Development and Application of a UNFC-Compliant Classification Methodology for Aluminum Scrap Recovery Projects

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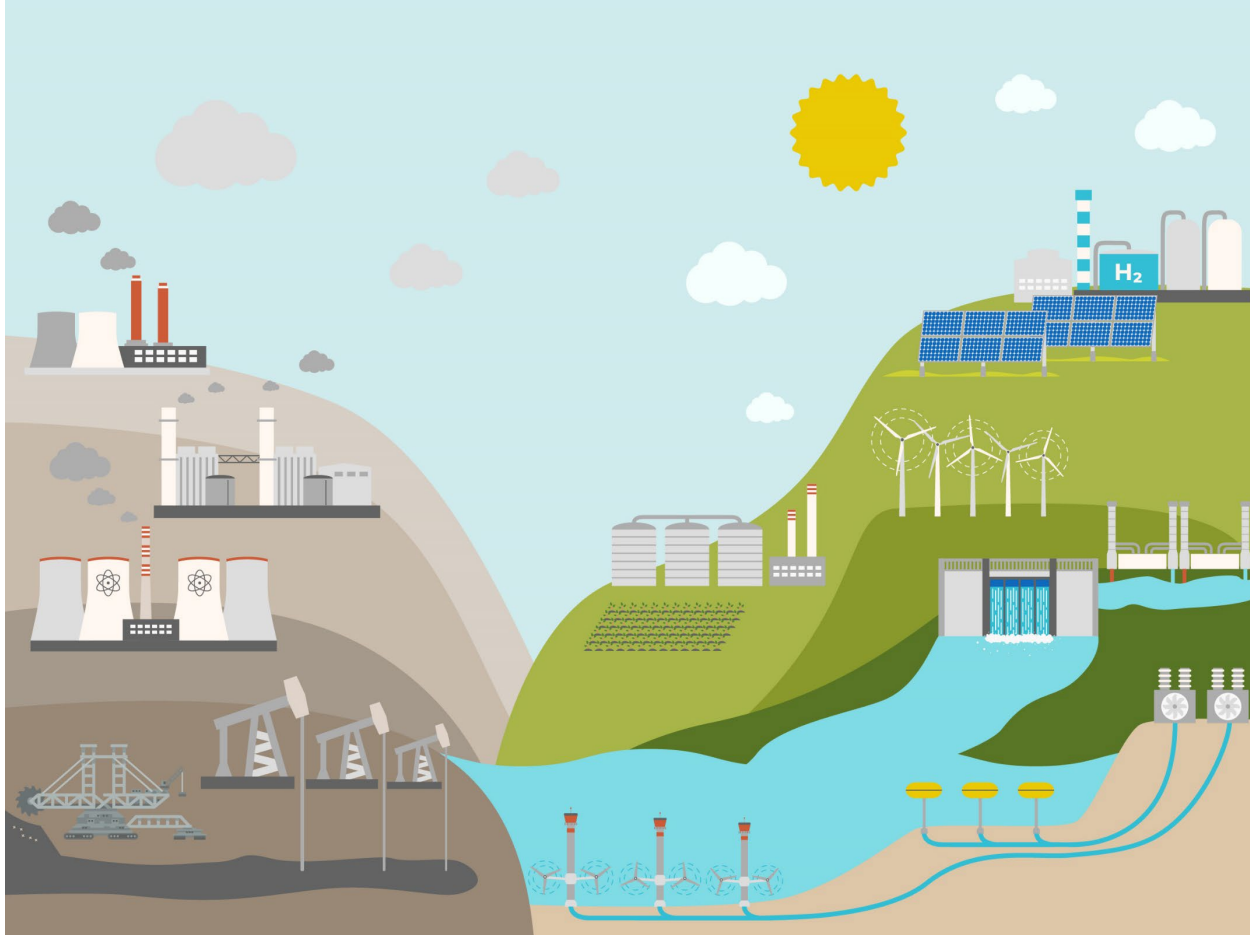

