Benchmarking of industrial SMEs energy end-use processes

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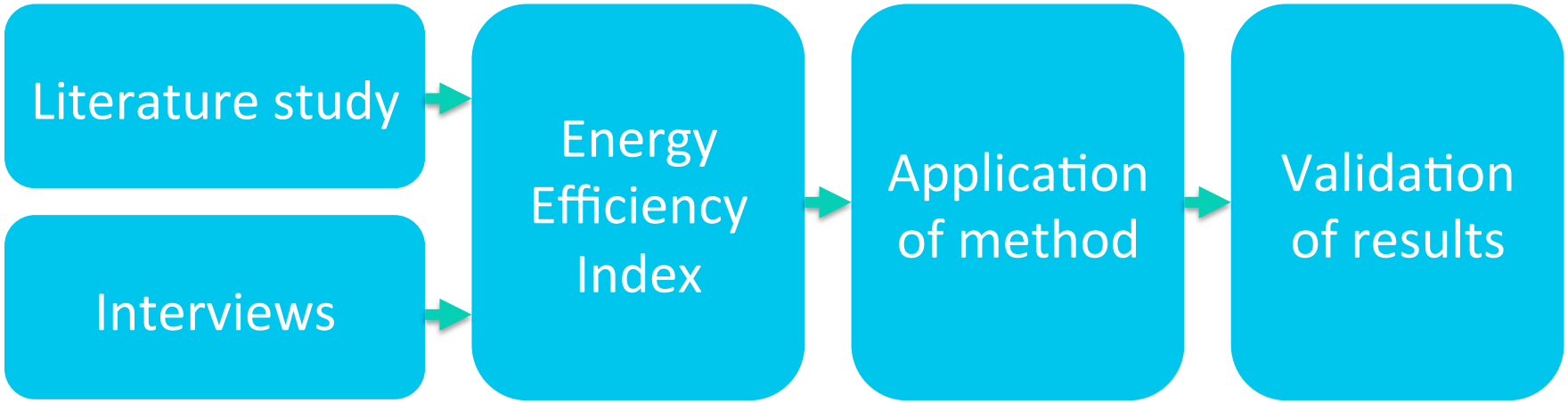
Background

- Energy efficiency gap
- Barriers hindering energy efficiency
- Benchmarking energy performance and energy end-use processes
- EN 16231:2012 Energy efficiency benchmarking methodology

