

MACHINE LEARNING INTERNSHIP

mission: open all possibilities machine learning would bring to supply chain understanding

1. Introduction to the Transparency-One.

Transparency-One enables brands & manufacturers to better understand their full supply chain from farm to fork, field to skin so that they much better fit with their customers' values.

- **Transparency-One chain of custody mapping:**
 - a. customers of Transparency-One will enter all their information as products / components / facilities / certificates / suppliers / requirements to suppliers...
 - b. they will then invite their suppliers (called Tier 1) to give them visibility on the products they buy from them by joining the platform,
 - c. those suppliers will register into Transparency-One, will declare similar information as their customers and will give visibility on the required information to their customers,
 - d. they will then invite their suppliers (tier 2) to join the platform and do the same,
 - e. level after level the mapping of the full product information will be visible to the top of the chain.

- **Transparency-One leverage of the information entered during chain of custody mapping:**
 - a. the more information about products, suppliers, certificates, countries... is entered in Transparency-One, the more Transparency-One customers and users can analyses their supply chain to better understand it:
 - i. products impacted by a scandal in a given country
 - ii. real origins of the products to be declared

- iii. all suppliers involved in food crisis....
- b. Transparency-One has embedded a BI engine (Qlik) to enable analysis of the information reported in the application.
- c. Transparency-One is planning to make “market” data meaningful for such problematic available to its customers

2. Transparency-One & Machine Learning

Transparency-One has started to embed very simple algorithm to advice users on what to do next to improve its supply chain. We could do much more.

Transparency-One team has started to understand some issues which can be found in a supply chain and is reporting those issues in project steering committee.

Mapping a chain of custody is a brand new activity for retailers and manufacturers and they don't know (and we don't know either) what is going to be found and what are all the opportunities to evolve and do better.

Thus we believe that Machine Learning could bring a lot to the platform.

3. Transparency-One Machine Learning Proposed project

- **Transparency-One philosophy:**

Transparency-One is a test and learn company. We always want to build new capabilities, test them with users, see the value and then improve. We have no fear to fail and have to redo things.

In this internship, it means that we will try to build POC of ideas asap to test them and build value, we don't need to design the best solution on paper first.

- **Internship Objectives:**

- a. Objective 1: identify all opportunities from Machine Learning in a business problem as the one targeted by Transparency-One
- b. Objective 2: identify all Machine Learning technologies out there and recommend best fit for Transparency-One problematics
- c. Objective 3: deliver at least one pilot, and why not several, to test ideas and technologies in Transparency-One
- d. Objective 4: help build a culture with the right knowledge on Machine Learning for Transparency-One.

1. Transparency-One Methodology, Technology and Tools

- **Methodology**

Transparency-One is built following the best latest methodologies. We are full fledge Agile with roadmap ongoing process, backlog grooming, pocker planning, daily stand up, Continuous integration, sprint demos and retros with key Quality and Delivery KPIs followed. Of course, we still have many areas of enhancements of our processes and are very thirsty for external new views that can be brought in by very different viewpoints. We are currently working towards Domain Driven Development.

- **Technology stacks**

Transparency-One is much richer than many software out there because we always try to select the best of breed technologies to stay in front of the pack. Transparency-One is built in C# with Angular on the front and some java for some backend graph processing (as we do use Neo4J as graph DB). We are also using SQLServer for regular DB storage, RabbitMQ for asynchronous processing, Elastic Search for fast data access, Azure Blob for file storage. We are continuously looking at new technologies to fulfill coming new business requirements. We are evolving towards a micro services architecture.

- **Tools**

We are trying to pick the best tools for everything that we do. We use GitHub, Jenkins, Jira, Confluence, SOAPUI to name a few.

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