



Solution Architect for Global  
Bioeconomy & Cleantech Opportunities



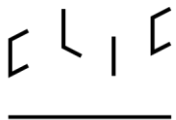
arvi  
Material Value Chains

16.1.2017  
Helsinki

John Bachér, Research  
Scientist, VTT Ltd

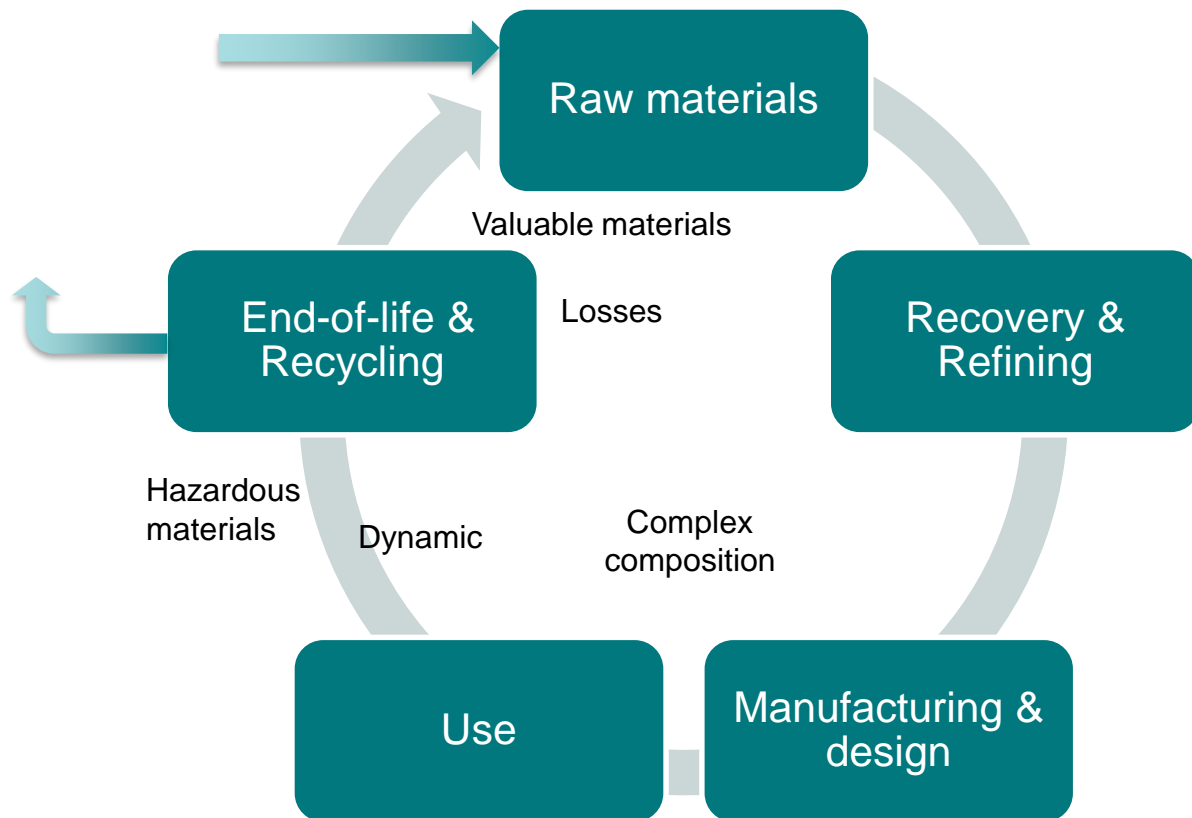
# The effect of product design on WEEE recycling – case mobile phone