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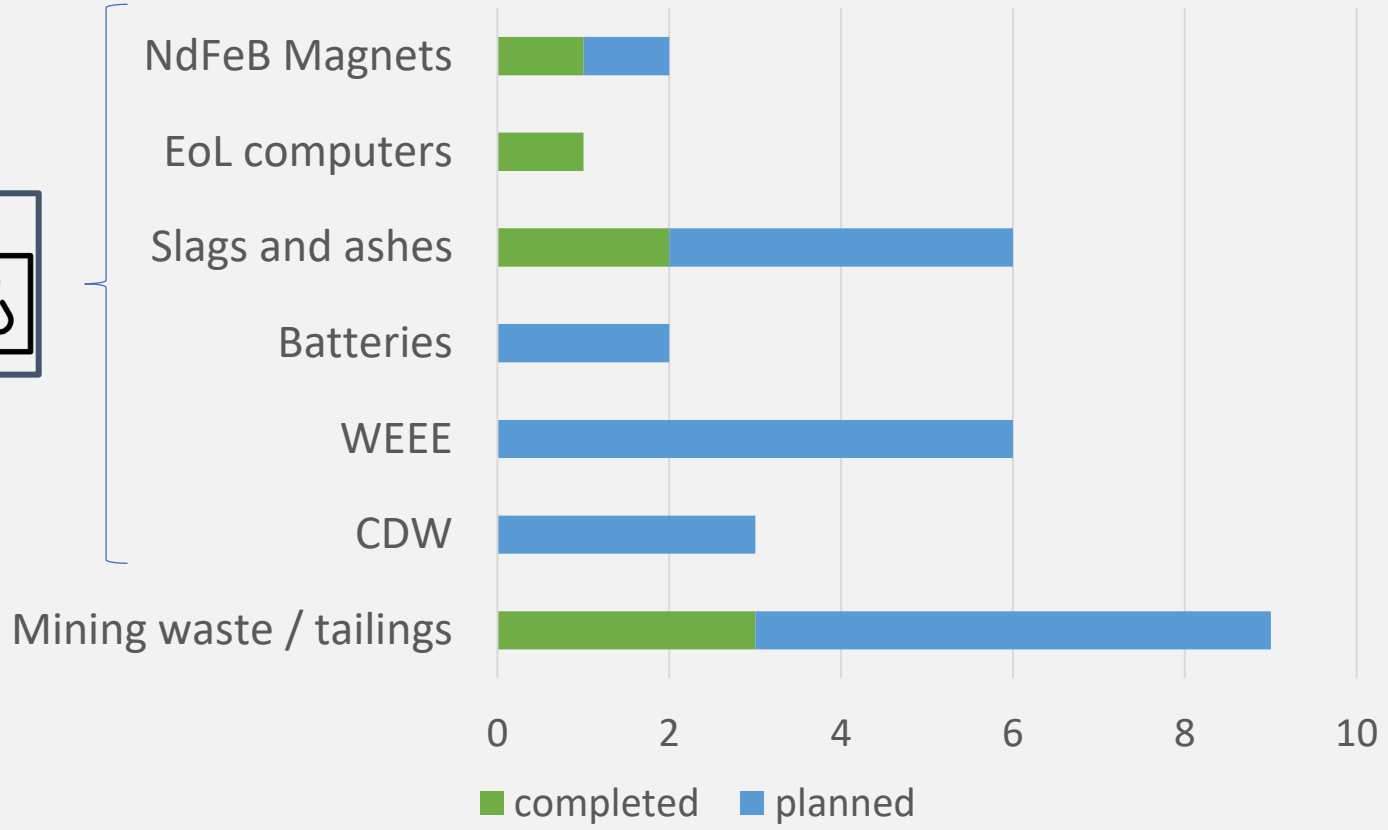
Existing case studies – anthropogenic resources



Review key findings

→ Different approaches and methodologies (especially G-axis)

→ Deposit vs. waste stream

→ 199 different controlling factors

→ All case studies from academia – no industrial case study

Methodology - aluminum scrap recovery project

Development of methodology **applicable** for aluminum scrap recovery projects…

…based on literature and case studies, UNFC guidelines and specifications and **expert interviews with industry**

