



Urban Waste Management & the mobile challenge

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Contents

1. Earthquake in Haiti

2. Waste & Behavior

3. Mobiles for the waste sector

4. The Need for a Framework

Who is D-Waste...



**A pioneer company in the environmental & WM field,
incorporating modern thinking & practices in traditional waste
challenges**

Earthquake in Haiti

12 January 2010

222,000 killed

300,000 injured

millions displaced

Nothing was working!



> **3 million \$** in 48 hours

> **41 million \$** → June



Something was still working...



Main Question...

If mobiles phones are used for:

- Access on information,
- survival plans,
- online banking,
- networking,
- much more...

Why don't we use them for **waste management** improvement?

The SWM Challenge

Rising waste volumes

Complexity of waste streams

Lack of resources

Rapid Urbanisation

Globalisation

Interconnectivity

Easier access to information

New technologies

waste & behavior

PAST

Waste as **nuisance**

Focus:

infrastructure,
appropriate storage,
collection,
transfer,
treatment &
disposal

PRESENT

Waste as **resource**

...
+

Improved efficiency,
increased recycling,
quality of recycled materials,
people's involvement,
change people's behavior



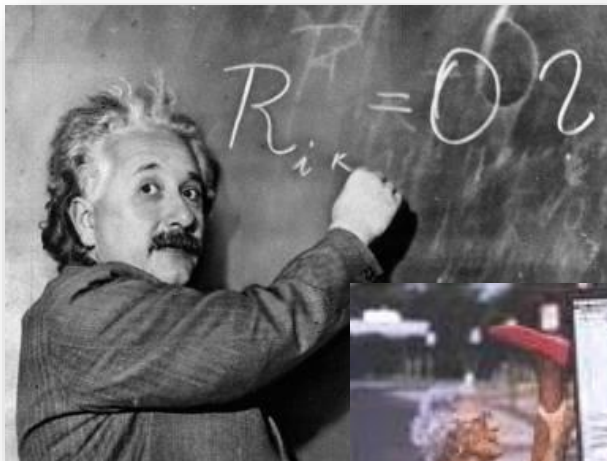
So the answer is:

*We cannot think with the **old** way, in the
new framework!*

SWM Needs to become...