**ARVI Final seminar 16.1.2017**

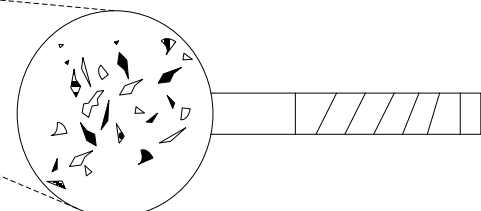
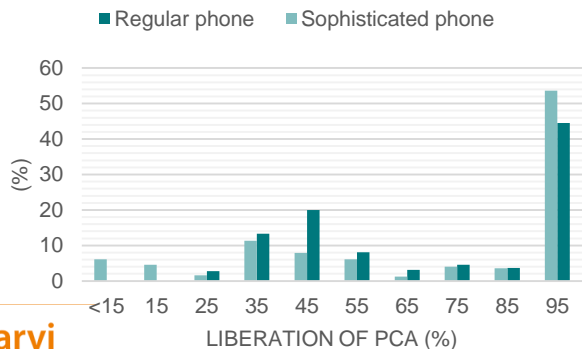
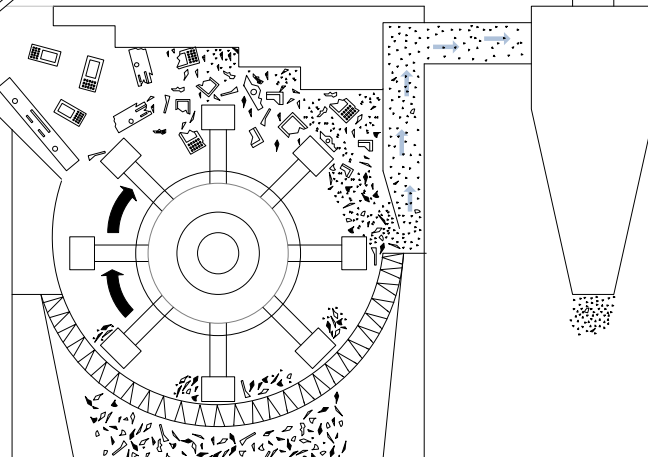
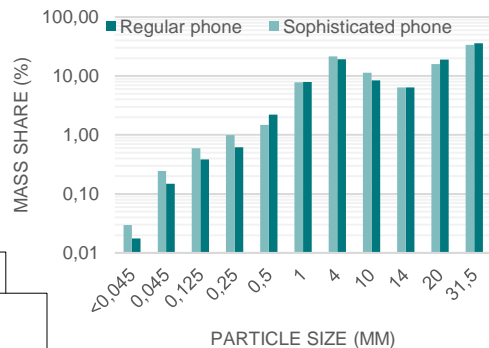
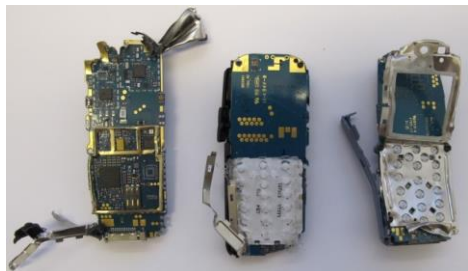
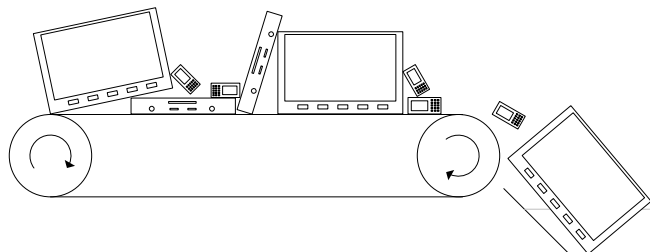


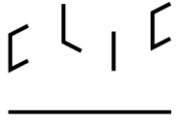
# (W)EEE in circular economy

- Global WEEE generation around 20 - 50 Mt, within EU around 12 Mt<sup>1</sup>
- Heterogeneous mixture of different appliances with complex design which changes in time
- Contains valuable, precious and critical metals as well as harmful substances

