# A Blockchain Model to Solve the Trust Problem between EPC and Energy Companies

ETH Zürich, April 30th, 2018


The Team Members

| | |
|---|---|
| Pradeep Dogra | pdogra@student.ethz.ch |
| Stefan Gufler | sgufler@student.ethz.ch |
| Jonas Hilti | hiltij@student.ethz.ch |
| Alfred Pucher | apucher@student.ethz.ch |
| Venkata Subramani Reduchintala | venkatr@student.ethz.ch |
| Abhishek Kumar Gupta | abhi2007gupta@gmail.com |

All contributors contributed equally to this report.


The software code which is part of this report is open source and available at https://github.com/ETHBiots2018/blockchain-energy-mergerandacquisition

This project report was written as part of the spring 2018 course 'Blockchain And the Internet of Things (851-0591-01L)' run by M. Dapp, S. Klauser, and D. Helbing.



# Abstract


It’s 2018 and people are questioning what happened to the renewable plans of the Paris Agreements, because it’s unlikely to change such a strong on fossil energy depending paradigm as ours in this relatively short time. But cheap fuel isn’t the only problem the renewable energy industry faces today. ECP-Constructors, short for “Engineering, Procurement, and Construction” and Energy Companies distrust each other in every way because a single error can inter- or even disrupt the work of years. To overcome this trust issue and rebuild a sane relationship we need to change the current system, without interrupting ongoing projects.

# Table of Contents

# 1.Introduction

Developing an energy plant is a long and difficult process and involves many years of preparation and endless hours of talking and discussing between the involved parties. Normally this would strengthen the relationship between companies but not in M&A (Mergers and Acquisitions). The main reason of mistrust evolves from actions both parties are doing. The Energy Companies often receive misleading data from the EPC-Constructor, they therefore have to validate all data which is a time and resource consuming process. Energy Companies, like the EWZ, give EPC-Constructors the contract to organize the construction of a power plant from start to finish.

During the construction process the EPC-Constructor provides the Energy Company with data, but the Energy Company has no proof that the data is correct. Therefore, it needs to hire own specialists to verify the data given by the EPC-Constructor. And the Energy Company doesn't really have the possibility to change their partner. It's a seller's market, thus they are forced to put up with such behavior.

On such conditions it is difficult to build up trust to each other. The EPC-Companies don't have to adapt, because the demand is huge and electric companies are dependent on them for several reasons. The main reason is that energy companies have to fulfill new conditions because of a new legislative in the energy sector about renewable energy. For example, the city of Zurich gave EWZ a deadline until 2034 to eliminate all nuclear power generated current from their grid, which makes today around 40% of their provided electricity. The construction of just one energy plant needs at least a couple of years, therefore 16 years are just a blink of an eye.

## 1.1 The Challenges in M&A

We already have a good general understanding of the Status Quo in M&A, but to understand every single problem we identified the main players and their connection, as shown in the following figure. The energy company, labeled as the buyer, offers the EPC-Constructor (seller) a contract for making an energy plant and if the seller agrees on those conditions, he will start the initial work that has to be done. He lends money from banks and equity investors to finance the whole project until the buyer buys the energy plant. The problem is that the project can be interrupted any time, thus the banks and equity investors lend the money with high interest.