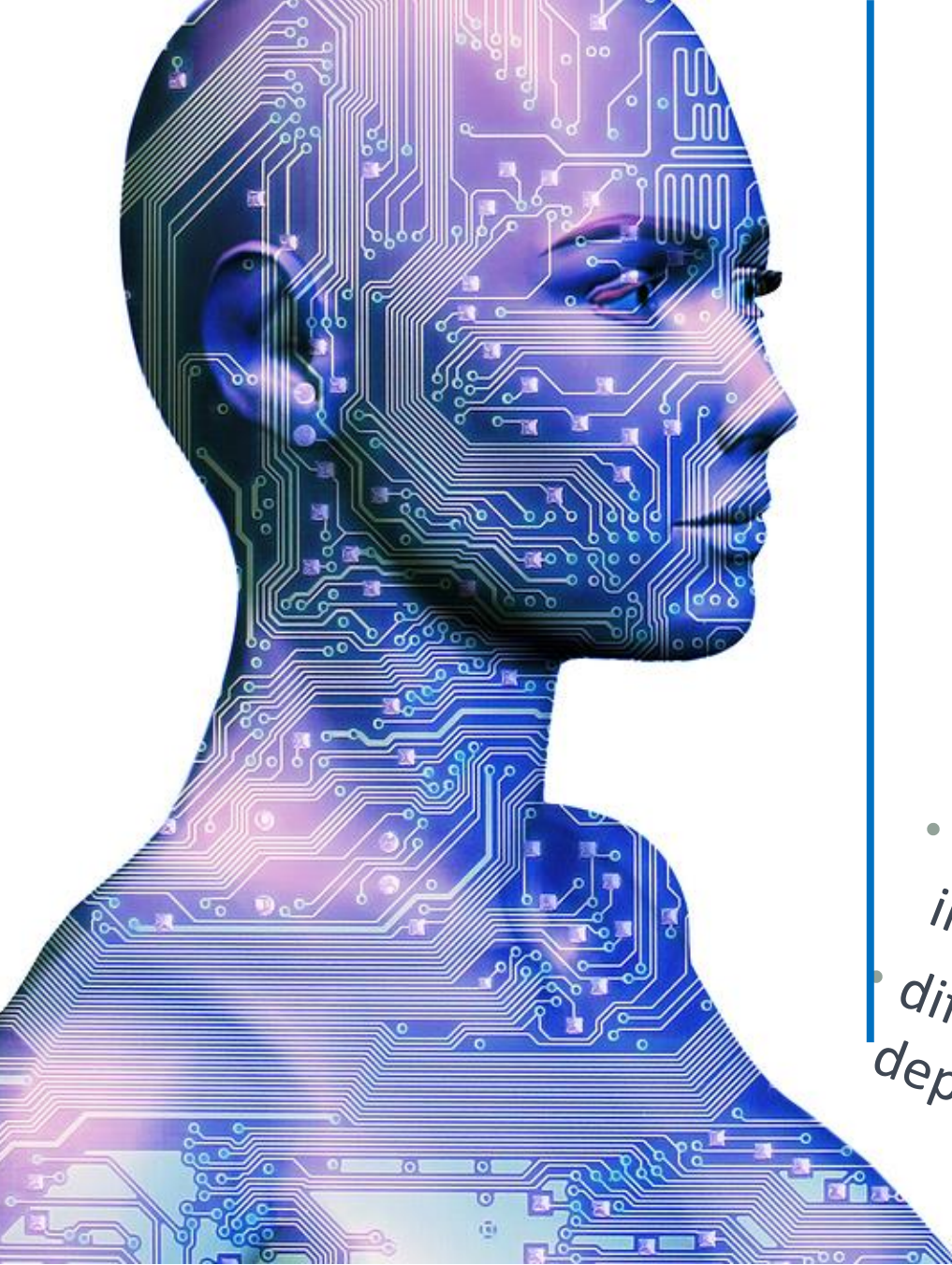
Smarter



Faster & effective



Flexible



Homo-Recyclus Building

Requirements:

- Strong human intervention
- Everyday unconscious tasks
- actions & interactions of several types of stakeholders
- actions in large groups
- Strong communication & interactions
- different approaches depending to audience

The mobile tsunami

- **> 6 billion** mobile subscriptions annually...
- **4.5 billion** - developing world

The number of subscriptions will soon overtake earth's population

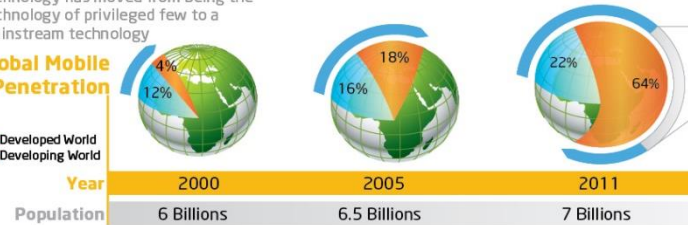
THE WORLD is becoming MOBILE



Within the span of 10 years mobile technology has moved from being the technology of privileged few to a mainstream technology

Global Mobile Penetration

■ Developed World
■ Developing World



China and India
30%
of world subscriptions.

Over **6 billion** global mobile-cellular subscriptions - **4.5 billion** mobile-cellular subscriptions in the developing world

The Web is becoming mobile



Mobile Internet Users

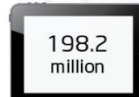
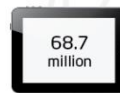
Desktop Internet Users

