



# **Better Waste Management**

Andy Mudd, Head of APSE Solutions

How important is waste management?



Top of everybody's list when asked what the council does

Literally about life and death

Major spending block





# Some design principles

## Cost *and* delivery

- Effectiveness and efficiency not cuts and long run failure

## End to end process

- Might be worth investing in collection to
  - Reduce volume at the end
  - Preserve value of recyclable material

## Customer focus

- Individual households
- All of us now
- All of us yet to come

## Proximity principle

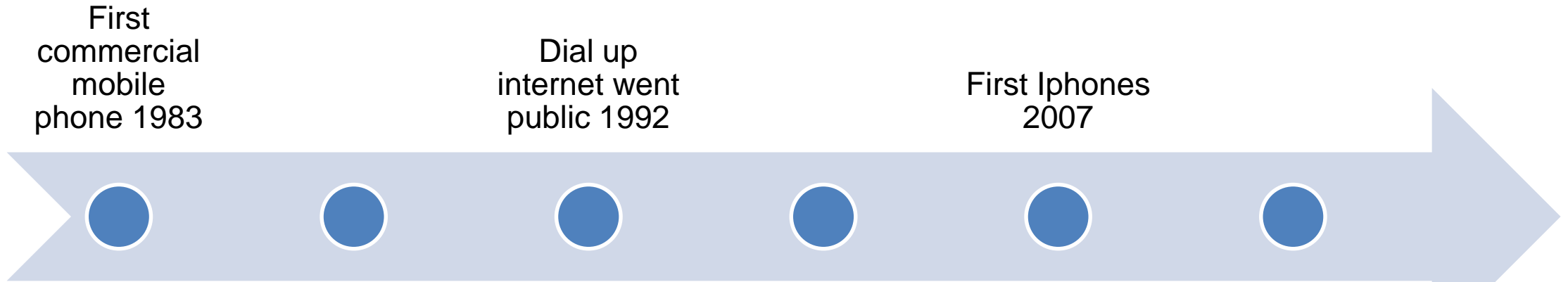
- Our waste - our problem
- Economics/sustainability

## Future proofing

- 3D printers?
  - Closed loop technology?
  - Decentralised waste?
- Hi tech composting?
  - Decentralising waste processing?



# How long is 35 years?



First commercial mobile phone 1983

Dial up internet went public 1992

First iPhones 2007

WWW invented 1989

ADSL Broadband 2000

Amazon surpasses Walmart to become the US's biggest retailer 2015



# Issues for disposal



- Waste hierarchy
  - Surely we need to plan for reducing feedstock not enter into deals that expect it to keep coming for 35 years
- Sustainability
  - 4<sup>th</sup> Industrial revolution
  - Decentralisation of waste production
  - Changes to the composition of the waste stream
  - Rapidly moving public policy – Zero Waste Scotland
- Humanisation
  - Back to the relationship
- Proximity
  - Source segregation
  - Doesn't make sense to transport unprocessed waste/recycling long distances
  - Planning to use heat and power locally

# The economics of energy from waste



- Huge scale plants
  - Conflict with residential amenity
- Require huge volumes of materials
  - Transported in across large distances
  - With output transported even longer distances
- Over a 25-35 year financing period
  - Feed the beast!
- Where commercial viability depends on maintaining volume/energy value of output
  - What happens if you can't sell the RDF?
  - Or it is cheaper to bury it?

# What are we doing?



- Working with partners
- Developing the vision
- Getting the law, commercial strategy and structure right
- Getting the right solutions

The logo for 'wood.' is the word 'wood.' in a dark blue, lowercase, sans-serif font, with a period at the end. It is set against a light grey background.

The logo for 'WALKER MORRIS' is the text 'WALKER MORRIS' in a dark green, uppercase, serif font, centered within a light green rounded rectangle.

The logo is a large, white, stylized letter 'W' centered within a black square.



# What can we do about it



## Develop design principles

- End to end
- Decentralisation
- Closed loop – proximity principle
- Future friendly
- Adaptability

## Assess current approach

- Can it deliver and continue to deliver in the future

## Contract review

- Legal
- Performance

## Long term viability

- Compatibility with policy emerging framework
- Economic basis
- Short term pain for long term gain