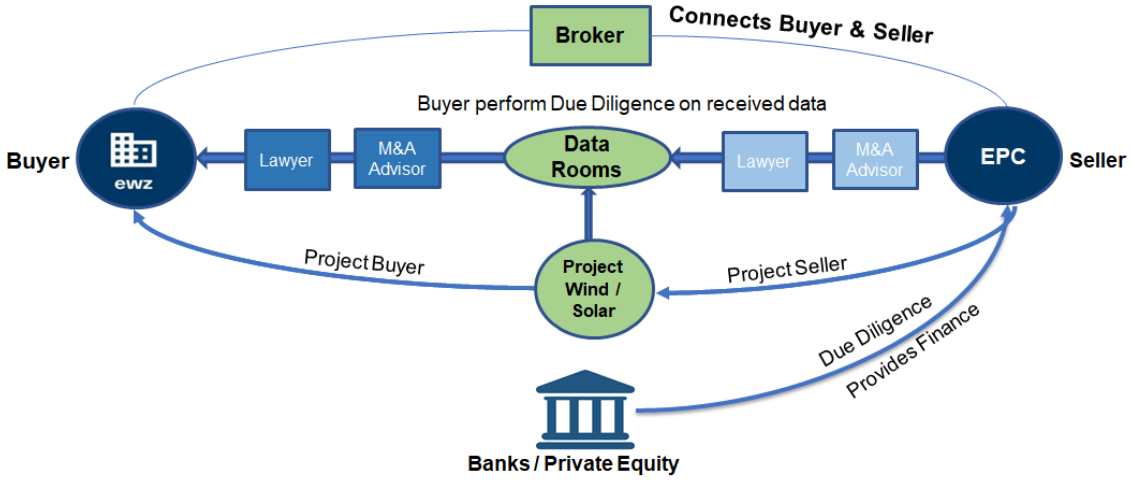


Fig. 1 - Current System

The EPC-Constructor has to collect data for at least one year before anything else can happen. The data can reach from the full load hours and the wind intensity to the popular opinion of a possible energy plant in that specific area. Additionally, they have to check all regulations and conditions and solve potential problems.

This requires a lot of work and errors are inevitable, therefore they often tell the energy company only parts of the truth, which leads to mistrust. The data gets collected in the so called “Data Room” where the energy company has to verify it by itself, because the EPC doesn’t have any incentive for doing that. Many times, they hire broker to communicate between the parties, but the distance hinders the trust building between the EPC and the energy company.

The preparation for the construction usually needs a couple of years and the more time passes, the bigger gets the probability that something happens that totally interrupts the project. For example, the EWZ once had a contract where the preparations lasted for 8 years and they were only one week away from signing it with the EPC-Constructor, when they got interrupted during a meeting by citizens, who just moved to the affected area. They demanded the discontinuation of the project and the EPC and the EWZ couldn’t do anything about it. They had to terminate everything.

Therefore, everyone in the ecosystem needs certainty that the banks and equity investors get their money back, that the EPC gets the project through without any major problems and the energy company gets the ordered power plant without any flaws.

# 2. Literature review

## 2.1 Introduction

Trust has always been important for society, smart contracts based on blockchain technology let us rethink our values. Our main value proposition is to ensure trust on Ethereum-based token exchange during yet long-lasting M&A processes (as also discussed in Ch. 1), where the outcome is unsure ("Valitas Insights: Blockchain and M&A," n.d.). These contracts are not executed because of trust or negotiations, they are executed based on a previous commitment on a set of rules. One advantage is, that this procedure is much faster and the other one of many is that middlemen or intermediaries are completely eliminated (Meunier, Halder, & York, n.d.).

A blockchain system is also referred to as Distributed Ledgers Technology (DLT), that allows every user to record and share a common view of a decentralized system, which is distributed over a network (Meunier et al., n.d.). To understand the potential of blockchain technologies, it is essential to understand the value addition of these technologies and how they could disrupt whole business segments. On public distributed ledgers, everyone can create and validate transactions, the important part is the economic incentive (Meunier et al., n.d.). Remunerations can be earned by participants in this distributed network, who offer their computational resources to others which is often referred to as "mining", so miners help to keep the decentralized network alive.

## 2.2 Ethereum and the Smart Contracts Concept

Ethereum is designed to execute transactions, which follows a programmable workflow, also called "smart contracts" (Meunier et al., n.d.). At a certain point in time, when all conditions are met for an execution of a transaction, it will be executed deterministically. Any Ethereum node can verify inputs and execution (Meunier et al., n.d.). A smart contract facilitates exchanges of contents, money, or anything of value, without possibility of censorship, downtime or fraud (Meunier et al., n.d.; Rosic, 2016).

The workflow includes several steps, a smart contract is simply programmable code, which follows certain rules and conditions like events and is triggered immediately (Meunier et al., n.d.). These events can also follow information received from an "Oracle", that is an agent which tries to find and verify data from the outside world (Meunier et al., n.d.; Rosic, 2016). As discussed before, this could be uploaded from EPCs, who are interested in sharing clear and valid data with energy companies.

It is important to understand, that we want to use this technology as a business enabler, which should support in accomplishing a complex task more easily. However, it has the power to create new, disruptive business models (Rosic, 2016) . In our specific case, in an M&A transaction we want to substitute earnouts with smart contracts, which improves the whole process in a given time, because counterparty risk is reduced for both participants (“Valitas Insights: Blockchain and M&A,” n.d.). Normally, such earnouts are paid out at the end of an agreed term (e.g. two years), therefore in our solution, these payouts could be automated, thus when certain conditions (if-then conditions) are met, a payout could happen daily, monthly or also immediate, based on the desired implementation (“Valitas Insights: Blockchain and M&A,” n.d.). A smart contract implementation can be built increasingly complex, if more detailed payout conditions are established (“Valitas Insights: Blockchain and M&A,” n.d.). Despite that, the underlying mechanism is invariably the same: systematic enforcement or execution of a e.g. transaction, if certain conditions are reached (“Valitas Insights: Blockchain and M&A,” n.d.).