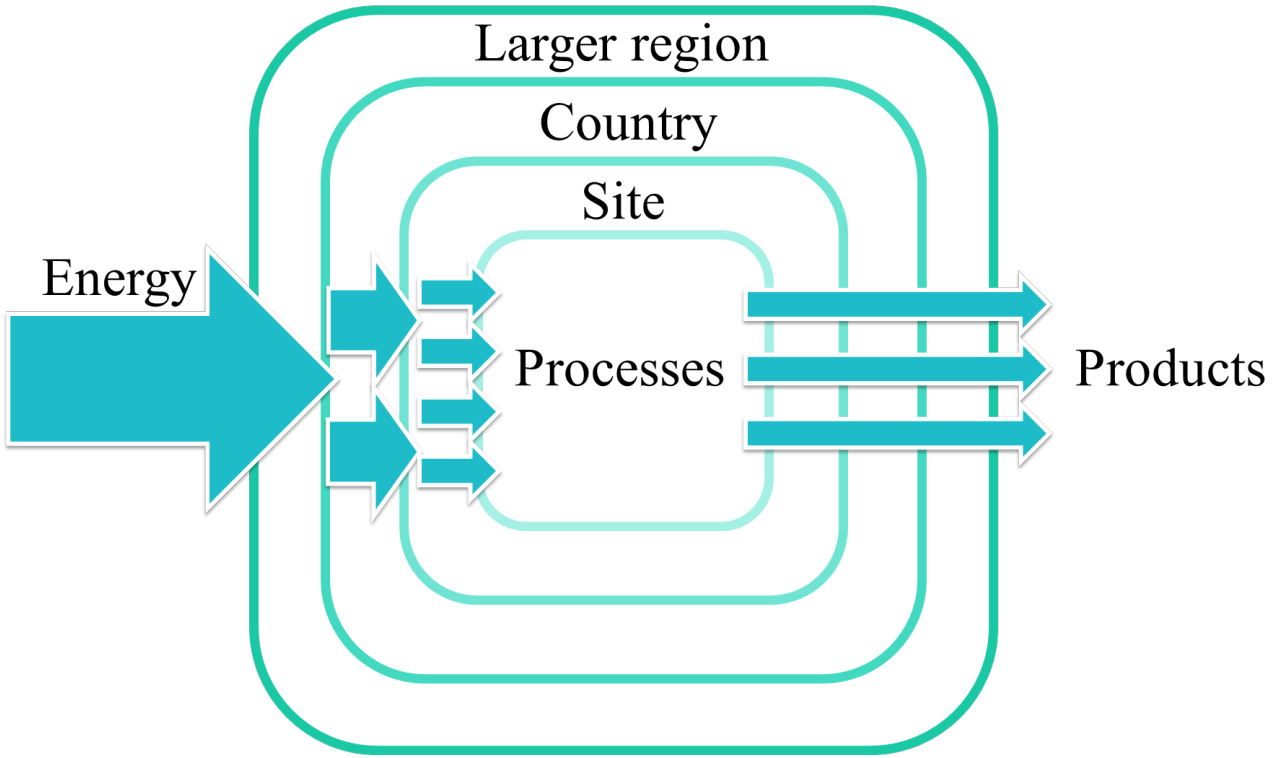
Aim of the study

- New method for calculation of an Energy Efficiency Index (EEI) for benchmarking of energy performance

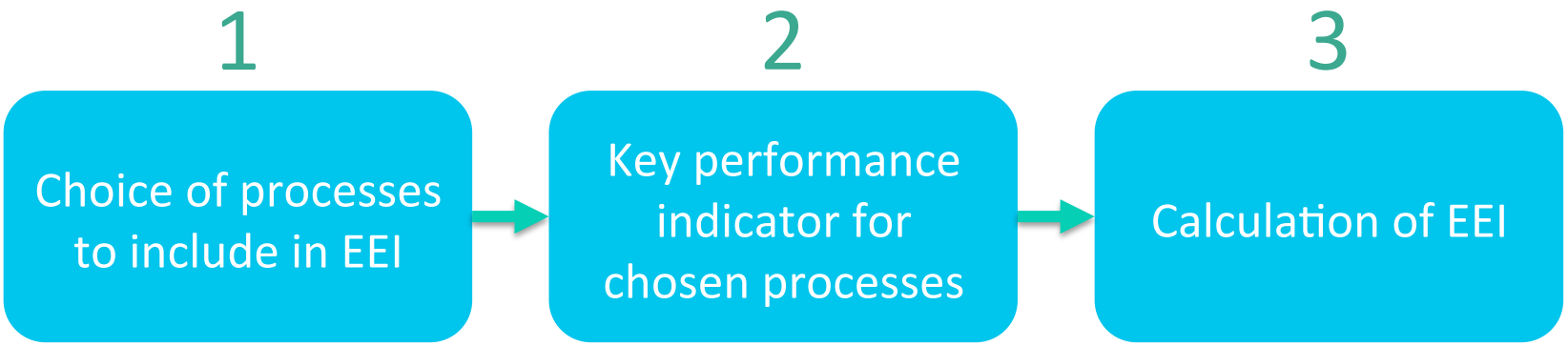
Method


Literature study
Interviews
Energy Efficiency Index
Application of method
Validation of results

