**VAT Tracking Project Software Requirements Specification.**

### Business Background.

Value-added tax (VAT), known in some countries as a goods and services tax (GST), is a type of tax that is assessed incrementally. It is levied on the price of a product or service at each stage of production, distribution, or sale to the end consumer. If the ultimate consumer is a business that collects and pays to the government VAT on its products or services, it can reclaim the tax paid. It is similar to, and is often compared with a sales tax.

VAT is often exploited by fraudsters in a number of schemes. The most common is the ‘Missing Trader Fraud’, also known as ‘Carousel fraud’.

Missing trader fraud (also called missing trader intra-community fraud or MTIC fraud) involves the theft of VAT from a government by fraudsters who exploit VAT rules, most commonly the European Union VAT rules which provide that the movement of goods between member states is VAT-free. There are different variations of the fraud but they generally involve a trader charging VAT on the sale of goods and absconding with the VAT (instead of paying the VAT to the government's taxation authority). The term "missing trader" is used because the fraudster has gone missing with the VAT. In this project, we will use the Ethereum blockchain to create a second blockchain that will link all invoices in a chain that can be queried or added to.

## Technical Specification.

The project team will design and implement a blockchain inside the Ethereum blockchain that will contain a chain of invoices. Each with a link to the previous invoice in the chain. The application will develop an NFT for each invoice. The NFT will contain a link to the previous invoice in the chain. The application will allow users to create an invoice chain or modify an existing invoice chain. Additionally, each invoice will contain a link to another NFT that certifies that the VAT has been paid.

Attributes of the Invoice NFT

Each Invoice NFT will contain the following attributes.

1. Invoice number

2. company name

3. company reg. Number

4. customer name

5. customer tax number

6. amount on invoice

7. high value goods (y/n)

8. secure hash of invoice

9. NFT for certifying VAT was paid.

10. Link to previous invoice.

Each VAT certification NFT will contain the following:

1. Company name.

2. Company Registratoin

3. Company Tax ID

4. VAT assessment.

5. VAT paid (y/n).

### Functional Requirements.

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| **Requirement ID** | **Requirement Specification** |
| MFR-1 | Create an invoice chain on the Ethereum blockchain. |
| MFR-1.1 | Two roles will be created. The administrator and the company submitting the invoice |
| MFR-1l2 | Administrators must be able to register companies. |
| MFR-1.2 | Companies must be able to submit invoices on the blockchain. |
| MFR-1.3 | Administrators must be able to create VAT certifications for each invoice on the chain and submit it to the invoice NFT. |
| MFR-1.4 | All users should be able to query single invoices or the entire invoice chain to get information about the invoice or invoice chain they require. |
| MFR-1.5 | A simple web front end with JavaScript and the web3.js library should be created to facilitate the application. |

### Technologies used:

1. Solidity programming language

2. JavaScript + web3.js library.

3. Ethereum Blockchain.