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Global Market for Secondary Materials: problematic or disrupted?

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<http://wastelessfuture.com>

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0. Problems...



Table 1.

**STANDARD DEVIATIONS
OF MONTHLY PRICE
CHANGES FOR SELECTED
PRIMARY AND
SECONDARY MATERIALS**

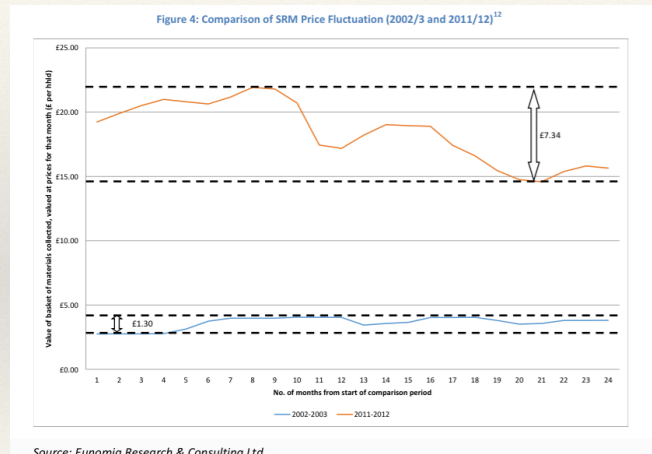
| | |
|------------------------------------|------|
| Textiles | |
| Processed yarns and threads | 0.36 |
| Textile waste | 2.08 |
| Rubber | |
| Natural rubber | 6.25 |
| Synthetic rubber | 1.66 |
| Reclaimed rubber | 1.40 |
| Zinc | |
| Lead and zinc ore | 4.59 |
| Zinc scrap | 4.50 |
| Aluminium | |
| Aluminium ingot | 3.68 |
| Aluminium scrap | 6.29 |
| Copper | |
| Copper ore | 1.64 |
| Copper scrap | 5.57 |
| Iron | |
| Iron ore | 1.64 |
| Iron scrap | 5.73 |
| Paper (Jan. 1993-Feb. 2003) | |
| Pulpwood | 1.80 |
| Paper-making woodpulp | 3.98 |
| Wastepaper | 9.24 |

Source: United States Bureau of Labour Statistics (www.bls.gov).

Source: Managing the Risk from Secondary Raw Material Price Movements
Resources & Waste UK

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10 years after...



Source: *Managing the Risk from Secondary Raw Material Price Movements*
Resources & Waste UK



Market Failure? Not necessarily...

OECD: Significant barriers and failures in markets for recyclable materials:

- Search and transaction costs
- Information failures
- Consumer perceptions and risk aversion
- Technological externalities
- Market power



