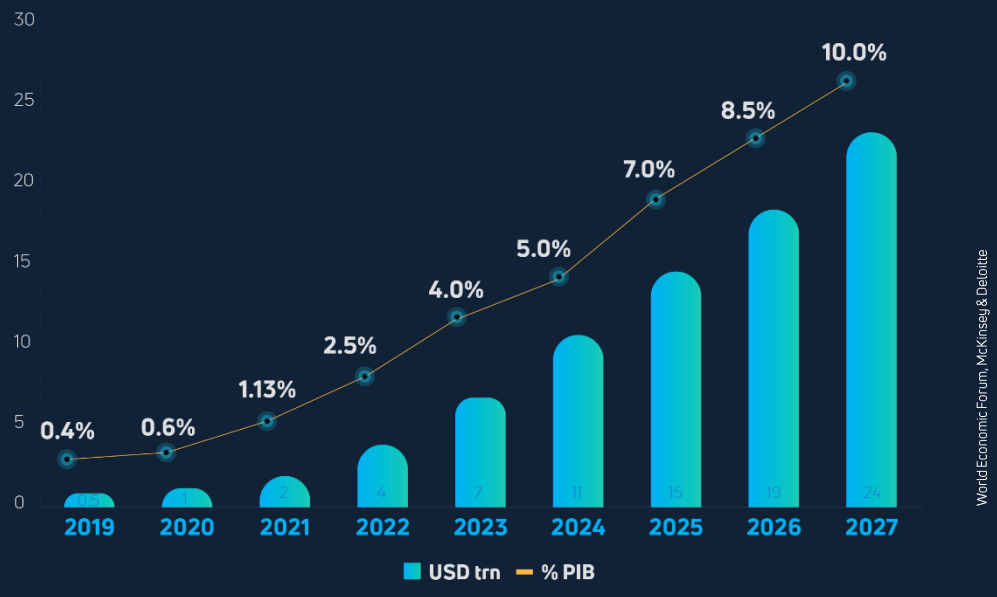
Blockchain technology consolidation

3

Brazilians need more investment options

mercado total
USD 24 trn

In 2027, an estimated 10% of Global GDP will be negociated in Tokens



World Economic Forum, McKinsey & Deloitte

Any real asset can be tokenized. The technology can be used in many markets

Gold	$ 8 trn
Stocks	$ 80 trn
Global Debt	$ 184 trn
Properties	$ 217 trn
Derivatives	$ 530 trn

So:

There are many possibilities to use Blockchain technology, besides cryptocurrency negotiation, such as organizing the infraestucture of the alternative investments market. Mercado Bitcoin company, for example, works with alternative real asset investments dealt in normal operations, outside the stock market, such as vehicles, animals, debts, properties and other assets.

Comparing the use of tokenized assets with 'analogs' we can see significant advantages and potential to transform the financial market dynamic. This is because tokens are:

1. **Globally accessible:** with Blockchain, any person can make transactions, no matter where they are (depending, of course, on local regulation).

2. **Liquid:** the Exchange of illiquid assets such as real estate projects, paintings and privately held companies, will take palce quicker due to the transaction eficiency.

3. **Easily fractionated:** It's possible to divide any asset in fractions, diversifying investment possibilities.

POTENTIAL TO:

REVOLUTIONIZE INVESTMENT MARKETS

- Bring infraestructure to a disorganized industry
- Security for the investor
- Liquidity allows for the fractioning alternative assets
- Increase wealth flow
- Asset balance

CASES

HUCK OTRANTO CAMARGO

Many of us have already suffered with **burocracy and slow process imposed**

by the Government and notary's office when trying to solve daily life problems. For example, in some cases buying a property in Brazil can take months, and lead to much wasted time and business opportunities. However, Blockchain technology can reduce all this time, increasing efficiency and public service reach.