By 2014 mobile internet users is predicted to take over desktop internet users



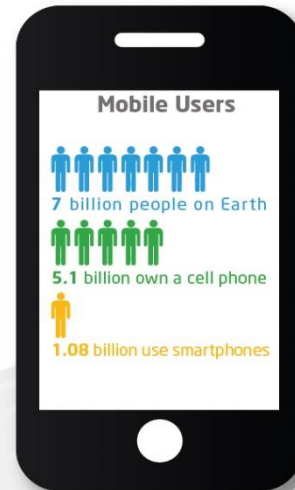
A New Era: Smartphones, Tablets & Apps

Media Tablets

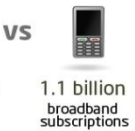


sold in 2011

will be sold in 2016



Twice as many mobile than fixed-broadband subscriptions



2012



over 1,200,000 in 2012
850,000 in 2011
300,000 in 2010

APPS reached



GROWING 7-9%

Across regions, mobile browsing and application usage is growing at the rate of 7-9 % per year.

By 2015 Smartphones will reach 2billion

Smartphones are becoming the newest wave of mobile phones.

*This is the average number of mobile apps downloaded by smartphone users in US.

the NEW ERA ☆

Smartphones

Tablets

Apps



Mobile's Social Function

- Projectors of people's life
- Enabling devices
- Offer economic solutions
- Connect People, Time & Space
 - Data transfer
 - Geolocation

- **Effective**
- **Simple to use**
- **Are in plethora &**
 - **in low-price**

Mobile phones are following owners like an extra organ of their body



Question...

What mobile applications can do for the WASTE MANAGEMENT SECTOR?



http://www.youtube.com/watch?v=A2_aH5PGBIs



Connecting stakeholders

The Stakeholders' View

1. Interactive Communication
2. Mobile Services
3. Mobile Democracy
4. Mobile Administration



The Users' View

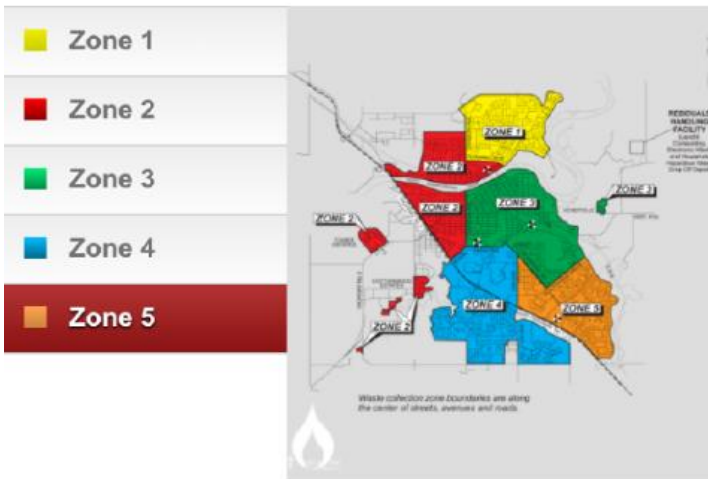
1. Informational/Educational
2. Interactive - Participatory
3. Functional

Better Collection



Map

You selected Zone 5 as your zone.



Collection Schedule

- **Schedule collection**
- **Custom reminders** for regular, holiday and special collection
- **Real time citizen feedback & information** (recycling/disposal procedures, drop off facilities, payment transactions)
- **Citizens' claims & reporting problems** (illegal dumping, inadequate waste collection")