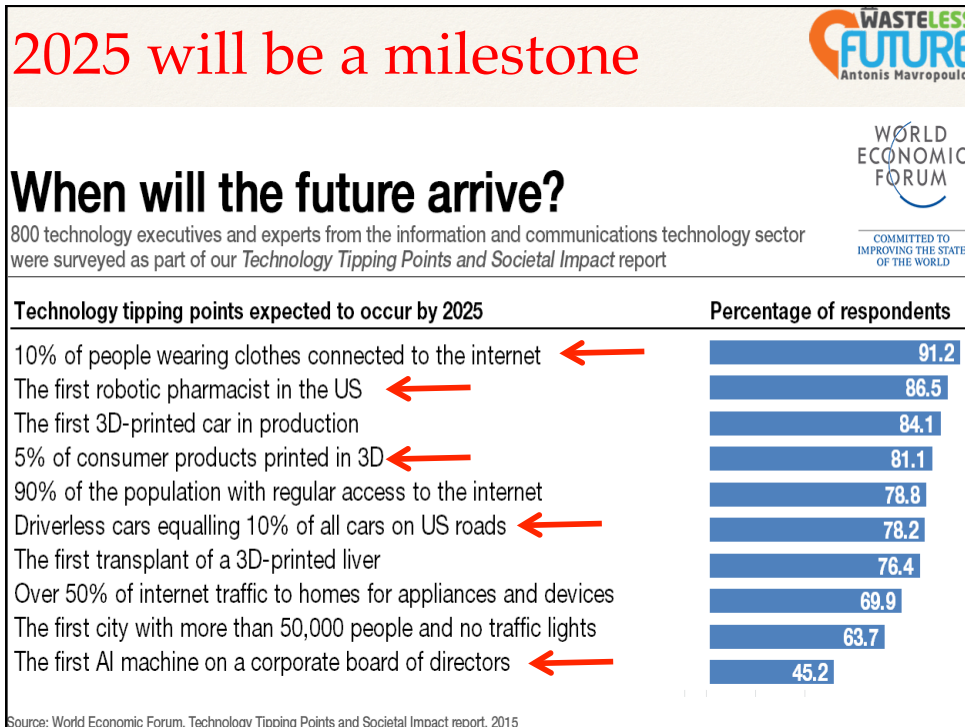
Looking the whole picture

- Slowdown in the BRIC (Brazil, Russia, India, China) economies → lower demand → falling prices
- Stagnation in Europe → lower domestic demand
- Push measures → higher recycling rates → higher supply
- You can't just cut the recycling programs
- Supply becomes unresponsive to demand
- End users to be more selective in respect of quality
- Higher importance of recycling to SWM systems → higher dependence on commodity markets



1. The Era of Disruption





We are in the middle of the
4th Industrial Revolution

“Now comes the second machine age.
Computers and other digital advances are
doing for **mental power** – the ability to use our
brains to understand and shape our
environments – what the steam engine and its
descendants did for **muscle power**.”

*Erik Brynjolfsson, Council Vice-Chair; Director, MIT Initiative on the
Digital Economy, Massachusetts Institute of Technology, USA*

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2. How the 4th Industrial Revolution disrupts recycling markets?

- ❖ Robots: purity, speed, problem-solvers
- ❖ **Monitoring – big data – Life Cycle Management**
- ❖ Substitution – The revolution of New Materials
- ❖ **Elimination – 3D Printers, Paperless, Music Industry**