This is PropLedgers objective, a network managed by Growth Tech. One of its module is the Notary Ledgers, a Blockchain permissioned network and the participants are notary offices with different assignments, allowing them to offer their service on a virtual platform. As an example, the first property deal was settled in Brazil with Cyrela using this technology. The first birth certificate was issued last June in Rio de Janeiro at Casa de Sáude de São José. According to IstoÉ magazine, the parents took less than 5 minutes to conclude this legal procedure.

On the other hand, few Brazilians have ever purchased a *precatório** as an investiment. Either because it is expensive or difficult to execute.

MB | Digital Assets, MercadoBitcoin's new business unit, has tokenized *precatórios* using Blockchain technology and now this alternative investment is accessible and practical for investors who can now buy fractions of this asset. The first time the company commercialized this product was in August 2019 and all available units have been sold in less than 24 hours. The same happened with 2 other tokenized *precatórios* offered by MB | Digital Assets.

As discussed in this report, the application possibilities and changing capacity of Blockchain are numerous. However, this technology and its use will certainly face many legal challenges, especially in the judicial definition of corporate structure and project contracts. Blockchain is a disruptive innovation, so the legal system is not prepared to handle it. In the next years we will face a judicial evolution to adapt laws to the use of this technology.

Maurício Vedovato
Partner at Huck Otranto Camargo

**Precatório Is a receivable from a lawsuit against Government Agency*

Blockchain RTM Conference: **bringing knowlegde to Market**

A lot of questions arise with Blockchain emergence. Doubts about the possible applications, the industries it could impact and how can companies use this technology were the focus of this debate. The financial market was one of the most interested in the subject, so RTM developed an innovation program (Conecta) to discuss this theme and keep track of its evolution.

Since 2016, the company has been organizing the annual Blockchain Conference, bringing together technology and innovation specialists from different institutions, like Brazilian Central Bank, Câmara Interbancária de Pagamento – CIP (a Brazilian Financial Market Infrastructure), Bradesco, Itaú, B3, and other participants, in order to bring knowledge to clients, exchange ideas and stimulate Blockchain discussion.

"The Conference is very rich. Every year, the main financial segment players that work with technology bring new experiences, share their concerns and evaluate the market's impact. We provide a forum of knowledge sharing." concluded André Mello, RTM's General Director.

According to Guilherme Horn, innovation specialist and moderator of the Conference's debates, RTM is positioning himself as the leading innovation company in financial market while promoting Blockchain discussions and seeking solutions that bring increased efficiency to companies.

"Blockchain is nothing more than a network that connects participants by processing and distributing information. Conceptually, this is RTM's essence, a network that connects all financial institutions in the country, offering essential products and services to their operation.

Blockchain is a new technology, that decentralized, in other words, a central agency that controls the operation is not needed. However, there are relevant issues related to Blockchain network governance because it must be done by market players with good credibility. This is why the discussions promoted by RTM are so important."

wayra

One of the biggest problems faced by **a big company like Telefônica**

is the need for various intermediary agents in diverse situations, which leads to a decrease in confidence and security at the end of each bond of the chain. The intermediary disposal and process reliability are what makes Blockchain solutions so attractive. However, according to Telefônica company, "there are good Blockchain solutions in the market, but the technology will no be the solution for everything – there may be a lot of innovation, but not all of them will be practical".

Conciliation with telephone companies is one of the subjects that makes the most sense for Telefônica. Documents certification and information immutability are critical considering the hyper connectivity time that we are living, as does international calls cost reduction.

Today, the company is looking for an open innovation strategy through partnerships with companies and startups that use Blockchain technology - not limited to an internal innovation development.

One such partnership was established with Wibson startup (Wayra investee and Movistar partner - Telefônica's Uruguayan subsidiary).

Telefônica is already using its technology and wants to empower its clients with blockchain. The platform checks consumer data and allows individuals to sell personal information created daily. The partnership with the multinational company is beneficial, because of scalability achieved by validation of sold information and the guarantee of information authenticity.

