



**ima engineering**

INNOVATIVE MINERAL ANALYSERS

[www.ima.fi](http://www.ima.fi)

# ***Increasing Productivity in Mining***

***Ima Engineering Ltd Oy presenting  
- latest technology and applications***

**Mines and Technology, Helsinki 2017**

**Mr. Jukka Raatikainen, CEO  
Ima Engineering Ltd Oy**

**Increasing production efficiency in mining**  
**Reduced Waste Rock Dilution**

**5% to 10% more earnings!**



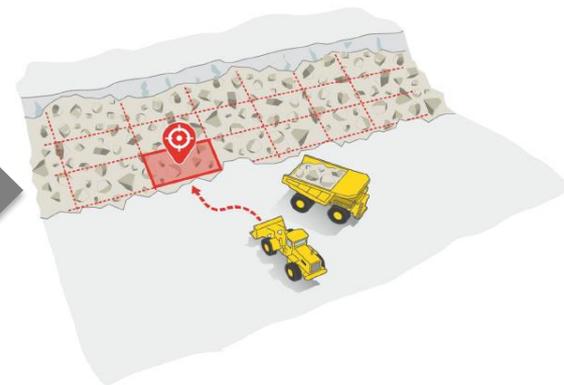
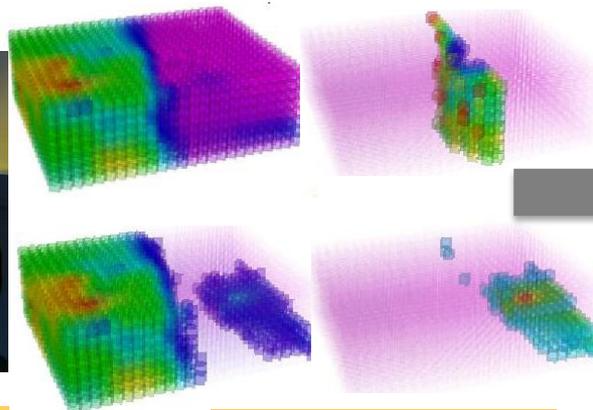
**Sampler-Analyzers in On-line Analysis of Drill Cuttings**  
 \* every meter is analyzed  
 \* Representative and accurate

**3D models of Blast Hole Bench**



**Dilution is detected**

**Muck -pile is better known**



**Accurate Bench models in Time!!**

**Ore loss is detected**

**Head Grade in feed is stable**

***Accurate location of the ore in exploration  
Latest technology using on-line XRF analysis***

***Accurate location of ore before blasting  
3D model of the Bench during production drilling***



**IMA Drill Cuttings Sampler-Analyzer (PDSA) on-line analysis on the spot**

***Advanced new technology and services available  
Analyze While Drilling, Measure While Drilling***

**Increasing production efficiency in mining**  
**Higher Head Grade**

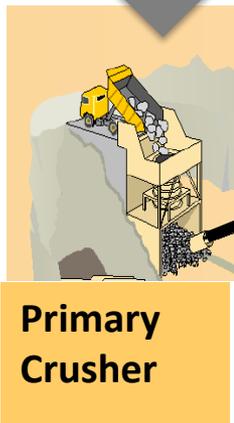
**5% to 10% more earnings!**



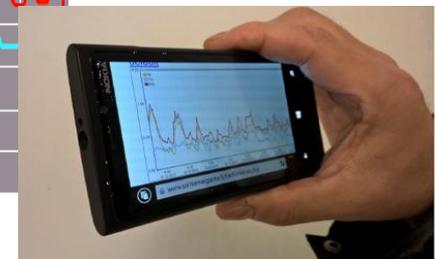
Truck nr 21



- On-line Analysis of Primary Crushed ore from the Muck-pile
- \* Analysis every minute
- \* Ore Grade of each Truck is known accurately
- \* Selective Loading made possible



**Trends and Grade in real-time**

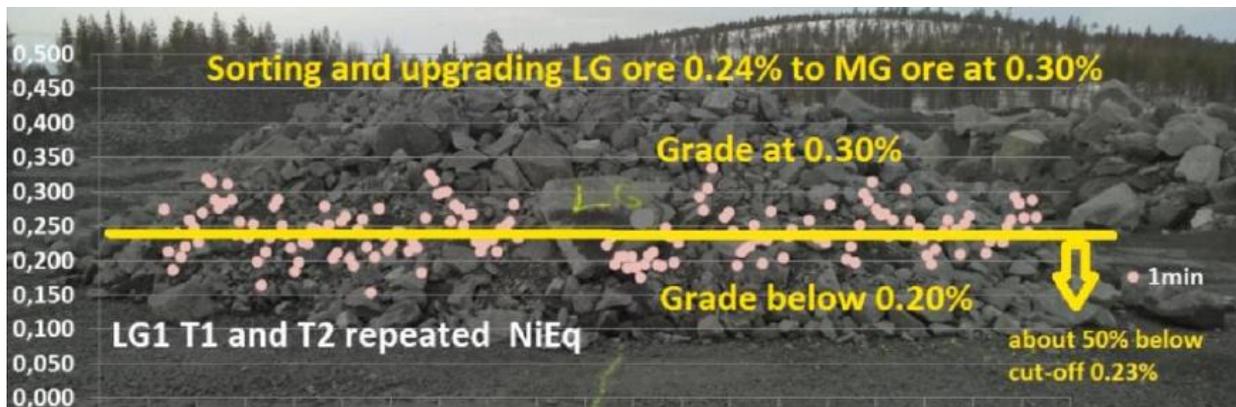


***Accurate Grade control in Loading - on-line analysis of primary crushed ore  
By each and every truck load to crusher – Muck Pile composition as feedback***



***Advanced new technology and services  
instant ore Grade Trend in cloud available  
on mobile devices***

**Bulk Ore Sorting – IMA mobile BOSS system (Bulk Ore Sorting System)**  
**Recovering ore from waste– Increasing Head Grade in Mill Feed**  
**5% to 10% more earnings!**



**Ore Grade below 0.20% cut-off is sorted to Heap Leaching**



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***Thank you !***