Presentation

FRANKFURT
UNIVERSITY
OF APPLIED SCIENCES

PROJECT PROPOSAL

by

Working Package 4

Project Digitalization - Winter Semester 2023/2024

Initial Plan

PDF: text
text text
text text
text text

→ extract →

Sentences with relevant information:
Text text text text text text text

Named Entity Recognition → Coreference Resolution → Relationship Extraction

Triplets:

Subject:	Predicate:	Object:
(:Company XY)	-[:EMITTED]->	(:CO2)

Cypher
Query Language

neo4j

Knowledge Graph
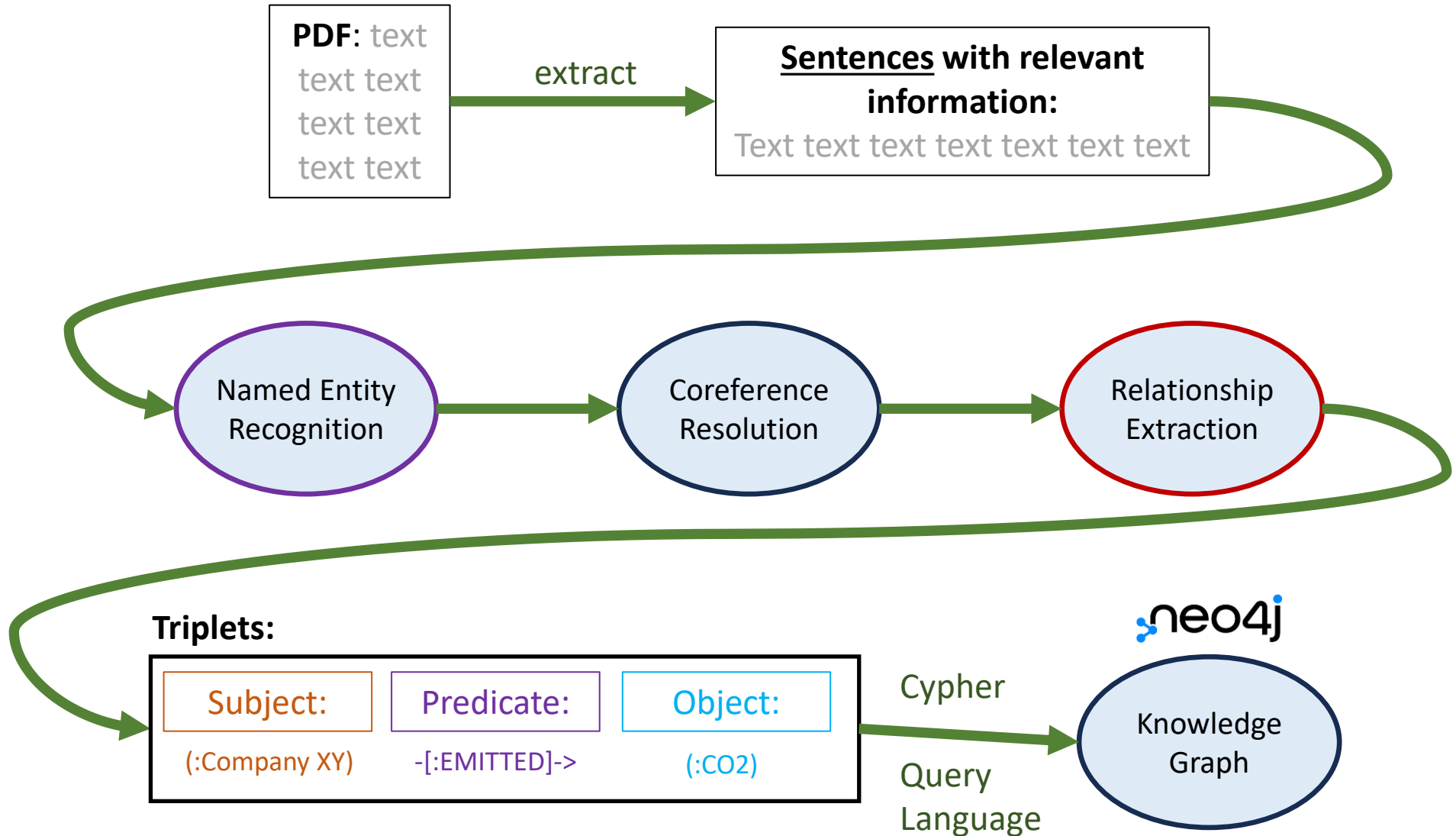
European Sustainability Reporting Standard (ESRS)