Review key findings

→ Different approaches and methodologies (especially G-axis)

→ Deposit vs. waste stream

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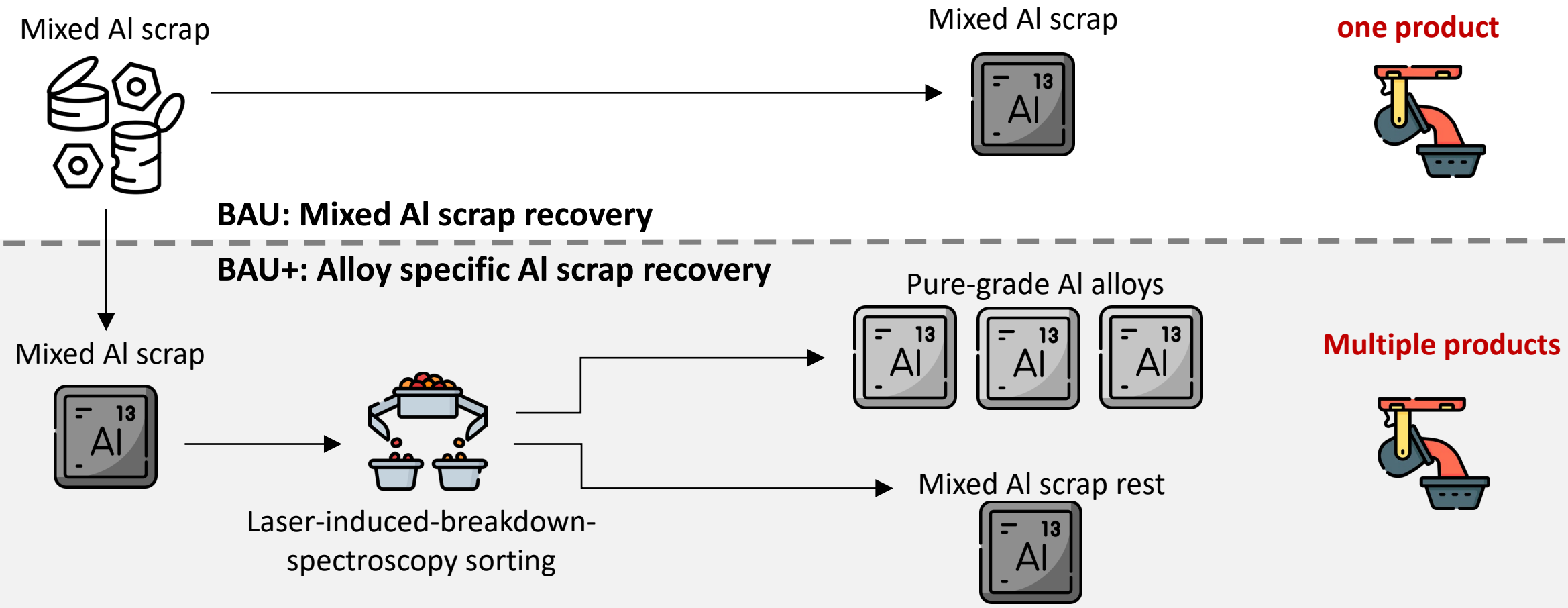
Case study – aluminum scrap recovery

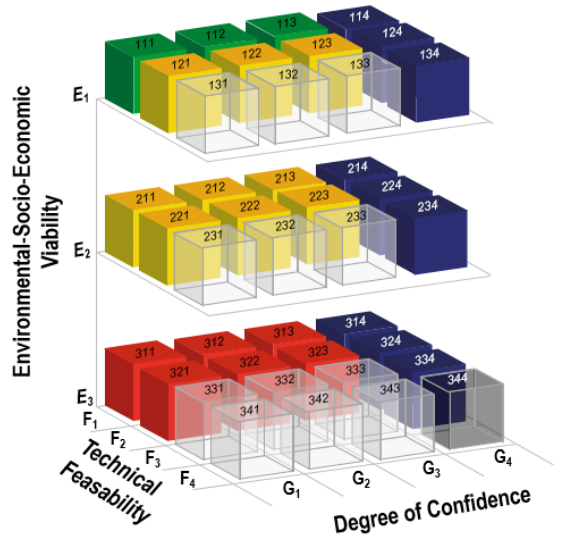


Case study – Controlling Factors

E-axis

- Enviornmental viability
- Social viability
- Economic viability
- Legal aspects