Assess Options

Make the investment

# Emerging thinking



Use of land fill gas to heat local homes

Local use of energy from waste for local businesses

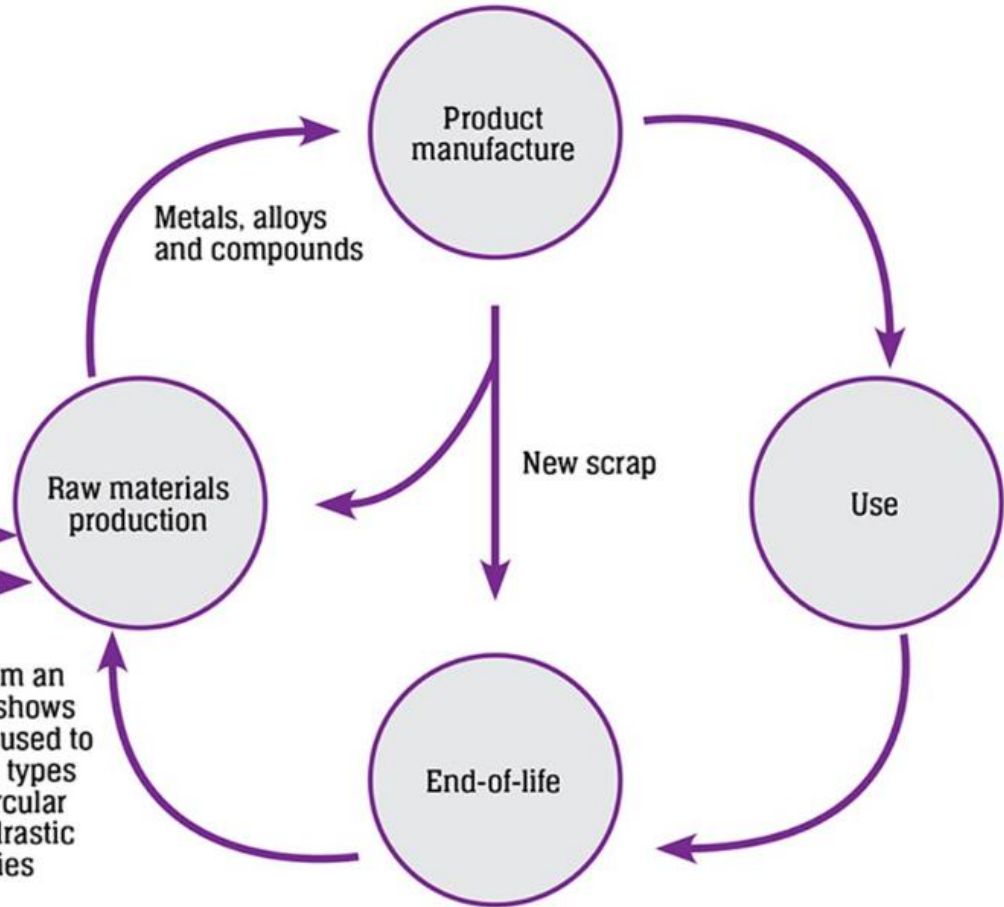
Landfill mining for raw materials

## Enhanced landfill mining

Enhanced landfill mining  
■ 150,000-500,000 landfills in EU-28  
■ Single-use Urban Solid Waste  
■ Mixed Urban Solid Waste/ Industrial Waste  
■ Monolandfills containing industrial residues

Primary mining natural resources

This diagram, reproduced from an EU Horizon 2020 magazine, shows how landfill mining could be used to complement more traditional types of mining and feed in to a 'circular economy' vision entailing a drastic reduction in the waste societies produce.



# Have I gone too far yet?



**E&T** ENGINEERING  
AND TECHNOLOGY

Menu 



**Genetically engineered slugs to chew through landfill and mine precious metals**

# Better collection methodologies



- Escaping the limits of the current approach
  - How many containers can we cope with?
  - How far will we put up with reductions in frequency of residual collection?
- A highly functional relationship
  - Difficult to create an emotional attachment to recycling
  - No sight, or knowledge of the end to end process for most of us
- Inherently expensive
  - Source segregation
  - Kerb side sorting
  - Co-mingling
- And unpleasant (and sometimes unsafe) for those that have to do it



**Non-recyclables**



**Garden waste**



**Food waste (kitchen)**



**Food waste (kerbside)**



**Paper**



**Glass and cans**



**Cardboard**



**Plastic bottles**



**Textiles**





# The importance of the relationship



- This is literally about the future of our world
- But hard to see it as anything but a chore
- How can we foster emotional involvement?

# Better methodologies for other 'waste' streams



Savings on residential can be used to improve bulky collections

Micro business benefit from pay as you throw arrangements

Imaginative ideas from other countries

Can we avoid the need for thousands of car journeys to HWRCs?

Can we make the process less functional and more emotional ?







# Consultancy

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## Interim management requirements

**Roads & Highways, Building Maintenance, Bereavement Services, Environmental, Parks & Open Spaces, Waste, Facilities & Leisure etc.**

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