Data Model for Information Management of Bioenergy Supply Chains

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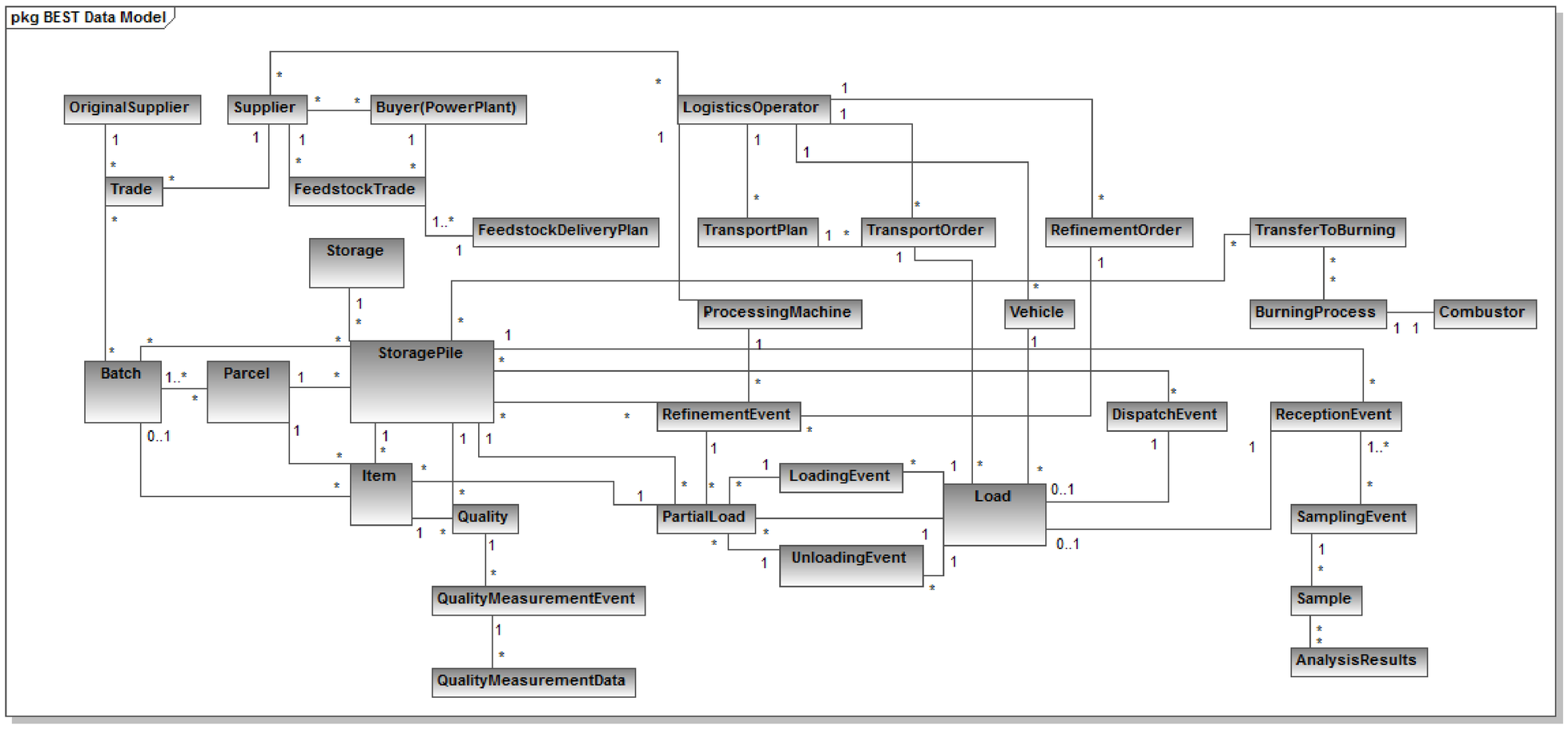


