**A study of ONTOCHAIN sub-projects**

## ADOS: AirTrace Decentralized Oracle System

The aim of ADOS is to apply blockchain technologies to IoT (Internet of Things) systems, as current IoT systems can be lacking in certain key network aspects such as scalability, security, resource consumption and trustworthyness. This project can be a use case in any IoT application for example monitoring of soil contents in smart farms or distributed warther stations.

## BOWLER: Blockchain-Oriented Warehouse & Low-Code Engine and Reasoner

The aim of BOWLER is to make a low-code, end-to-end, web-based IDE that will enable those which are not very familliar with Smart Contracts to learn how to program dApps and marketplaces. The main goal of this project is to make it easier for new programmers to enter the Smart Contract programming sphere and start developing for blockchain technologies. An example of this projects use case would be to make a web-based PyCharm, but for programming Smart Contracts.

## CARECHAIN: Supporting CARE through microinsurances using blockCHAIN

The aim of CARECHAIN is to make a platform for issueing microinsurances and compensation if conditions are met using Smart Contracts. Smart Contracts are also encrypted and public, so no one can deny parttaking in the process. Goals of CARECHAIN is the construction of a platform and environment for executing smart contracts if some conditions are met, for example if a farmer has microensurance and windspeeds exceed 100Mph, he can be financially compensated without the need for human inspectors.

## CopyrightLY: Decentralised Copyright Management for Social Media

The aim of CopyrightLY is to make a system for copyright management on the blockchain. Each creator uploads a video to Youtube for example and is provided a proof of ownership on the blockchain. If then a copyright violation is detected the system can automatically reach out to the perpetrator of the incident and ask them for financial compensation. This evidence can then also be used in court.

## DART: A Distributed-OrAcles Framework for PRivacy-Preserving Data Traceability

The aim DART is to make a system for transferring data between two parties which is provate and tracable. DART is to be implemented using oracles in the blockchain to verify the smart contract and passit onto the blockchain where the end user can recieve the information being sent. Off-chain data can be packaged into blocks and sent into smart contracts and forwarded to blocks. Use case would be transferring of accounting information between two branches of a company.

## DESMO-LD: Decentralized Smart Oracles for Trusted Linked Data

The aim of DESMO-LD is to design and implement a trustfun Oracle prototype and provide the neccesary data for its operation. It uses Smart Contracts to gather off-chain data through oracles. It can be used to collect data from for exxample IoT devices and gather them in one place.

## DKG: Decentralised and Scalable Knowledge Graph supporting ONTOCHAIN

The aim of DKG is to make a decentralised knowledge sharing platform using the help of ONTOCHAIN. The use case would be to make a digital classroom where students can post their homework and other assignments (like Moodle), but in ONTOCHAIN.

## DW-marking: Data Watermarking

The aim of DW is to make data watermarking better of the blockchain as it is facing issues with handling all the needed data on the blockchain. The goal of this project is then to combine both on and off-chain technologies to make data watermarking more efficient on-chain. The use case would be someone buying an artwork online and DW would make sure the artwork is genuine.

## GEONTOLOGY

The aim of GEONTOLOGY is to make a geo-aware protocol for enabling cross-border operations and data exchange in a digital economy. Its main goal is then to provide geolocation data to any transaction using smart contracts. It uses an inovative protocol called Proof of Ofset which enables nodes to find out the country of origin of the coontract which will in theory make scams harder. The use case can be any form of purchase using the blockchain.

## Gimly ID: an SSI application suite

The aim of Gimly ID is to make a set of web applications (computer and mobile) to help with digital identification and SSO. The main focus is the mobile app which can use passwordless means of user verification. A use case would be to confirm your identity for signing up to a government website.

## GraphChain: a framework for on-chain data management for ONTOCHAIN

The aim of GraphChain is to make a framework for on-chain data mangement. It uses GraphQL as an inspiration, which means data is stored as a graph o collection of nodes. A use case would be to store the information of textboook content and serving them up to students. This can be done because data is stored in machine readable and human readable form.

## HIBI: Human Identity Blockchain Initiative

The aim of HIBI is to create a human verification framework that is trustworthy, formalised and privacy-focused. It will use the established technologies developed by the EU. It will enable digital reputation andidentity systems for web technologies. A use case would be the same as Gimly Id's.

## ISLAND: Interlinked SemanticaLly-enriched BlockchAiN Data

The aim if ISLAND is to enable semantic interoperability services for ONTOCHAIN. Its main goal is to enrich the ORTOCHAIN blocks to enable extraction of unstructured data and annotate them with certain semantics to make it easier for access and searching. This technology is useful if you are making a web3 search engine.

## KnowledgeX: Trusted data-driven knowledge extraction

The aim of KnowledgeX is to make a platform that allows companies to search for specialists for specific use cases, enables transparent and tracable knowledge generation and maintains a decentralised reputation storage of data and knowledge. A use case would be a company seeking a specialist for marketability.

## KUMO: A Network Crawler for Ethereum

The aim of KUMO is to create a network crawler that identifies noeds on the blockcchain and gets information about latency, geographical position and current distribution of clients. This is useful for making sure there are no DoS attacks on the blockchain and to find out out-of-order behaviours.

## LCDP-ONT-APP: ONTOCHAIN Domain Builder

The aim of this project is to make a meta-language for ONTOCHAIN and its applications, development of ontologies for domain specific scenarios and an IDE for easier development. An use case would be to use this platform to make a dApp.

## MFSSIA: Multi-Factor Self-Sovereign Identity Authentication

The aim of MFSSIA is to create a multi-factor authentication service via blockchain. Blockchain is uset to store authentication related data. The use case would be the same as oAuth is now, but for Web3.

## NFTWATCH

The aim of NFTWATCH is to collect and aggregate information about NTF's and its marketplaces. It can be used to analise either on or off-chain data. The use case would be to study the NFT trends.

## OntoROPA: Ontology based ecosystem for trustworthy Records of Processing Activities