In our case as an example, a company like EWZ as a token-issuer could issue and exchange tokens with e.g. EPCs, if EPCs share and upload valid data on a shared data pool, or in EWZ’s business language specifically called "data room" which is accessible to all parties during an ongoing due diligence (M&A) process. The precise business model where each stakeholder is incentivized, is discussed in Ch. 3.

## 2.3 Using Oracles

Because blockchains are not able to use data outside their network, third-party services provide access to data feeds, which is an "Oracle". These oracles can be directly used in smart contracts for triggering events, executing this service in trustful and secure way is the main task of an oracle (Blockchain Hub, n.d.). Since these oracles are not part of the blockchain, a huge challenge is, that people have to trust these sources of information - different methods like “TLSNotary”-based proofs can be used to deal with this issue (“Blockchain Oracles,” n.d.-a). Different types of oracles are existing, like software, hardware, inbound, outbound or consensus-based oracles (“Blockchain Oracles,” n.d.-b).

Examples of a software oracle are data feeds of temperatures, flight or train delays, prices, payments, whereas a hardware oracle could receive a data feed, if a certain vehicle is crossing a sensor (“Blockchain Oracles,” n.d.-c). This feed can be embedded in an algorithmic execution of a smart contract.

Two other important concepts relate to smart contracts which should be mentioned: A "DAO" is a decentralized autonomous organization, that is purely run by rules based on smart contracts on a blockchain, whereas "DApp" means a Decentralized Application which includes a front-end user-interface with a decentralized back-end (Meunier et al., n.d.), implemented also in our prototype. The further literature review will give an overview about current research and approaches based on blockchain technologies to solve M&A and Due Diligence challenges.

## 2.4 Paper reviews concerning Blockchain and M&As

**Valitas Insights: Blockchain and M&A** ("Blockchain and M&A," n.d.)
This paper focuses on establishing certainty in M&As by fortifying trust over a smart contract.
In M&A processes, establishing trust is one of the most important - and difficult to achieve - element. The author emphases that a smart contract is rather systemic than trust based and could be used to automate certain conditions. This would reduce uncertainty in the parts of contracts where smart contracts can be applied. As an example, the author proposes an automated earnout process, whereas the payment could be dependent on conditions rather than the usual end of term payment.

**How to draft a Complete and Reliable solar project Due Diligence Report** (Pellegrini, n.d.)
The author provides insights on the due diligence of a solar project. The focus lies on the technical, financial and legal implications. The due diligence process is described in great detail and helps to understand the difficulties of such a process. The multidisciplinary analysis should focus on assessment of risk, constraints, doubts and lacks. The rate of return should be the final output of the due diligence. Furthermore, the author describes the PV project analysis, performed on a SPV (special purpose vehicle).

**Industrialisierung von Rechtsdienstleistungen** (Czycholl, n.d.)
This article describes the status quo around legal automation, the chances and the dangers of blockchain and smart contracts in a legal environment.
Digital tools allow the industrialization of legal services, especially when the legal services have a high degree of standardization and occur multiple times. Complex transactions like M&A are difficult to automate. Nowadays there are just a few projects and companies that have a high degree of legal service automatization, as for example the car-banks from Volkswagen and Audi. But changes in this sector will be huge, says Prof. Sander from the Blockchain Center Frankfurt. The article explains how smart contracts can be applied, when the law can be seen as an intelligent compilation of building blocks, rather than a document.

But it also highlights the possible mishaps if a chain of automated contracts come into play, without the interaction and control of humans.

**Blockchain and Smart Contracts - the future for M&A deals?** (Gisèle Rosselle, n.d.)
Trust-building is the focus of this one-page article. All information of all parties can be stored in a blockchain, contain a timestamp, are immutable and therefore guaranteed to be authentic. This helps to reduce intermediaries, reduces cost and builds trust.
The self-enforcing nature of smart contracts is highlighted, their potential increase in efficiency in a M&A process, but also their legal issues. Furthermore, the article explains how AI could have a big role in M&A deals, as AI could help in Due Diligence and Data Room processes.

**Blockchain und Unternehmenskauf - Der M&A-Anwalt als Auslaufmodell?**
(Wessing, n.d.)
This article answers the question if a M&A advisor will become obsolete because of smart contracts with a clear NO. The author highlights some transactions like *day-of-sale, real transaction, earn-out and withholding of securities* to show what could be automated with smart contracts. He emphasizes that the smart contracts do not replace conventional contracts, they simply make the agreement before the actual contract is signed, at the time the smart contract is coded. Therefore, the M&A advisor has the same role as before, just the execution of the contract is different.
The author sees the impact of blockchain in M&As as very little and refers to the German law, where a lot of hurdles for smart contracts must be taken before their impact can be greater.