On production → E1



G-axis

- Quantity
- Quality
- Supply continuity

F-axis

- Technology Readiness Level
- Infrastructure

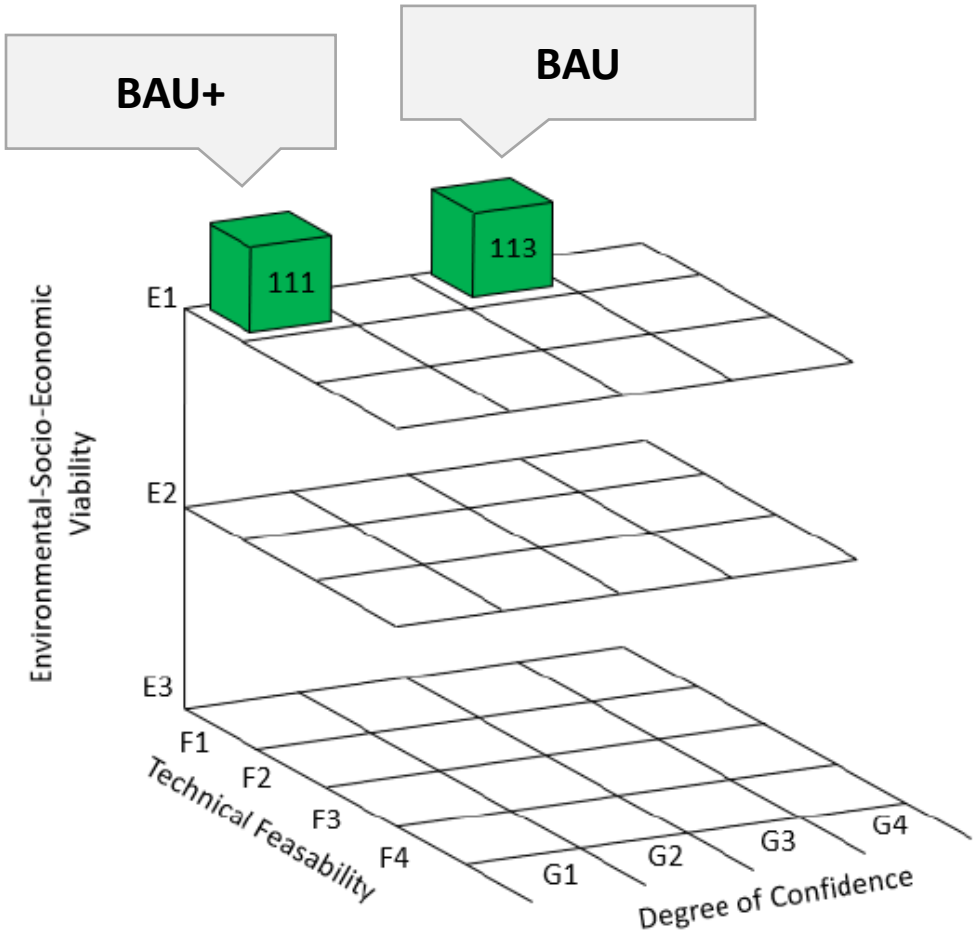
F-axis - Categorization

Controlling Factor	Description	Category	
		BAU	BAU+
Technology	Description of technology and assessment of maturity - TRL connected to UNFC Categories	Mixed Al scrap **F 1**	Aggregated pure-grade Al alloys **F 1.3 (TRL 7)** Mixed Al scrap rest **F 1.3 (TRL 7)**
Infrastructure	basic physical and organizational structures and facilities required to maintain operation(s)	Mixed Al scrap **F 1**	Aggregated pure-grade Al alloys **F 1** Mixed Al scrap rest **F 1**