Telefônica is also working with IBM developing a Blockchain solution to simplify and optimize procedures and solve challenges like reliability and transparency of information recorded from different network when routing international calls. This way, it's possible to trace data security such as source, destination, call duration and participant information, solving a lot of problems with billing issues. It also helps identify fraudulent activity, resolve conflicts, revenues loss and information discrepancies.

Telefônica is also studying how they can use Blockchain in roaming, but not just in this area. They believe the technology can be used in other areas, such as digital identity, supply chain and tokens.

TRENDS

Implementation

Blockchain network enables a Digital Economy expansion and the creation of new business models based on transparency and a sharing economy. Below are examples of this technology application beyond the financial segment, some already in practice.

AGROTECH: ensure commodities sale traceability and transparency. With Blockchain, the customers can have access to a complete record of information such as: where it came from, crop treatment, grain quality, when it was received, where it was stored, and so forth.

SUPPLY CHAIN: involves many stakeholders, making it relatively easy to 'lose' information during the process. This problem can be solved with Blockchain technology, because of the shared and decentralized network that allows the record and access of information, so the stakeholders can know in real time the source, the destination and status of the product.

HEALTH: Medical data management is chaotic. Patients do not have their own medical history, as they are in possession of different heath institutions. With a distributed network, it is possible to create a single record base that contains all patient information, including their medical history. This enables any doctor or health facility to quickly access patient data, with the individual permission, improving treatment assertiveness.

> The magnitude of Internet transformation in the information industry will happen again in the same magnitude with Blockchain in the financial industry (on its 3 pillars: Investment, Loans and Insurance)... - **Rodrigo Ventura**, CEO 88InsurTech

A parallel between **BLOCKCHAIN** and the **INTERNET**

Looking backwards can be the worst way to predict the future, but it is difficult to look at Blockchain emergence and its transforming capacity without comparing it with the decisive years of Internet growth.

Many today did not live or remember the internet experience of 25 years ago. Although it originated in the 1960s, and the main communication protocol (TCP/IP) was adopted in 1983, a decade later we already had:

Internet in the 90s

BAD EXPERIENCE: Using Internet when it emerged was not an easy feat. You had to go through a multi-step installation procedure that modified the operating system and could permanently crash your computer if it was not done properly. Then, a similar process was required to install a modem, which called a provider whose telephone number you should search in specialized magazines.

E-COMMERCE WAS NOT PERMITED AT THE TIME: In USA, the main agent responsible for maintaining the network was NSF, a government entity, that determined that the Internet should only be used for academic purposes. Trade restrictions were not questioned until 1995.

IT WAS NOT SAFE! Information traveled as text, without encryption, creating a major barrier to the transfer of classified data. Companies were reluctant to adopt the technology. Encryption tools were restricted by the US government, at the same level as Tomahawk missiles!

The future

Looking at today's crypto universe, there is a clear use of this technology - the transfer of assets safely, quickly and independent of intermediaries and high taxes - but there are still many issues to be solved.

Nowadays, the adoption of digital assets, besides Bitcoin, is small (with only hundreds of thousand of users) for most applications built on distributed platforms.

However, we are facing a disruptive platform, developed as a new layer on the internet infrastructure and providing space for new business models that use Blockchain technology. Tee development of this technology is still in its infancy, so be prepared, there are lots of changes on the way.

Some possible applications in the future

IDENTITY CONFIRMATION
without the exchange of sensitive data

TRACEABILITY AND AUTOMATIC DOCUMENT EXCHANGE
on international business systems or micro-payments systems between devices (IoT)

Looking forward, the one certainty we have is that betting on asset digitalization as part of our lives, even without our awareness, is a good call. Everything becomes 'normal' eventually. At which point we will know who will be the winners of this race and we will then be discussing some new technology frontier!

Sponsors

KPMG

rtm

wayra

HUCK OTRANTO CAMARGO

MERCADO BITCOIN

88INSURTECH

Partners

ABFIN TECHS

FOUNDER INSTITUTE

JUPTER

Indicator Capital

StartSe

fisher

Pietro Bonfiglioli
pietro@fishervb.com

Roberta Figueiredo
roberta@fishervb.com