**Takeaway from Literature about blockchain and M&As**
Most literature and research focus on the immutable aspect of blockchain and the smart contracts in automating the earn-out process and such. Little research and thought has been put in creating a whole M&A platform, ecosystem, incentivization or tokenization of this processes. Where the immutable aspect of blockchain and the smart contracts will certainly have some impact on the legal world, a solution with blockchain could go much deeper. In the following chapters we propose a comprehensive ecosystem as a solution to the challenges in M&A.

# 3. Conceptual Model

To solve the potential challenges of an M&A transaction discussed in the earlier sections of this report, we propose a token-based ecosystem for M&A transactions using blockchain as underlying technology. The main idea revolves around incentivizing different parties involved in an M&A transaction to act in trustworthy manner because trust is one of the key aspects in an M&A transaction. We suggest, to use two core blockchain components: *distributed-ledger technology* and *smart contracts* (Treleaven, Brown, & Yang, 2017). Blockchain, a decentralized system that implements, verifies and records transactions, can expand the current M&A market by introducing trust ("Blockchain and M&A," n.d.). As blockchain also eliminates the use of intermediaries, it substantially reduces transaction costs in an M&A process ("Blockchain and M&A," n.d.). Smart contracts, of which blockchain is the underlying technology, replace traditional paper documents with a computer program that automatically verifies and signs an agreement and are thus poised to fundamentally alter the way M&A work is performed ("Blockchain and M&A," n.d.).

All things being equal, establishing and earning trust is among the most essential elements of any M&A transaction. Trust, however, is difficult to establish and virtually impossible to guarantee. As a result, countless hours are spent creating and negotiating contracts. A foundational element of a 'smart contract' on the blockchain is that contractual outcomes become systematic rather than trust-based. There is no room for a "he said/she said" argument, because once the contract has been established on the blockchain, the outcome is guaranteed ("Blockchain and M&A," n.d.).

This is how blockchain can possibly simplify interactions between different parties in an M&A process and enhance transparency, efficiency and reduce costs. The approach suggested by author to incentivize different M&A participants to join the blockchain platform is to address the pain points of each of the participants involved in the M&A transaction. We believe unless there is some added value or benefit to everyone involved in M&A, it will be difficult to enforce these parties to onboard to blockchain platform.

This is where EWZ, as one of the main players in the M&A transaction can influence the way different participants interact and behave with each other in an M&A transaction. Now let us look at the key participants involved in M&A transaction and understand how proposed concept of token-based economy using blockchain can help solve potential issues in M&A transaction.

## 3.1 Business Architecture

To show the initial concept and to simplify the representation of complex M&A transaction, we considered only three main, directly involved participants in an M&A transaction. Below shown is three node model representing involved participants dealing directly with EWZ in an M&A transaction.

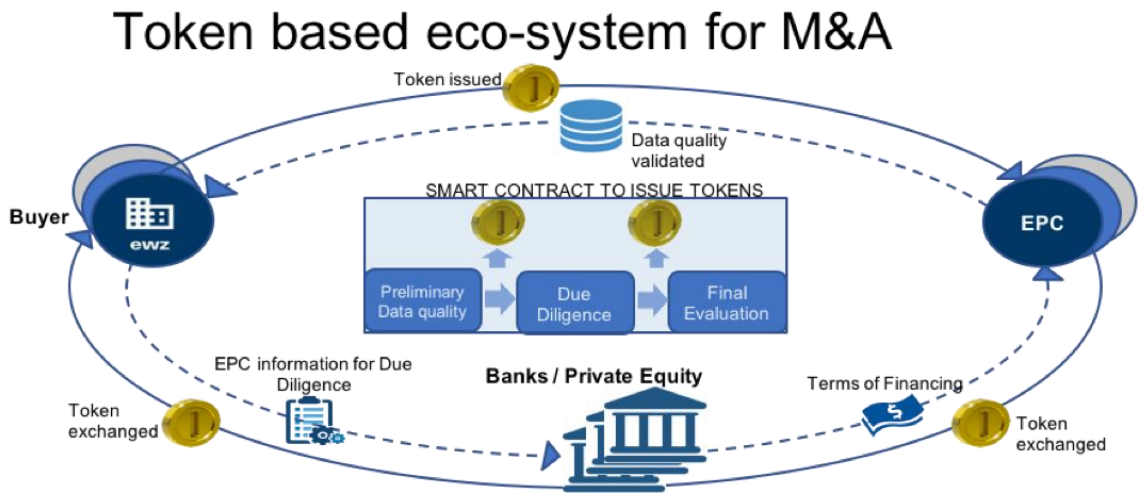


Fig. 2 - A new, token-based ecosystem for M&A

In an energy M&A transaction, in addition to various intermediaries such as legal experts, lead M&A advisors, environmental agencies, industry specialists, there are three main participants: EWZ (the energy buyer), the EPCs (energy seller) and the banks/private equity (financing the EPCs projects).

