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![](_page_3_Picture_2.jpeg)

Production process	Disintegrating	Support process	Ventilation
	Disjointing		Space heating
	Mixing		Compressed air
	Jointing		Lighting
	Coating		Pumping
	Moulding		Tap water heating
	Heating		Internal transport
	Melting		Cooling
	Drying		Steam
	Cooling/freezing		Administration
	Packing		

Structure of unit processes categorization

![](_page_4_Picture_3.jpeg)

Sector	Coating
Textile Industry Wood industry Paper and Pulp Plastic industry Foundries Industry workshops	Dyeing, printing Paint Surface Coating Painting, foiling Painting Coating, thermal spraying, electrolytic surface treatment

![](_page_5_Picture_2.jpeg)

Sector	Heating
Textile industry	Heating the dye bath
Paper and Pulp	Cooking, preheat
Rubber industry	Vulcanization
Foundries	Holding furnances
Industry workshops	Heat treatment, forging heating
Brick industry	Brick burning

![](_page_6_Picture_2.jpeg)

#### Key figures relationship in a foundry

![](_page_7_Figure_1.jpeg)

**Total metal yield** 

![](_page_8_Figure_2.jpeg)

![](_page_8_Picture_3.jpeg)

#### **Concluding discussion**

Results show that the method is useful in receiving unique energy-enduse data for the industry. Results also show how different energy endusers can be categorized and thus benchmarked in a structured way. Key figures and categorization of production systems should be something that every branch should agree upon.

Introducing new key figures may pose some problems as there are often already well-established key figures in place, so an adjustment or perhaps a supplement to these may be needed.

![](_page_9_Picture_4.jpeg)

#### Further research.

Further research is required on how the unit process categorization for the production processes can be combined with the relevant KPIs developed within this study. Such research would facilitate the creation of a standard on how to uniformly structure industrial energy end-use data.

The future will tell us if this is far too optimistic, even utopic, or if further research can help us gain such structure.

![](_page_10_Picture_4.jpeg)

![](_page_11_Picture_0.jpeg)