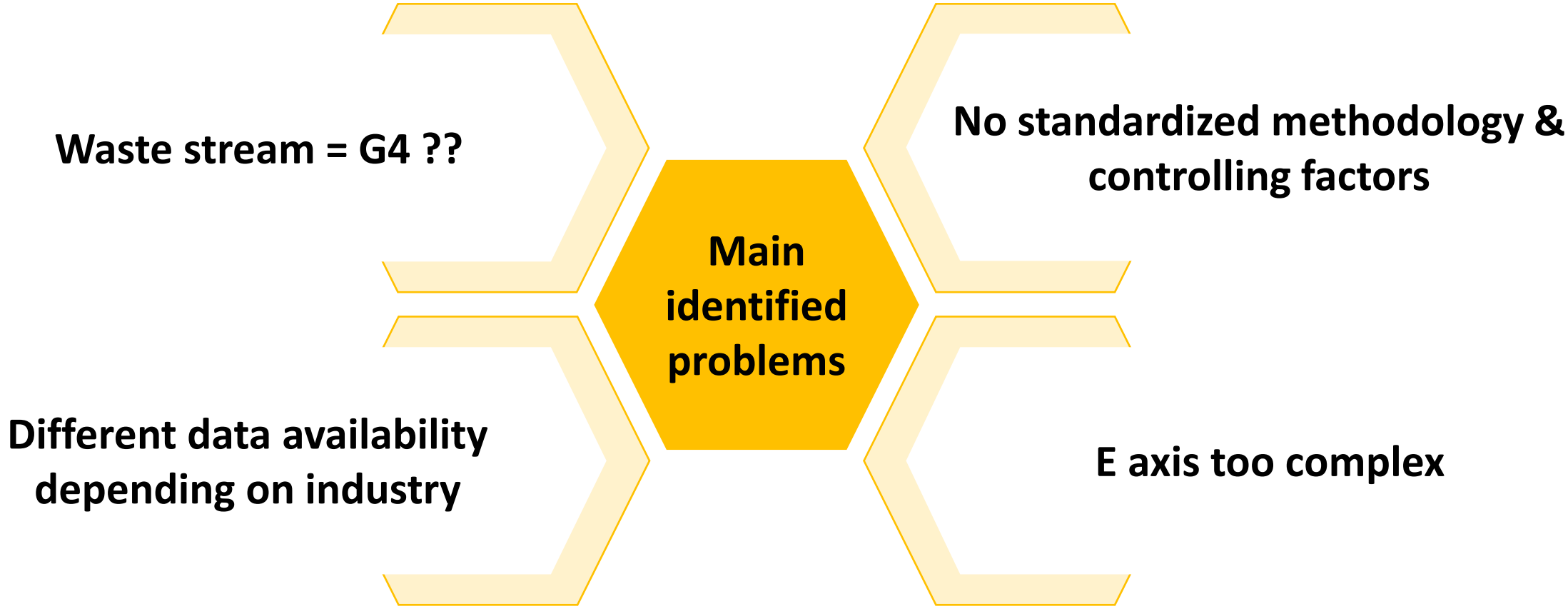
G-axis - Categorisation

Controlling Factor	Description	Category	
		BAU	BAU+
Quantity	Amount of product material - MFA	Mixed Al scrap **G 1**	Aggregated pure-grade Al alloys **G 1** Mixed Al scrap rest **G 1**
Quality	composition and project related important physico-chemical properties of material	Mixed Al scrap **G 3**	Aggregated pure-grade Al alloys **G 1** Mixed Al scrap rest **G 1**
Supply continuity	Confidence in the estimates of the material source and recovery production over a period of time	Mixed Al scrap **G 1**	Aggregated pure-grade Al alloys **G 1** Mixed Al scrap rest **G 1**