Results



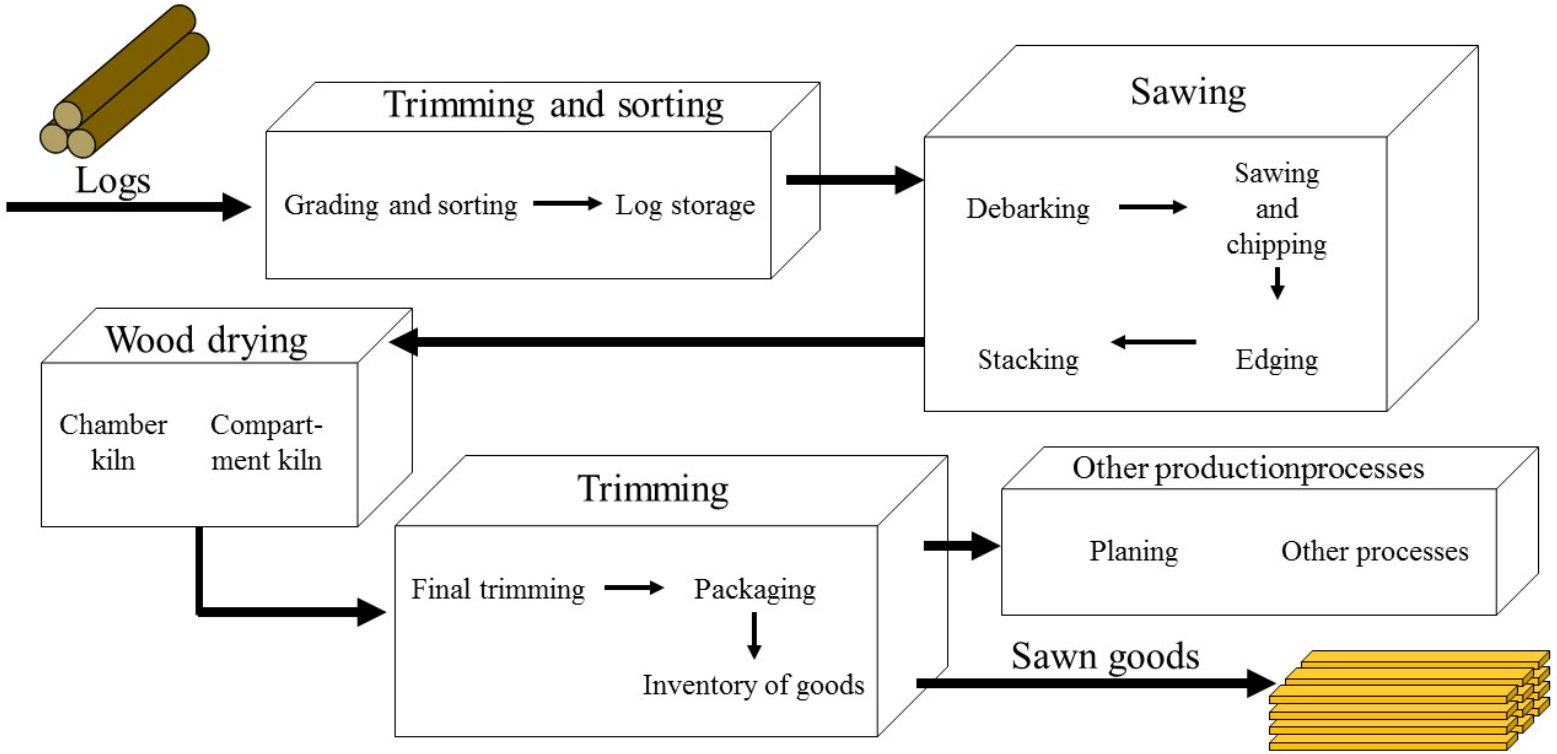
Results


1
Choice of processes to include in EEI
2
Key performance indicator for chosen processes
3
Calculation of EEI