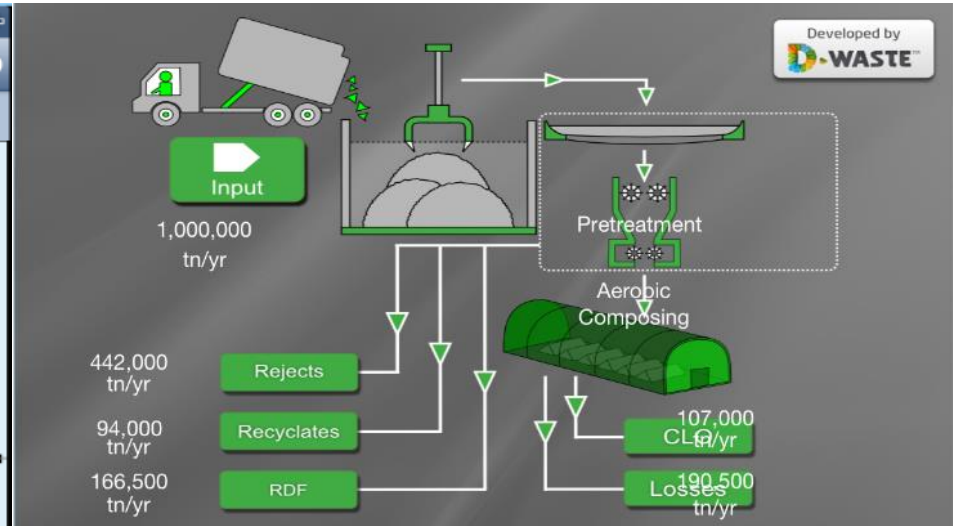
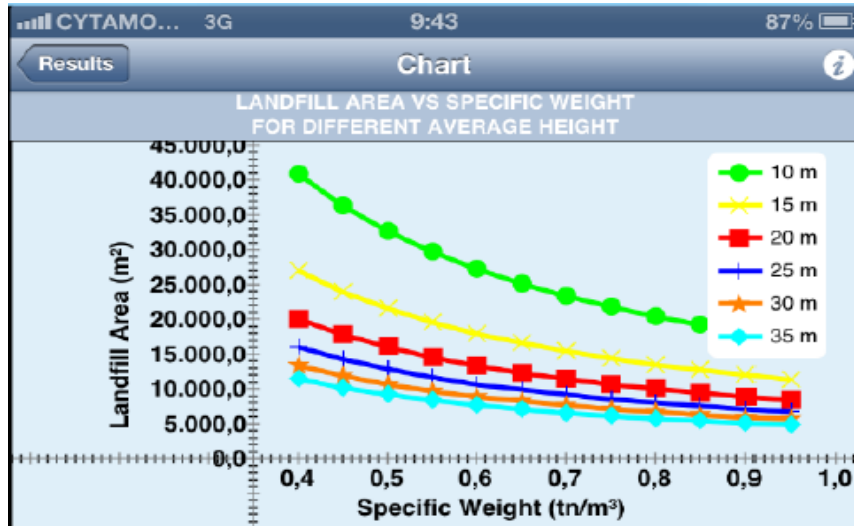
Communication - Awareness

Access channel for waste management authorities to citizens



- Provide information to citizens
- Raise awareness
- Better cooperation between municipalities & citizens