EXPOSURE DRAFT

_____

ESRS E1
Climate change

Basis for conclusions

[Draft] List of ESRS Data Points - Implementation Guidance

05-03 EFRAG SRB Meeting 25 October 2023

Please find instructions, explanations and a disclaimer on the content of this Workbook in the accompanying note 05-02.

Standard (click to jump):

ESRS 2 - General Disclosures
ESRS 2 - Minimum Disclosure Requirements (MDR)
E1 - Climate Change
E2 - Pollution
E3 - Water and Marine Resources
E4 - Biodiversity and Ecosystems
E5 - Resource Use and Circular Economy
S1 - Own Workforce
S2 - Workers in the Value Chain
S3 - Affected Communities
S4 - Consumers and End-users
G1 - Business Conduct

ESRS (Draft): Required Data to be reported

ESRS 2 - General Disclosures	
ESRS 2 - Minimum Disclosure Requirements (MDR)	
E1 - Climate Change	
E2 - Pollution	
E3 - Water and Marine Resources	
E4 - Biodiversity and Ecosystems	
E5 - Resource Use and Circular Economy	
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Extract:

E1	E1-1	16c	Financial resources allocated to action plan (OpEx)	monetary
E1	E1-1	16c	Financial resources allocated to action plan (CapEx)	monetary
E1	E1-1	16d	Explanation of potential locked-in GHG emissions from key assets and products and of how locked-in GHG emissi	narrative
E1	E1-1	16e	Explanation of any objective or plans (CapEx, CapEx plans, OpEx) for aligning economic activities (revenues, CapE	narrative
E1	E1-1	16f	Significant CapEx for coal-related economic activities	monetary
E1	E1-1	16f	Significant CapEx for oil-related economic activities	monetary
E1	E1-1	16f	Significant CapEx for gas-related economic activities	monetary
E1	E1-1	16g	Undertaking is excluded from EU Paris-aligned Benchmarks	semi-narrative
E1	E1-1	16h	Explanation of how transition plan is embedded in and aligned with overall business strategy and financial plannin	narrative
E1	E1-1	16i	Transition plan is approved by administrative, management and supervisory bodies	semi-narrative
E1	E1-1	16j	Explanation of progress in implementing transition plan	narrative
E1	E1-1	17	Date of adoption of transition plan for undertakings not having adopted transition plan yet	gYear

Quantitative

Text/Number

Text

Initial Idea: Mapping sentences to ESRS Data Points

E1	E1-4	34a + 34 b	Percentage of Scope 1 Greenhouse gas emissions reduction (as of emissions of base year)

E1	E1-4	34a + 34 b	Percentage of market-based Scope 2 Greenhouse gas emissions reduction (as of emissions of base year)