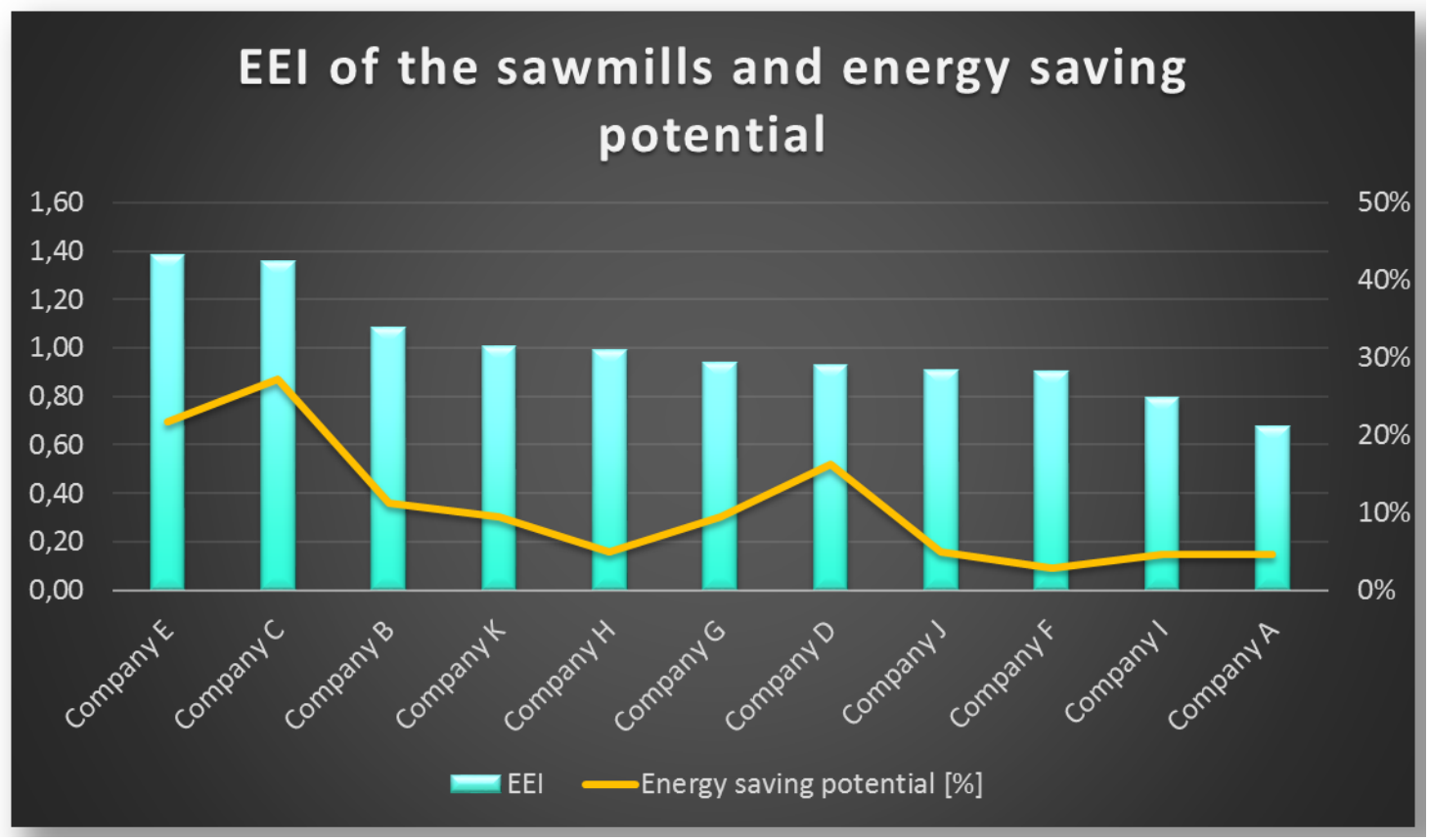
Results

$$\mathrm{EEI} = \sum \left\{ \frac{SEC\ at\ site\ for\ an\ EEU\ process}{Average\ SEC\ for\ an\ EEU\ process} \cdot [\%]\ of\ total\ energy\ use \right\}$$