EWZ as main player of this ecosystem issues the tokens and other two parties EPCs, banks/private equity exchange these tokens with the information thus completing the circular flow of tokens. Initially one might wonder what makes it interesting for EPCs, banks and why should they be willing to use these tokens.

Well, to answer this question we need to dig deeper and understand needs and pain points of each of these parties in an M&A transaction, to figure out how token-based economy can help each of these parties address these issues.

The table listed below shows different participants involved in an M&A transaction and their needs, potential problem areas/pain points.

| Stakeholder | Want/Needs | Challenges/Pain points |
|---|---|---|
| EWZ | Trustworthy data from EPCs on the potential projects | ● Reliability of the data provided by EPCs in the data rooms<br>● Requires time, effort and resources to carry out due diligence on EPCs<br>● Buyer in Sellers market |
| EPC | Availability of easy financing with good terms | ● Not enough project financing options available<br>● Had to deal with banks monopoly |
| Bank/Private equity | Due diligence on EPCs with credible information to evaluate funding decisions | ● Not sufficient & credible data available on EPCs<br>● Requires time, effort and resources to carry out due diligence |

So, let us now see how token-based ecosystem can bring in transparency and address each of these pain points from the perspective of different stakeholders.

1. At the very start of this circular flow, EWZ issues tokens and exchange tokens with the information provided by EPCs in the data room. As thumb rule, more credible and reliable the information, higher the number of tokens issued by EWZ. So, these tokens collected by EPCs can also see as sign of credibility for EPCs.
2. In the next step, EPCs can exchange these tokens with banks/private equity for the financing terms of the loan. Here again as the thumb rule, better the financing terms offered by banks, higher the tokens exchanged with banks. This interaction combined with the information shared by EWZ on the EPCs with banks/private equity will also help banks in making fast decisions on the financing terms of the loans and at the same time this interaction will help EPCs identify which banks are offering easy and friendly terms on financing.
3. Finally, banks can exchange these collected tokens with EWZ for the additional information on EPCs. Here EWZ can really add value to the entire network by sharing information about EPCs in terms of key indicators such as sustainability, governance, environmental regulations, labor laws, renewable projects. This information is readily available with EWZ and can help banks reduce the overall effort of due diligence on EPCs.

So, it can be seen that there are incentives for each player to join blockchain platform as it will help address pain points of the all involved participants in an M&A transaction.

While there are clearly lot of benefits using blockchain in M&A transaction, there are also potential legal issues around contract formation, evidence, self-enforcing nature, data protection, management of the code and liabilities issues around irreversible, automatically signed contracts. In addition, security issues are another important challenge which needs to be further investigated before realizing full potential of blockchain in M&A transaction ("Blockchain and M&A," n.d.).

# 4. Software Architecture and Technology Stack

## 4.1 Software Architecture

During the Hackathon, we focused on building a local blockchain network which uses smart contract for executing transactions and Energy Data Token (EDT) trades among different nodes of the proposed eco-system.