Let's meet Liam



Apple's new recycling initiative

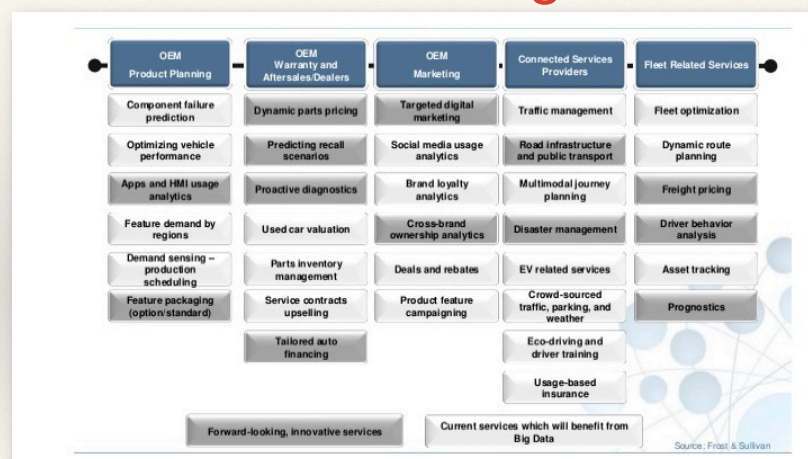
700,000,000 iPhones sold from 2007

235,000,000 iPhones sold in 2015

40,000,000 \$ value of the 1 gold recovered by Apple in 2015

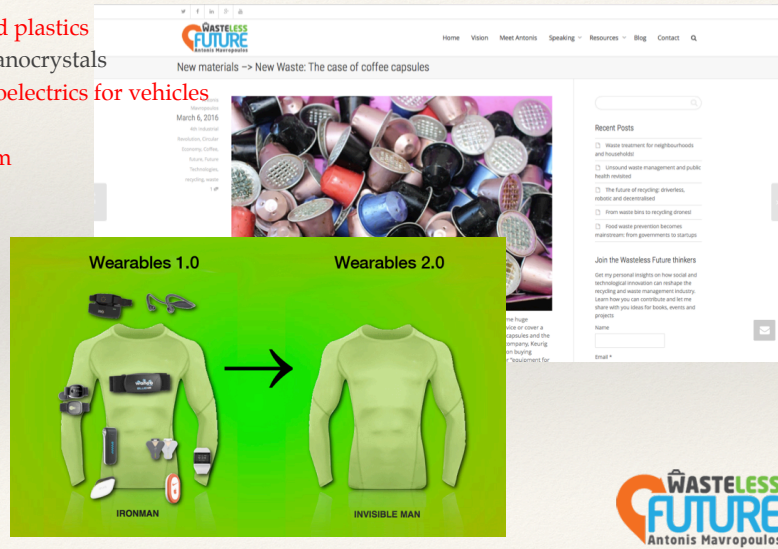


Big data and Life Cycle Monitoring

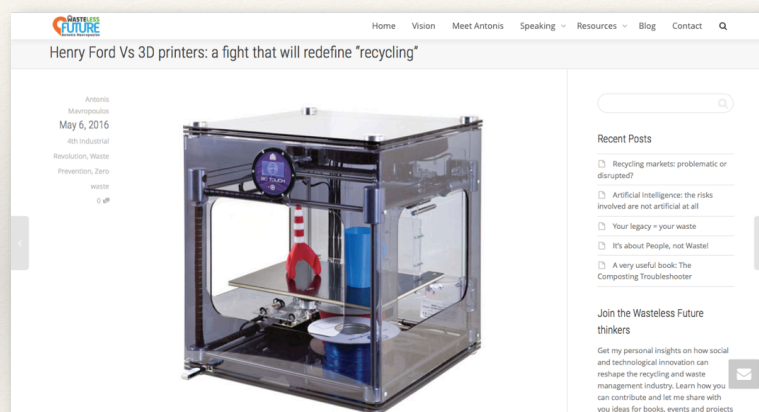


New materials → New waste

- Bio-inspired plastics
- Designer nanocrystals
- WtE thermoelectrics for vehicles
- Electric ink
- Fungal foam



3D Printers & Recycling



VIDEO:

<https://www.youtube.com/watch?v=DF7kvYoOPb8>



3. Circular Economy

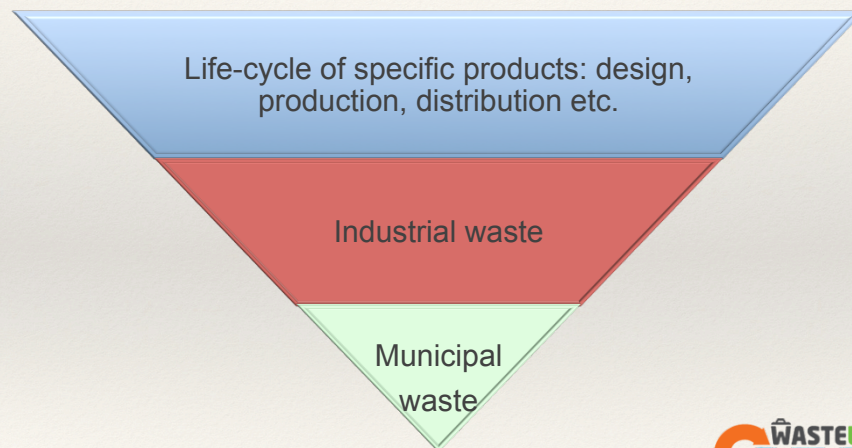
What is the link between high recycling targets and Circular Economy?



No Industrial Revolution – No Party

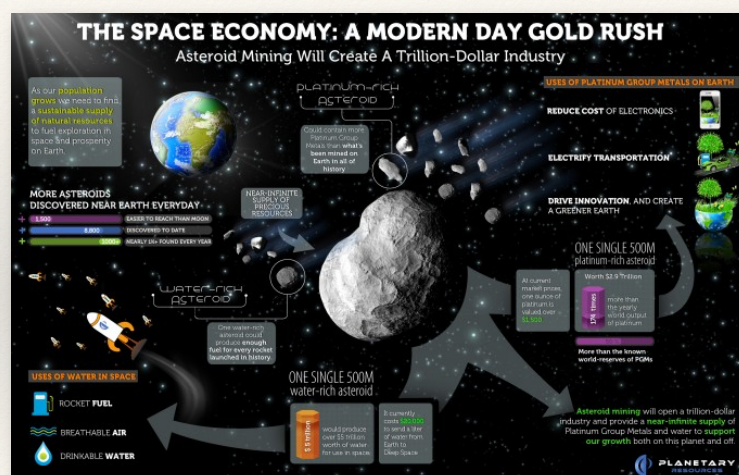


It's more about supply chains and less about resource scarcity



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Circular Economy or Space Race?



<http://wastelessfuture.com/circular-economy-or-space-race/>

The end of recycling as we know it?