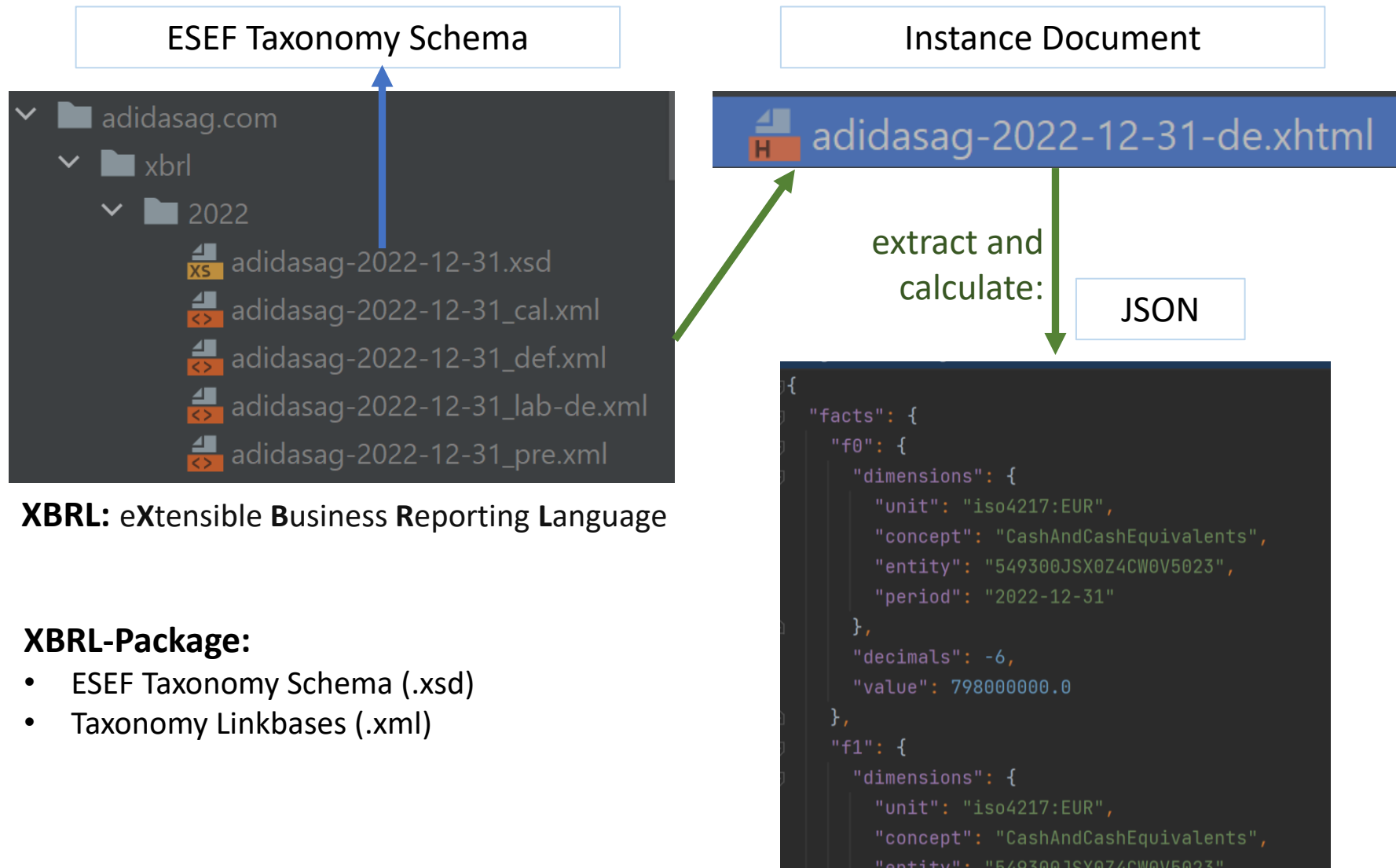| E1	E1-4	34a + 34 b	Percentage of location-based Scope 2 Greenhouse gas emissions reduction (as of emissions of base year)

Text from PDFs:

"Within the 2025 target, we commit to reducing absolute Scope 1 and 2 GHG emissions by 90% from a baseline of 2017."