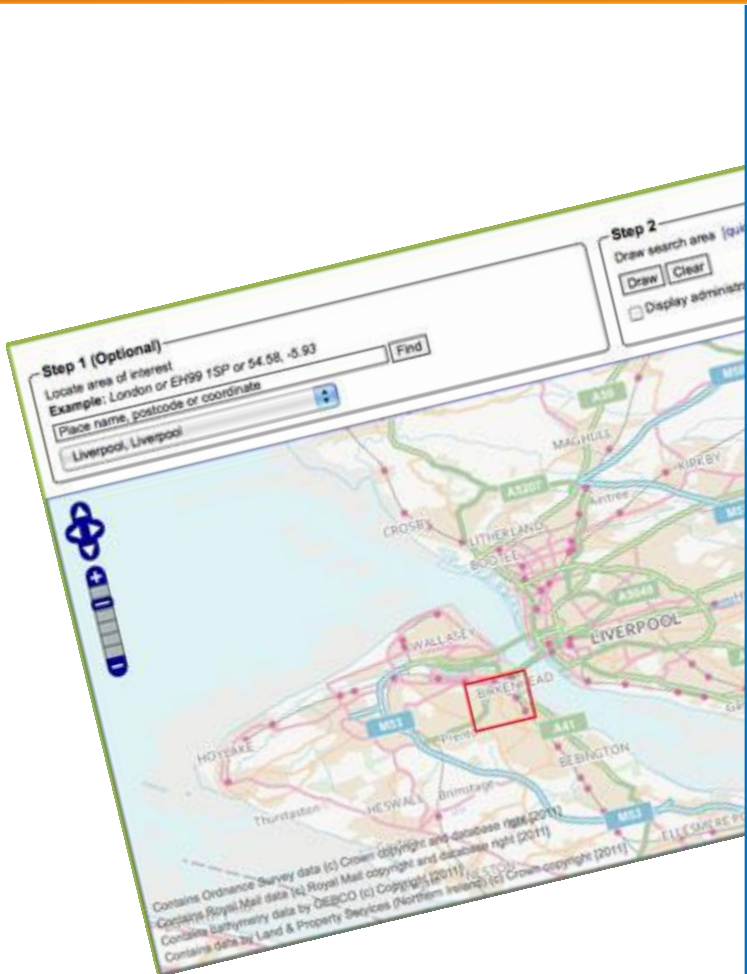
Engineering Tools



- Mass balance models
- Cost benefit analysis
- Sizing waste treatment facilities
- Designing waste recycling/prevention programs
- Defining collection routes

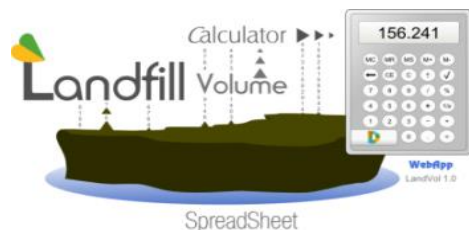


Scientists & researchers



- Conduct cross sectional studies at low cost.
- Data collection is possible wherever the device is available - useful for cross cultural studies.
- Gather data in regions & populations difficult to access, or not equipped with technology or knowledge to handle extensive testing.

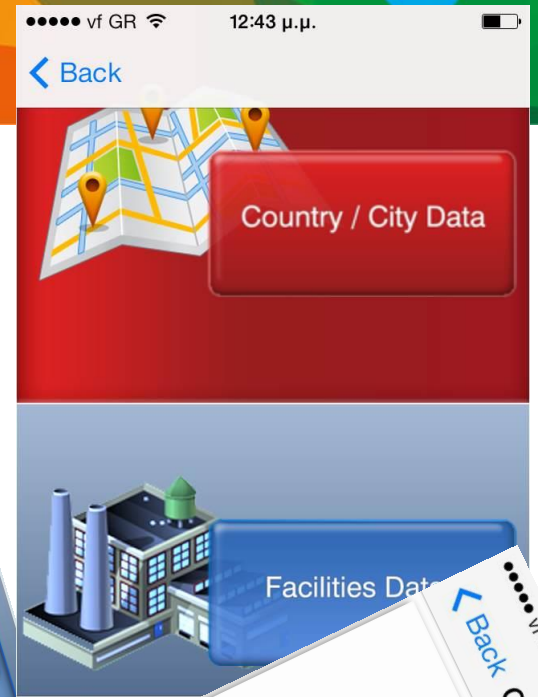
D-Waste apps suite



**WASTE
ATLAS™**



Mobile App



A crowdsourcing tool...

The need for a framework



Necessary actions:

- A proper “ecosystem”
- Invest in raising understanding of the mobile apps potential benefits.
- Strategic interventions & financing.
- Standardization of the relevant mobile systems.
- Literacy of citizens as well as workers in the recycling sector



An app is a success story only if it is utilized in an overall policy and strategy that addresses:

- *infrastructure,*
- *communication,*
- *institutional &*
- *economic aspects*

For more:

D-WASTE
WHITE PAPER



Mobile Applications
& Waste Management:
Recycling, Personal Behavior, Logistics



D-Waste Team

This is a White Paper dedicated to start a global discussion regarding the use of mobile apps to improve waste management and recycling activities. Several already existing representative waste management apps are presented and different uses of mobile apps for waste management purposes are discussed. Special emphasis is given to the potential of improving the recycling performance on the individual level through the use of mobile apps.



THANK YOU FOR THE ATTENTION

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