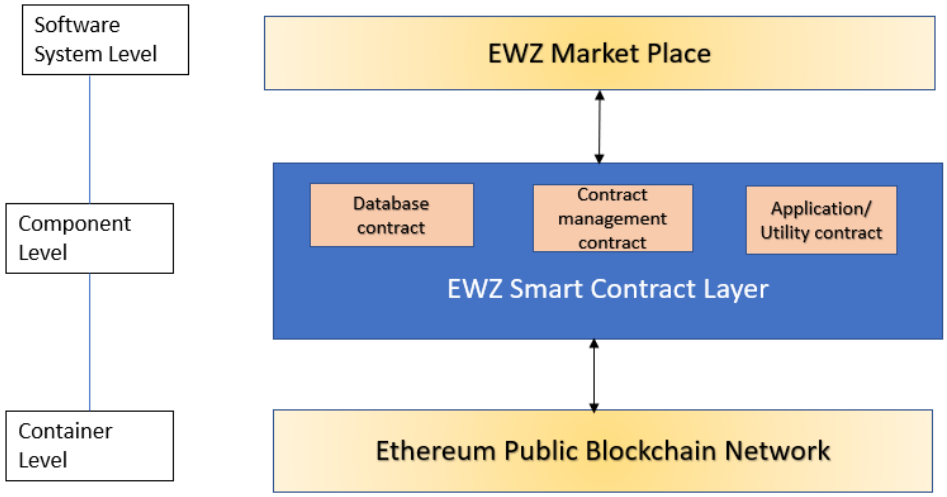


Fig. 3 - Software Architecture

The marketplace layer will be developed and customized to each geographical node of operation, localizing the sellers' interfaces. The marketplace will serve as a decentralized data-room allowing all stakeholders within trade agreement to fulfil obligation and enter a contract agreement with other parties. The proposed architecture of the system of smart contracts is based on the design principle of having different types of contracts to perform different classes of tasks. Database contracts, these contracts are for storage of data with basic read-, write and get-functions, they can also include permissions-checking. Contract managing contracts, these ones are needed to control and manage the actions and existence of other contracts. They should also handle the communication between contracts. Application / Utility contracts are used to implement application-specific tasks and generic functions like hash data or perform another operation.

More specifically looking at the technology, during the design phase our idea was to create the following technology stack using several parts which connect to the Ethereum blockchain ecosystem and is shown below.

## 4.2 Technology Stack

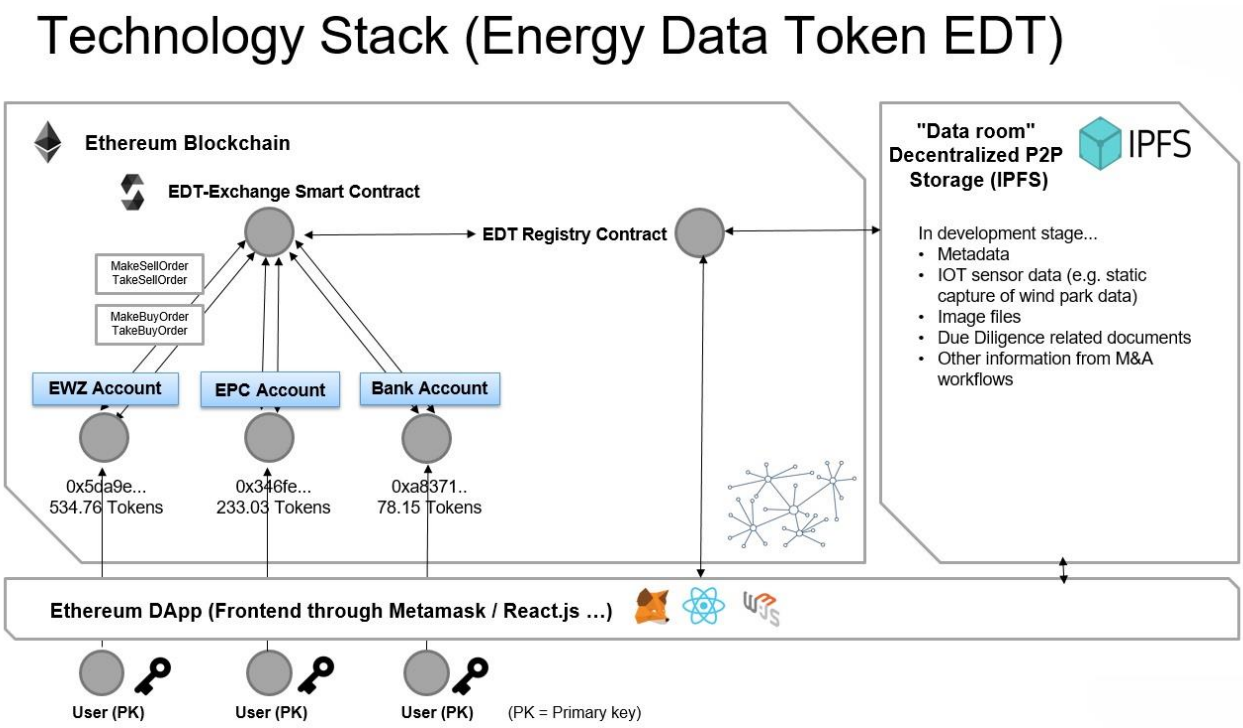


Fig. 4 - Technology Stack, adapted from (Bezalel Lim, 2017)

We used as DApp frontend react.js, MetaMask ("MetaMask Ethereum Browser Extension," n.d.) to interact with the distributed web to run Ethereum dApps (decentralized applications). In the first phase, a user must register first on our platform (the marketplace layer as mentioned before) to get access. The "EDT-Exchange Smart Contract" which is built with Solidity allows to exchange these data tokens with qualitative data and vice versa which is brought in to the ecosystem by all stakeholders (e.g. in the case of an EPC - documents for a due diligence process, see all Ch. 3.1). We call the "EDT Registry Contract" to store hashes on the blockchain and retrieve them to get access to certain files of the "data room" - a common name used in the energy sector, which simply means the files used in during a whole M&A process, in our case, files stored on the decentralized P2P storage IPFS.