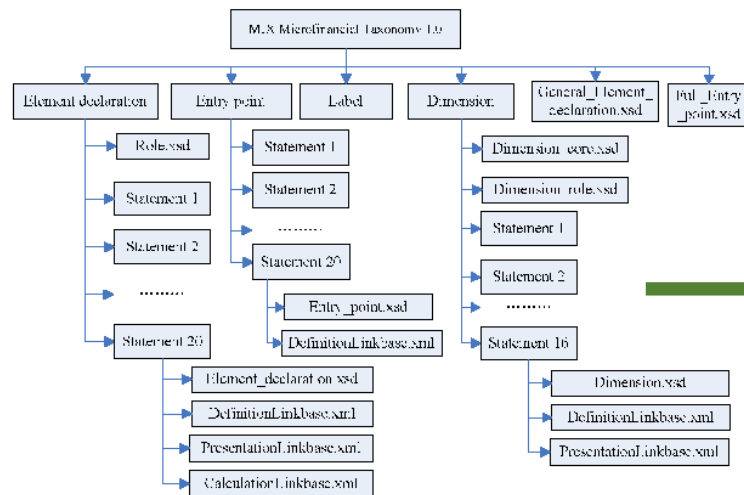| ESRS 2	MDR-T	80 b	Measurable target

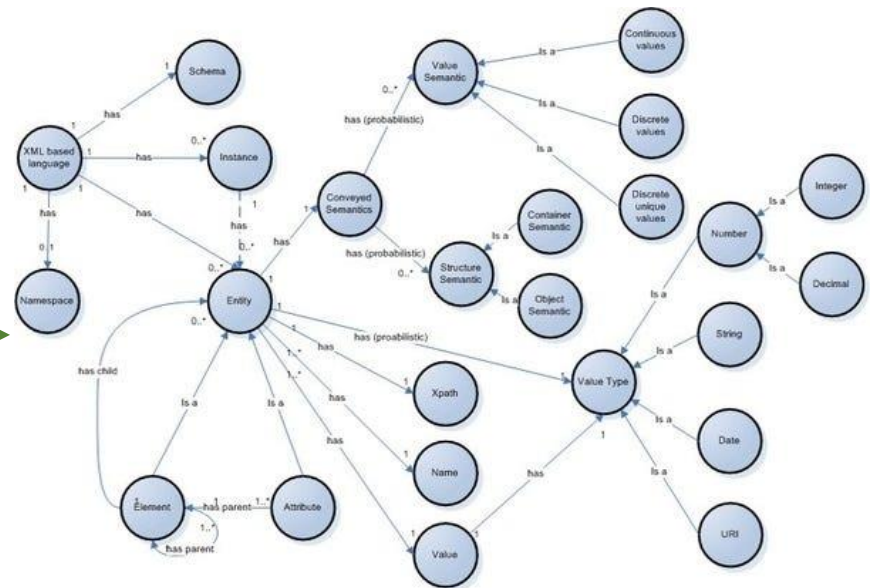| ESRS 2	MDR-T	80 d	Baseline year

ESRS: XBRL-Format Delivery Requirement

ESEF Taxonomy Schema

adidasag.com
- xbrl
  - 2022
    - adidasag-2022-12-31.xsd
    - adidasag-2022-12-31_cal.xml
    - adidasag-2022-12-31_def.xml
    - adidasag-2022-12-31_lab-de.xml
    - adidasag-2022-12-31_pre.xml

XBRL: e**X**tensible **B**usiness **R**eporting **L**anguage

XBRL-Package:
- ESEF Taxonomy Schema (.xsd)
- Taxonomy Linkbases (.xml)

Instance Document

adidasag-2022-12-31-de.xhtml

extract and calculate:

JSON

```
{
  "facts": {
    "f0": {
      "dimensions": {
        "unit": "iso4217:EUR",
        "concept": "CashAndCashEquivalents",
        "entity": "549300JSX0Z4CW0V5023",
        "period": "2022-12-31"
      },
      "decimals": -6,
      "value": 798000000.0
    },
    "f1": {
      "dimensions": {
        "unit": "iso4217:EUR",
        "concept": "CashAndCashEquivalents",
        "entity": "549300JSX0Z4CW0V5023",
```