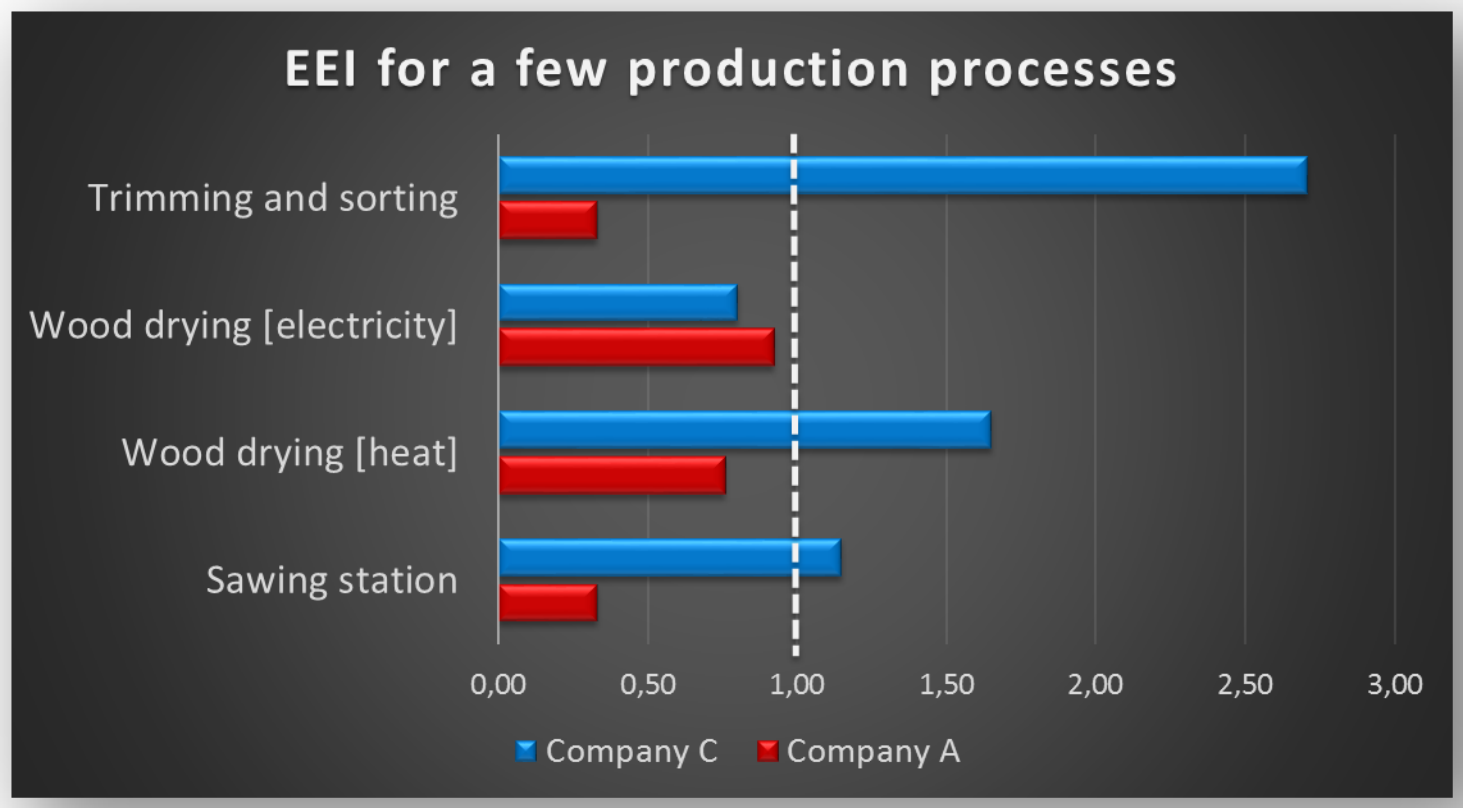
Results


Logs
Trimming and sorting
Grading and sorting
Log storage
Sawing
Debarking
Sawing and chipping
Edging
Stacking
Wood drying
Chamber kiln
Compart-ment kiln
Trimming
Final trimming
Packaging
Inventory of goods
Other productionprocesses
Planing
Other processes
Sawn goods

Results


EEI of the sawmills and energy saving potential
1,60
1,40
1,20
1,00
0,80
0,60
0,40
0,20
0,00
50%
40%
30%
20%
10%
0%
Company E
Company C
Company B
Company K
Company H
Company G
Company D
Company J
Company F
Company I
Company A
EEI
Energy saving potential [%]

Results


EEI for a few production processes
Trimming and sorting
Wood drying [electricity]
Wood drying [heat]
Sawing station
0,00
0,50
1,00
1,50
2,00
2,50
3,00
Company C
Company A

Conclusions

- Benchmarking of energy performance requires:
  - harmonized categorization of energy data
  - adequate quality of energy data
- If these conditions are met, an effective EEI might be calculated

Thank you for listening!

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Discussion

- In what context could/should benchmarking of energy performance be used as a tool for identifying energy efficiency potential? (Government agencies, industrial networks etc.)
- How to tackle the challenge of different quality of products in a benchmarking context?