To address the need for the exchange of data and large files among stakeholders, we are proposing to use IPFS (Interplanetary File System, (Labs, n.d.)). It is a distributed file system where each node stores a collection of hashed files and the protocol seeks to connect all computing devices with the same system of files. A client who wants to retrieve any of those files, enjoys access to a nice abstraction layer where it simply needs to call the hash of the file it wants. IPFS then combs through the nodes and supplies the client with the file. this protocol currently supports static content and is still in development phase, therefore, it cannot address dynamic content needs and needs regular upgrades to fix any known vulnerabilities.

# 5. Prototype

The first step to develop a prototype for a real M&A transaction would include the infrastructure to translate the data room and all communication between EPCs and EWZ into hashes and store them on a blockchain. The base for this is already implemented on our running prototype as can be read in chapter 4. The actual data will be stored in a secure, decentralized peer-to-peer database (IPFS). An important factor here is, that all parties can only access the data that they are allowed.

Further a token system for the circular flow should be implemented. The release of the tokens is based on smart contracts, therefore a high-level concept for the smart contracts that should be used has to be developed as a second step. The quality and readability of the EPCs data will serve as a measure to release the tokens. Another issue to consider is how EWZ can come up with key indicators of EPCs, to have a trade element with the banks/private equity.

The validation of the concept should be done by setting up different scenarios in which different parts of the concept can be validated. To give one example, the smart contract for the issuing of a token based on the quality of the data and release date would be one such scenario.

Furthermore, a market research should be considered, where relevant future players are evaluated based on their interest and openness to such a project. The focus herein lies on the financial institutions, which play a major part in the concept. The current overhead due to multiple due diligences should be emphasized in this case. The input of the other players should be used to finetune the implementation concept and correct possible conceptual flaws.

# 6. Conclusion and Outlook

Blockchain in M&A has a potential to address the trust issues between multiple parties involved in an energy transaction and address various aspects of executing transactions in a new networked ecosystem.

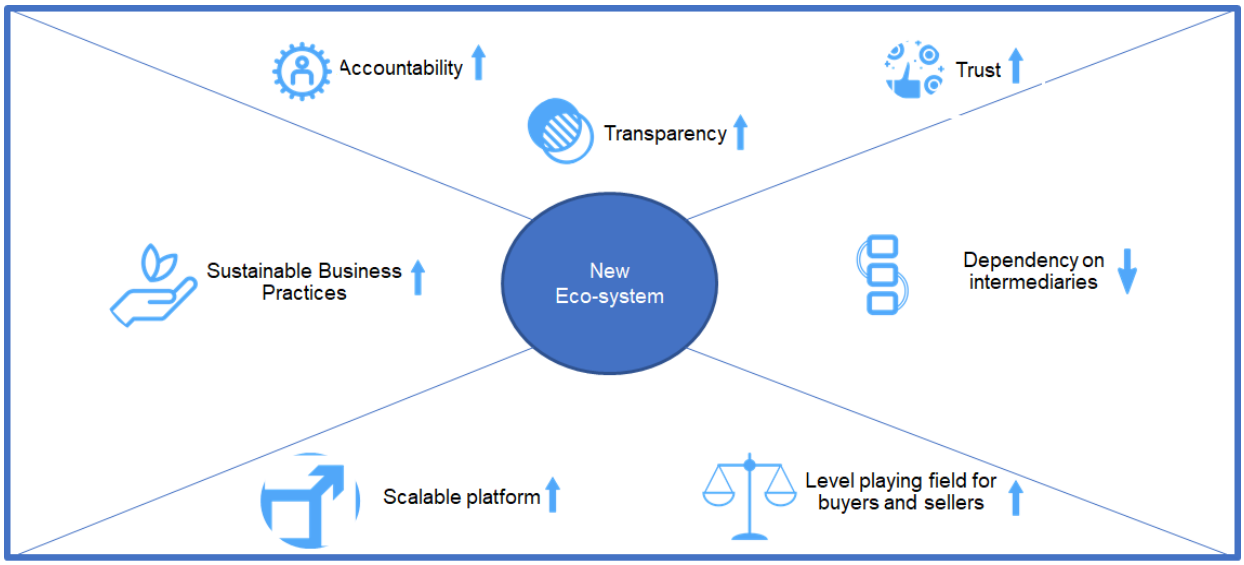


Fig. 5 - A New Ecosystem

On one end, data in the blockchain allows for verifiable trust and quantified processes, providing for higher accountability between the participants of a transaction, higher transparency among all the parties involved. Thus, creating an environment of increased trust to perform transactions.