Difference between Taxonomy and Ontology

Taxonomy Schema

Ontology / Knowledge Graph

derive

- Hierarchy
- Concrete

- Semantic Meaning
- Relationships

How to build a Knowledge Graph

Source: https://factnexus.com/blog/how-to-build-a-knowledge-graph
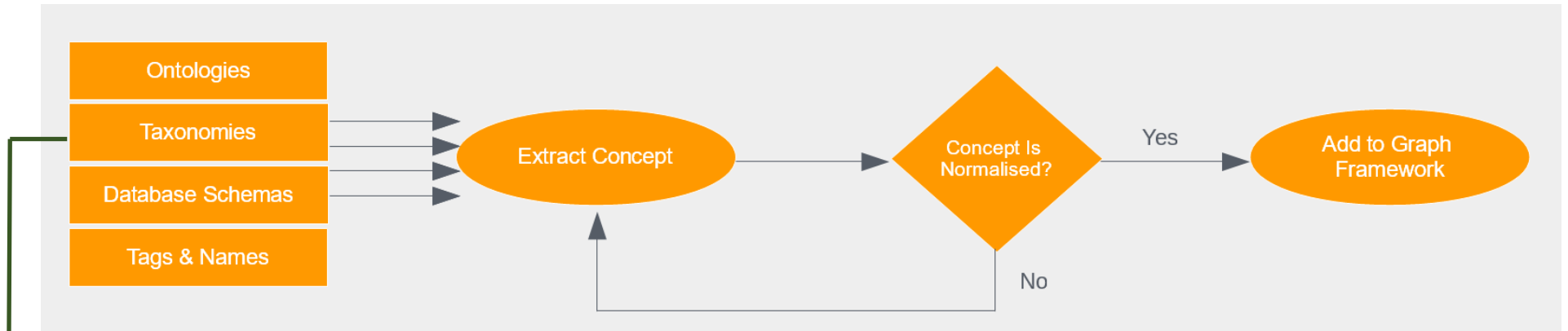
Already there:

ESEF XBRL Taxonomy: Financial Reports

Coming:

ESRS XBRL Taxonomie: ESG-Reporting

based on →

ESRS (Draft)

| ESRS 2 - General Disclosures |
| ESRS 2 - Minimum Disclosure Requirements (MDR) |
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Plan ahead

