

Digital Supply Chain Marketplace: Data-lake architecture and AI validation engine

Summary

Challenge

In order to facilitate and speed up developing and connecting local manufacturers, and accelerate access of local manufacturing supply chains to global markets, industrial digital technology tools such as digital supply chain marketplace platforms, will help enhance competitiveness, visibility and ultimately productivity of regional companies. This project was set out to develop **AI driven Digital Supply Chain Marketplace tools to enable converting company information to a dynamic match-making resource** with accurate well-structured company information collected and validated using web-crawling algorithms.

Solution

Manufacturing capability datalake creation by scraping publicly available company information

- Custom data architecture
- Custom intelligent scraper, to handle various types of company websites designs

AI Inference Engine Minimum Viable Product

- What a company does?
- What are the products or services?
- What Quality Certification it has?
- Who are its current customers?

Experimental toolkits created to allow AI to infer on industry sector classification & core capabilities not explicitly stated in the company's digital footprint

- Under what Industry Classifier it fits (incl. scoring system)
- Under what Capability Classifier it fits (incl. scoring system)
- AI-Industry keyword generator that analyses domain-specific terminology

Web based application

- Simple frontend to search capability
- Knowledge graph representation of the query results for each company, including many entities and relationships

Benefits

- Our initial datalake **includes over 600 companies**
- Once set up scraping and gathering relevant information per company currently takes approx. 30 sec per company
- Scalable platform and ready to use data API's to utilise datalake

Further exploitation/next steps

- **Industry Use-Case definition & toolkit refinement** for maximum impact by organising workshops, to help guide the developers on how toolkits may assist/save time & effort for the beneficiaries and endusers.
- **Datalake expansion** will result in a more substantial regional or national level resource. Our datalake modular architecture approach will allow additional modules to be added enhancing the richness of information and capability captured from the same or new sources
- **Collaboration with Domain experts** will augment the AI algorithms with expert knowledge and allow us to scale the toolkits and platform for emerging industries
- **Research Community engagement** through industry-academia student projects can help enhance toolkits capabilities by addressing challenges identified or create experimental toolkits with additional modules

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