Case study - result

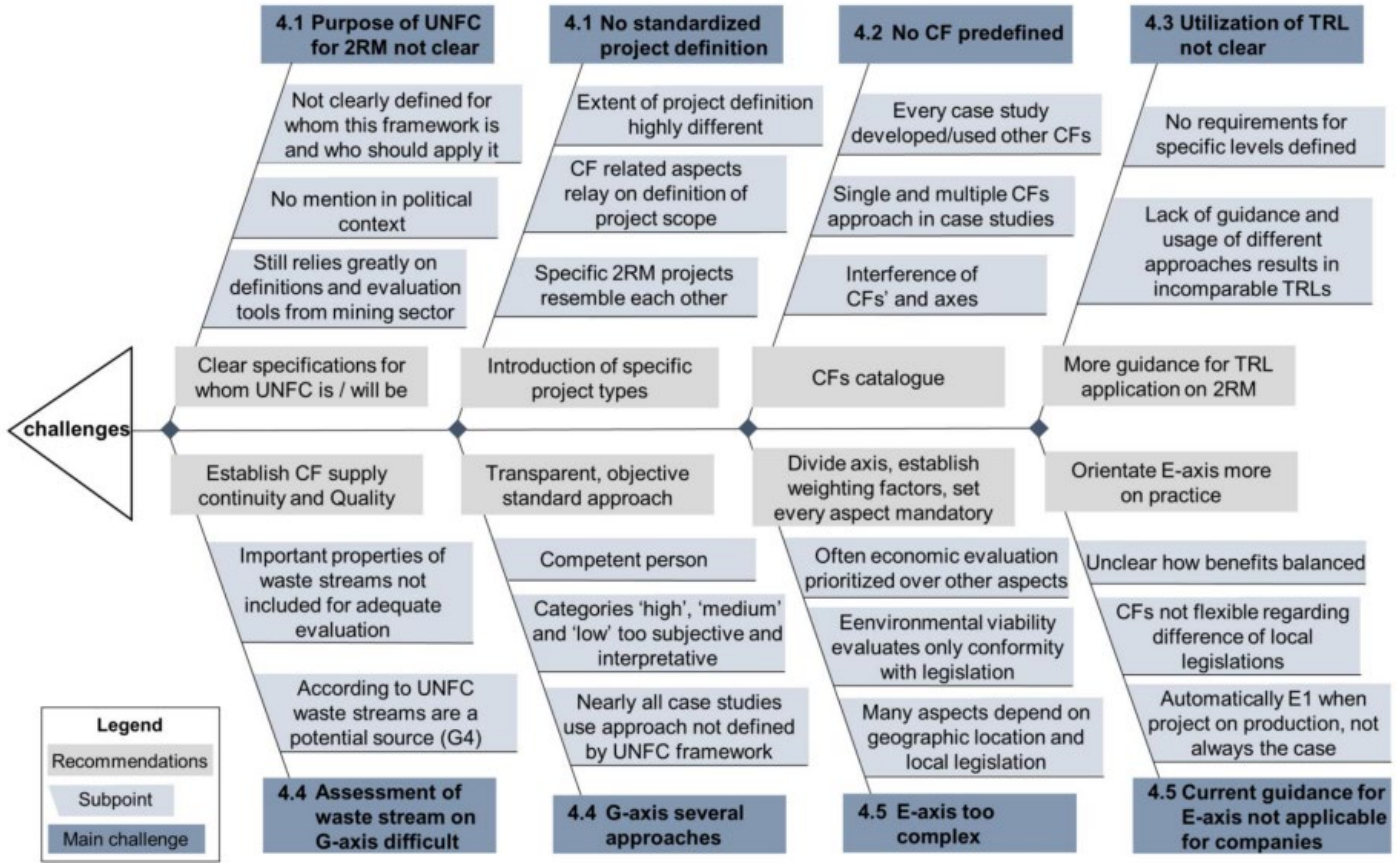


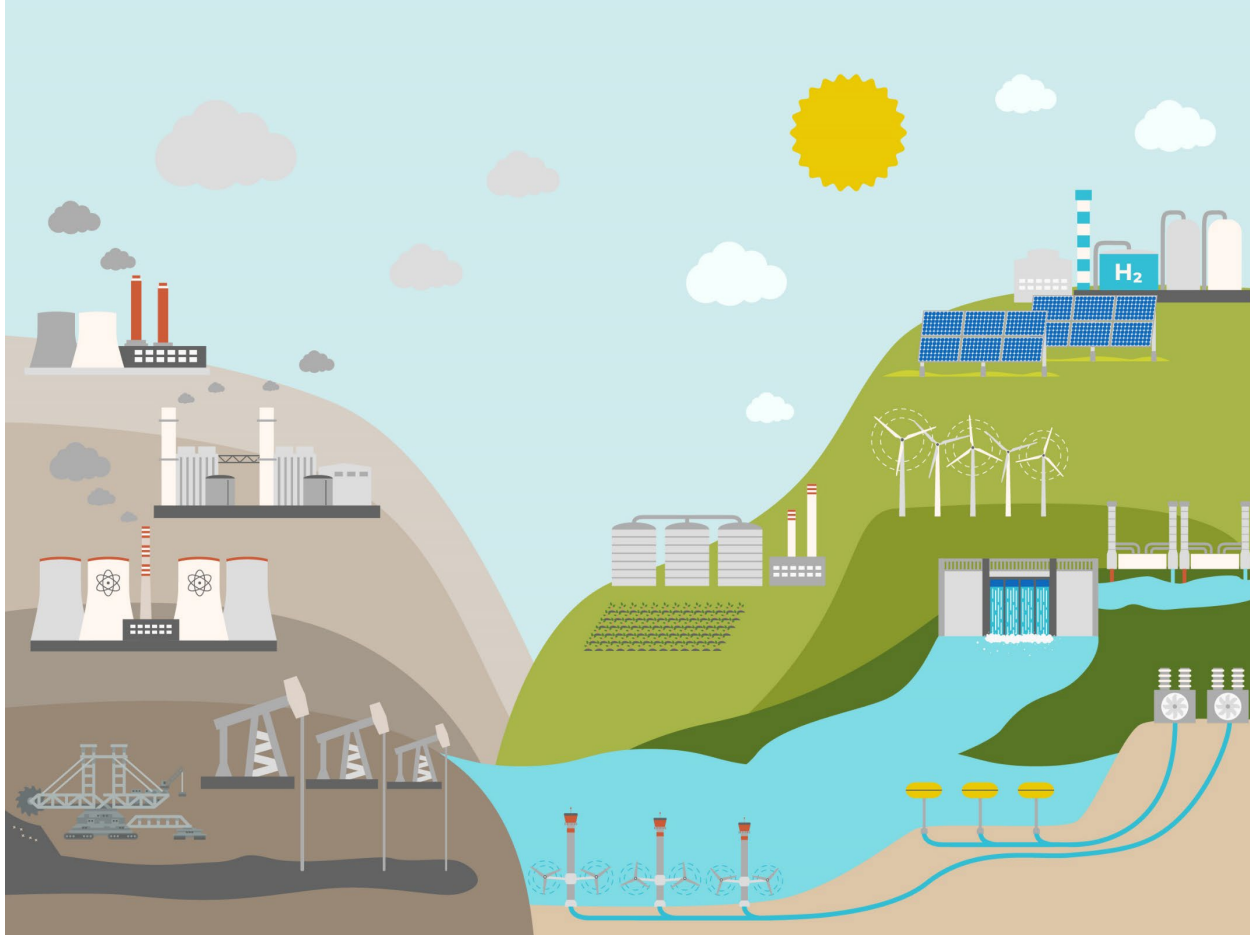
Identified problems for recycling projects



Identified Problems & Recommendations

Masterthesis available on request





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THE VIEWS EXPRESSED ARE THOSE OF MARINA VON VIETINGHOFF-SCHEEL AND DO NOT NECESSARILY REFLECT THE VIEWS OF THE UNITED NATIONS.

Thank you!

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