- ❖ Recycling systems were not designed for CE
- ❖ They evolved as landfill alternatives
- ❖ → Focus on geography rather than material flows
- Focus on minimum transport costs rather than quality of the materials transported



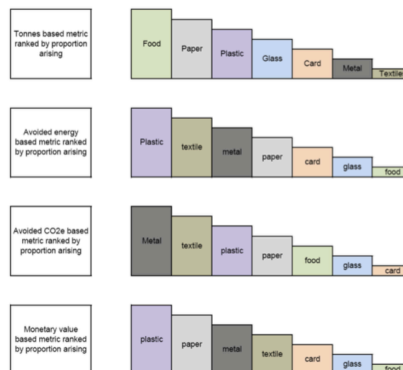
Time to change metrics...

Metric's change the target materials...

Weight based metrics work better for some organisations or authorities than for others.

The more you achieve the less relevant weight metrics become

Green waste has been excluded here for the purpose of equivalency



Source: LARAC 2015 Conference, SUEZ UK presentation

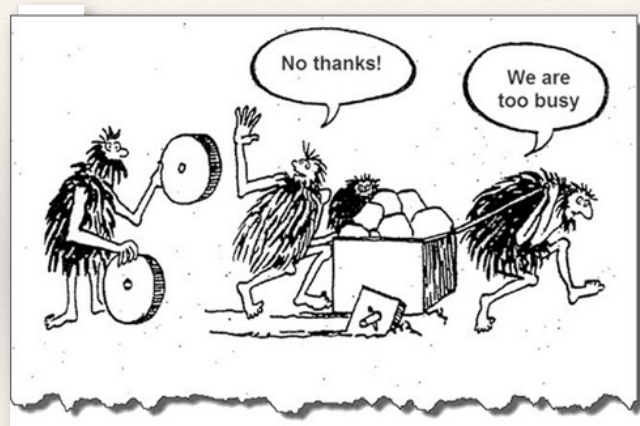


Can EPR stay the same?

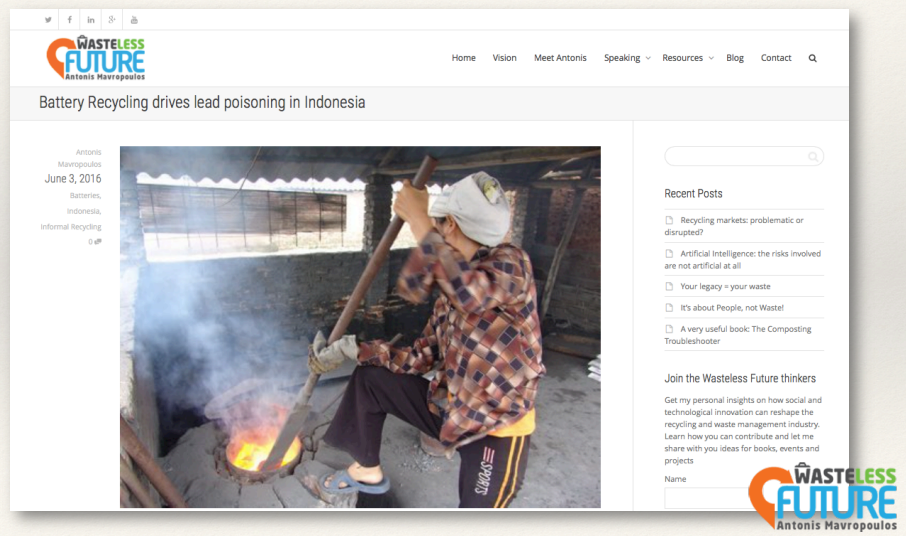
- ❖ How EPR schemes should be adapted to CE challenges?
- ❖ What are the most important criteria on which EPR programmes differ and how might it affect their impact and efficiency?
- ❖ What are the key achievements of EPR schemes across EU and what are the benefits that have not been fully realized yet?



The solution delusion



Is this Circular Economy?



It's about People not Waste

PROGRAMMES

ISWA Scholarship Programme
External Projects
International Waste Manager
ISWA Project Grant

Donations and Support

With the 20,000 USD donated by ISWA, the scholarship programme can be financed for 25 children for two years, including book, uniforms, transportation, family allowances (in some cases, the child is the person working to provide for the family and they are not able to go to school for this reason), administration and psychological counselling.



Trading Trash for Education



We all know that children working and playing inside an active, filthy dumpsite is dangerous, unhealthy and unethical. But yet, it still happens all over the world in developing countries.

ISWA would like to do something about this by preparing and educating next generation youths who would otherwise follow their parent's footsteps into the trash. The *ISWA Scholarship Programme* currently targets 25 children who are sorting garbage in dumpsites called Nueva Vida and La Chureca in Nicaragua.

THANKS FOR YOUR ATTENTION



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