On the other end, due to the ability of data in blockchain to be quantifiable (data points), allows for verifiable trust and transparency. In return, enables for a level playing ground for all the parties involved in a transaction to conduct business. Wherein, the buyers, sellers, financial institutions and other parties involved, have incentives to “Play-good”. Quantifying the qualitative information exchanged during an M&A transaction with tokens and utilizing the inherent nature of blockchain - smart contracts to capture and manage the validity and quality help towards creating a scalable platform to conduct M&A transactions in a networked ecosystem.

A platform-approach to conduct business with various players of a complex business transaction, like that of M&A transactions in renewable energy sector minimizes intermediaries between buyers and sellers. With (a) verifiable data, (b) quick access to the information in the cloud, and (c) incentives for each of the players to provide the right information for the discussion to move forward in the right direction, the dependency of buyers and sellers on intermediaries is drastically reduced. For example,

intermediaries such as a legal counsel might be necessary for the validation of legal information presented on the cloud and not necessarily present for all the discussions that enable for establishing trust between the players.

The model of tokenizing i.e., exchanging and distributing tokens between EPCs and Energy companies for good quality legal, environmental, socio-political, and actual energy data, along with reducing influence of intermediaries, with a scalable platform business model helps establish transparent and sound business processes, which lay a foundation for long-term sustainable business practices.

The model and the prototype need to be further evaluated in situations of:

- Handling lousy behavior - How to identify and correct bad behavior in a network strategy?
- Identifying the best way to get the right data directly from the source of information - Integrating IoT sensors
- Establishing an organization to manage and improve business processes across the ecosystem
- Developing an agreed formula to quantify data points, data quality, and tokens
- Auditing and validation of the source code

# 7. References

Bezalel Lim, P. O. (2017, July 31). On/Off-Chain Hybrid Exchange System. Retrieved from https://yosemitex.com/documents/Asset_Exchange_YOSEMITE_Technical_White_Paper_20170731a.pdf

Blockchain and M&A. (n.d.). Retrieved February 23, 2018, from http://www.valitascapital.com/public/uploads/recentarticles_file/Blockchain_Part_II_v8.pdf

Blockchain Oracles. (n.d.-a). Retrieved April 19, 2018, from https://blockchainhub.net/blockchain-oracles

Blockchain Oracles. (n.d.-b). Retrieved February 27, 2018, from https://blockchainhub.net/blockchain-oracles/

Blockchain Oracles. (n.d.-c). Retrieved April 19, 2018, from https://blockchainhub.net/blockchain-oracles

Czycholl, H. (n.d.). Industrialisierung von Rechtsdienstleistungen. Retrieved February 23, 2018, from https://www.rewi.europa-uni.de/de/lehrstuhl/br/wirtschaftsrecht/forschung/Legal-Tech-Journal.pdf

Gisèle Rosselle, K. A. (n.d.). blockchain and smart contracts. Retrieved February 23, 2018, from https://www.strelia.com/sites/strelia.com/files/strelia_ma_series_-_november_2017_-_blockchain_and_smart_contracts.pdf

Labs, P. (n.d.). IPFS Docs. Retrieved April 24, 2018, from https://ipfs.io/docs/

MetaMask Ethereum Browser Extension. (n.d.). Retrieved April 24, 2018, from https://metamask.io/

Meunier, S., Halder, C., & York, N. (n.d.). Blockchain 101: What is Blockchain and how does this revolutionary technology work?

Pellegrini, A. (n.d.). Website. Retrieved February 23, 2018, from https://www.linkedin.com/pulse/how-draft-complete-reliable-solar-project-due-report-pellegrini/

Rosic, A. (2016, November 10). What is Ethereum? A Step-by-Step Beginners Guide [Ultimate Guide]. Retrieved April 19, 2018, from https://blockgeeks.com/guides/ethereum/

Treleaven, P., Brown, R. G., & Yang, D. (2017). Blockchain Technology in Finance. *Computer*, *50*(9), 14–17.

Valitas Insights: Blockchain and M&A. (n.d.). Retrieved February 26, 2018, from http://www.valitascapital.com/public/uploads/recentarticles_file/Blockchain_article_with_Header_v10.pdf

Wessing, T. (n.d.). Blockchain und Unternehmenskauf. Retrieved February 23, 2018, from https://deutschland.taylorwessing.com/de/2017-12/blockchain-beim-unternehmenskauf-der-m-a-anwalt-als-auslaufmodell