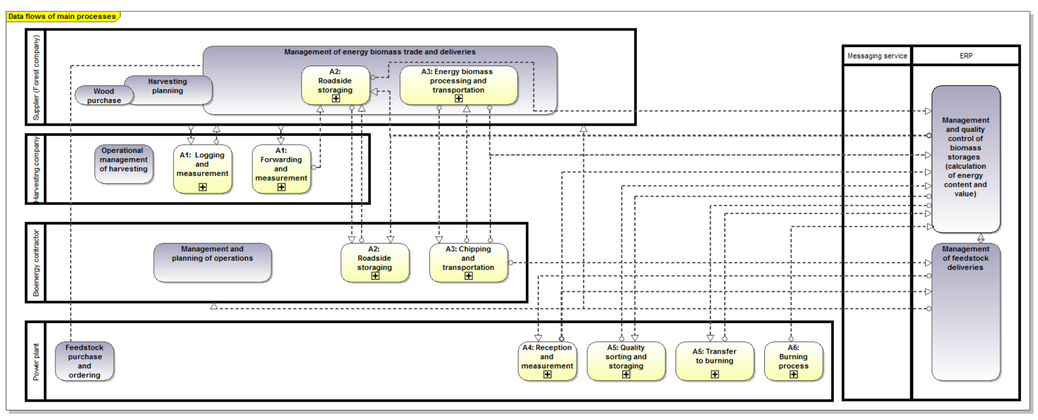
ICT is a key tool in enabling the efficient management of energy biomass supply chains. Information technology has been studied in BEST in the context of logistics, quality management and equal access to data, considering the evolving and heterogenic user environment and the need to manage heterogeneous biomass flows for multi-fuel power plants. A concept for an advanced, dynamic and open information management platform with various end-user applications was created – given a name “virtual terminal” .

A common data model was prepared for the information management of biomass supply and logistics. Its structure (classes, attributes and associations) was designed based on the process and data flow descriptions of different types of supply chains, both forest and agro based biomasses. Operational processes from harvesting to combustion at power plant were included in modelling. Information needs were identified especially from the point of view of advanced biomass quality management and the requirements that it sets to measurements and other data sources.

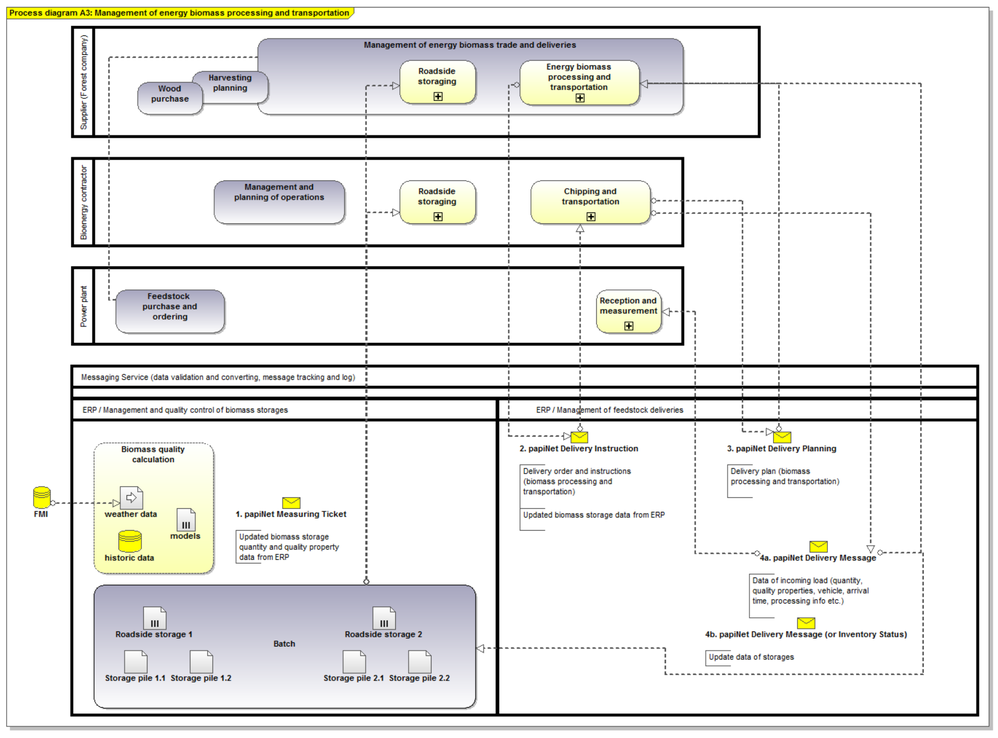
A fundamental part of the information management platform is the Enterprise Resource Planning (ERP) system tailored for energy biomass supply. Its role is to provide calculations of energy content, quality attributes and value of the feedstock within the supply chain.

Data flow specifications are based on the data communication standards that are widely applied in roundwood and bioenergy logistics in Finland (papiNet and StanForD 2010).

The objective of the common data model is to generalize the data definitions in order to apply them in the planning of IT systems and applications targeted to manage different types of biomass-based fuel supply chains.



Parties and main processes in data flow descriptions: example of the case ”Logging residues delivered chipped to power plant”.



An example of data flows.

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