

VSB – Technical University of Ostrava
Faculty of Mining and Geology

Information Technology in Waste Management

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IT for Practice conference – October 2017

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IT in waste management

- Information technology already has its place in the whole waste management process, which includes waste prevention, preparation for re-use, waste recycling, other waste recovery and waste disposal.

The Waste Hierarchy

Preferred Environmental Option



Least Environmental Option

The use of information technology in waste management

- The main aim of IT application in waste management is cost optimization, faster and easier data retrieval within reporting and ultimately reduction of ecological footprint.





Shared Environmental Information System (SEIS)

- set of information systems for activities managed by the Ministry of Environment, which aims, through accessible and high quality information, at streamlining the decision-making and implementation of environmental policy instruments
- Waste Management Information System and its module Car Wrecks
- Integrated Environmental Pollution Register



Waste Management Information System

- Waste Management Public Information System (VISOH);
- List of Producers of Electrical Equipment;
- Register of Electrical and Electronic Equipment;
- Register of Equipment and Files;
- List of Carriers
- and Wreck Module.

Smart cities

- concept of strategic city or region management based on the principles of sustainable development
- concept includes a Smart Waste Collection System

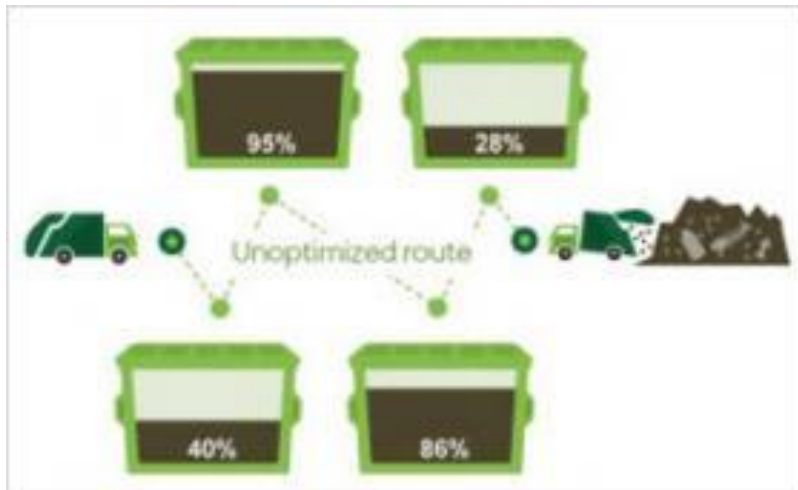




Smart Waste Collection System

- The aim of this system is to optimize the collection routes with the help of information technology, thus reducing the costs of transport and environmental impact.
- Smart waste collection works with sorted waste bins fitted with RFID chips and so-called smart or intelligent bins.
- By the use of GRPS data these containers send data on how full they are to the collection company headquarters.
- Data obtained this way are evaluated and serve as a basis for creating optimal collection route using GIS.
- It is important to create these routes so the collection vehicles only collect full bins and do not spend their time and fuel on half-empty containers.

Difference between unoptimized route and optimized route



Bigbelly

- Smart bins
- These bins have the chips which informs the headquarters that the container is full.
- Another advantage of this system is that it contains a sensor, which compresses the contents when the container is full, thus providing space for another waste.





The conclusion

- The biggest advantage of using information technology in waste management is the optimization of collection routes, which goes hand in hand with reduction of costs for collection vehicles and the consequent impact on environment.
- IT also helps to satisfy both, the waste collection companies, which have a greater overview of their costs and the amount of collected waste, as well as the municipalities, which, for example, by using the smart bins can maintain even the busiest parts of their town clean. And ultimately that also satisfies the citizens.



Thank you for your attention

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