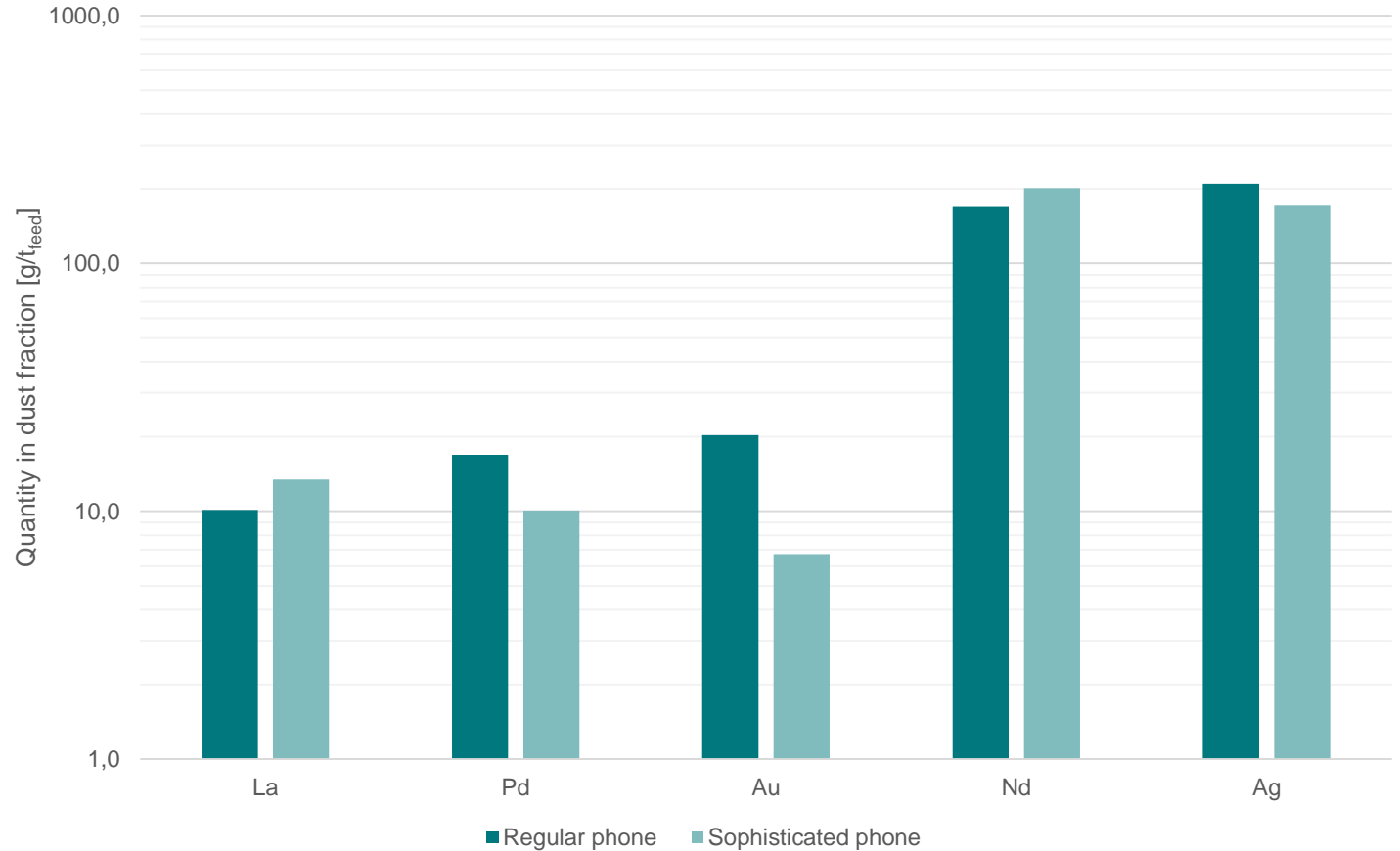


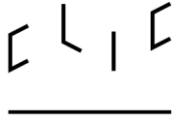
# Liberation of PCA and dust generation in a size reduction process





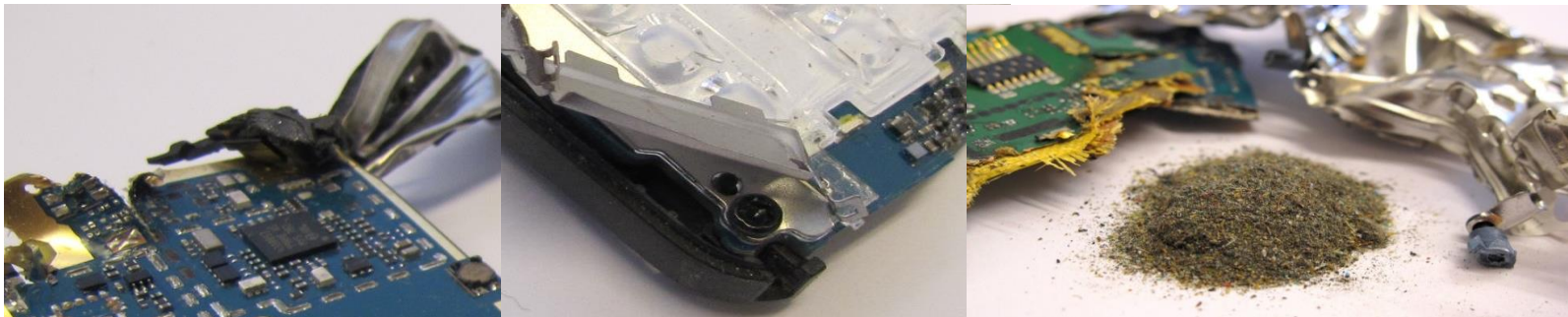
# Dusts and their composition

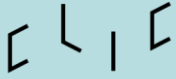




# Design related aspects and their impact to liberation and dust composition

	Liberation (PCA/B) (+ = improves liberation)	Dust composition (+ = lower content to be lost through dust)
Modularity of main-components/parts	+	+
Platform based PCA-assembly	-	-
Attachment method (adhesive)	-	?
Less connection per part	+	+
Smaller component size	-	+/-
Tensile supporting structure	+/-	+





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**Thank you!**