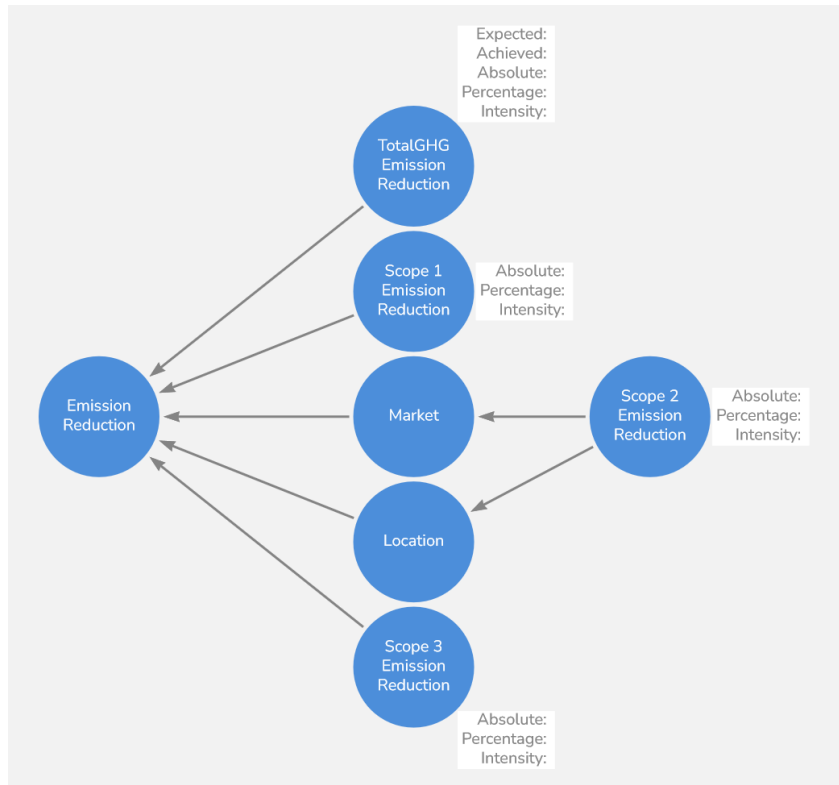Create Ontology based on coming taxonomy:
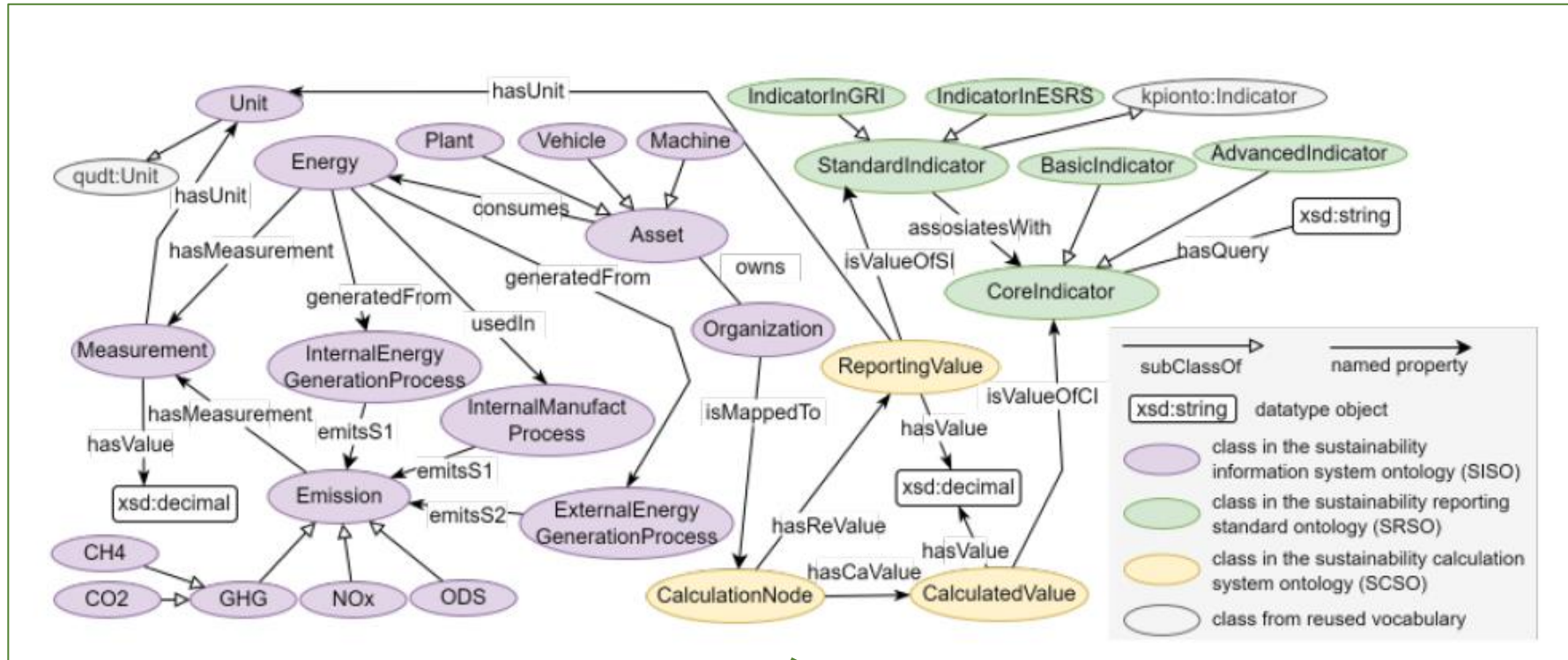
Source:
Zhou, Yuchen, and Alexander Perzylo. **"OntoSustain: Towards an Ontology for Corporate Sustainability Reporting."** *International Semantic Web Conference (ISWC).* 2023.
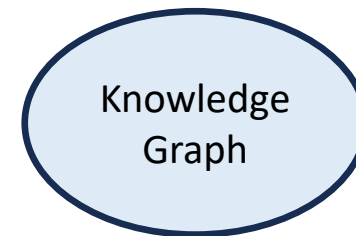
Cypher

Knowledge Graph

Plan ahead

Create Ontology based on coming taxonomy:

Arrows.app example for Emission Reduction

CREATE ({Absolute: "", Percentage: "", Intensity: ""})-[:_RELATED]->(`Emission Reduction`)<-[:_RELATED]-({Absolute: "", Percentage: "", Intensity: ""}),
({Expected: "", Achieved: "", Absolute: "", Percentage: "", Intensity: ""})-[:_RELATED]->(`Emission Reduction`)<-[:_RELATED]-()<-[:_RELATED]-(`Scope 2 Emission Reduction` {Absolute: "", Percentage: "", Intensity: ""}),
(`Scope 2 Emission Reduction`)-[:_RELATED]->()-[:_RELATED]->(`Emission Reduction`)

Knowledge Graph

Questions?