

Job Brief — Master Thesis Student

Procurement Analytics / Material Intelligence / Data Science

Position Title: Master Thesis Student — Procurement Analytics & Material Intelligence

Department: Procurement Tools, Systems & Processes / Global Procurement

Location: Zurich / hybrid, depending on university and business requirements

Background

Global Procurement is exploring how data science and AI can improve procurement analytics, material transparency and negotiation support for direct materials. The current concept is a Procurement Analyst Engine that creates a standardized material intelligence layer, links technical material information with commercial procurement data, and generates more consistent benchmarks and negotiation-ready insights.

The solution concept includes elements such as Material DNA creation, material clustering, SDS/PDS/specification extraction, should-cost logic, supplier benchmarking and Negotiation Packs for procurement users.

To support this work, we are looking for a Master thesis student with a combined profile in business, chemistry/material science and data science.

Purpose of the Thesis

The thesis should help Procurement assess how technical material information can be transformed into useful procurement intelligence.

The student will support the development of a lean pilot concept for selected direct materials by combining:

- chemical/material understanding,
- procurement and spend data logic,
- document and specification analysis,
- basic data science methods, and
- practical business use cases for category management and negotiation support.

The work should bridge the gap between technical material characteristics and commercial procurement decision-making.

Possible Thesis Topic

Developing a Material Intelligence Framework for Procurement Analytics: Combining Chemistry, Spend Data and Data Science to Support Benchmarking and Negotiation Decisions.

Alternative shorter title: Material DNA for Procurement: A Data-Driven Approach to Technical and Commercial Material Clustering.

Key Responsibilities

- Analyze selected direct-material categories from both a technical and commercial procurement perspective.

- Review available material information such as SDS, PDS, specifications, item descriptions and procurement master data.
- Identify relevant material attributes that can support material grouping, comparison and benchmarking.
- Develop a first logic for Material DNA and material clustering for a selected pilot scope.
- Explore how technical attributes can be linked to procurement data, price history, supplier information and market drivers.
- Support the definition of simple should-cost or benchmark logic for selected material groups.
- Create prototype outputs such as material comparison tables, clustering logic, benchmark views or negotiation support summaries.
- Document assumptions, limitations, data gaps and recommendations for further development.

Expected Deliverables

- A structured overview of relevant material attributes for procurement analytics.
- A proposed Material DNA / clustering framework for selected pilot materials.
- A data model or logic showing how technical and procurement data can be connected.
- A prototype analysis for one selected material category or material group.
- Recommendations for how the concept could be scaled or improved.
- A final thesis report and management-ready summary for Procurement.

Candidate Profile

We are looking for a Master student with an interdisciplinary profile:

Required

- Current Master studies in a relevant field, e.g. business chemistry, chemical engineering, industrial engineering, data science, business analytics or similar.
- Good understanding of chemistry, materials or technical product specifications.
- Strong analytical thinking and interest in procurement, supply markets and business impact.
- Basic to good data science skills, e.g. Python, data cleaning, clustering, text analysis, machine learning or data visualization.
- Ability to translate technical information into business-relevant insights.
- Structured working style and ability to handle incomplete or imperfect data.

Helpful

- Experience with procurement, supply chain, category management or cost analysis.
- Familiarity with SDS/PDS documents, material specifications or chemical classifications.
- Experience with Power BI, Excel, Python, SQL or similar tools.
- Interest in AI, document extraction, semantic search, clustering or market intelligence.

What the Student Will Learn

The student will gain practical exposure to a real global procurement transformation topic at the interface of:

- procurement strategy,
- chemical/material classification,
- data science,
- AI-supported analytics,
- should-cost thinking,
- supplier benchmarking, and

- digital procurement tools.

The work is suitable for a student who wants to apply data science to a tangible business problem with strong technical and commercial relevance.

Proposed Scope for a Lean Thesis Pilot

To keep the work realistic, the thesis should focus on one selected pilot material category rather than the full global scope.

A suitable pilot could include:

- selected chemical raw materials, packaging materials or bulk materials,
- available item master data and procurement spend data,
- available SDS/PDS/specification documents,
- basic clustering logic,
- first benchmark or should-cost indicators, and
- a simple output format for procurement users.

The objective is not to build a full production system, but to create a validated concept, prototype logic and recommendation for next steps.

Short Version for Posting

Master Thesis Student — Procurement Analytics & Material Intelligence

We are looking for a Master thesis student with a background in business, chemistry/material science and data science to support a global procurement analytics initiative.

The thesis will explore how technical material information such as SDS, PDS, specifications and item descriptions can be transformed into a structured Material DNA and linked with procurement data for clustering, benchmarking and negotiation support.

The student will work on one selected pilot category, develop a first material intelligence framework, test clustering or data analysis approaches, and create practical outputs for procurement decision-making.

Ideal profile: Master student in business chemistry, chemical engineering, industrial engineering, data science, business analytics or similar, with strong analytical skills, basic programming/data science knowledge and an interest in procurement and supply markets.

Very Short PPT / Internal Approval Version

Master thesis student to support Procurement Analytics Engine MVP. Profile: business + chemistry/material science + data science. Focus: translate SDS/PDS/specification and procurement data into a first Material DNA and clustering logic for one pilot category. Output: prototype analysis, material grouping framework, data gaps, benchmark logic and recommendations for scaling.