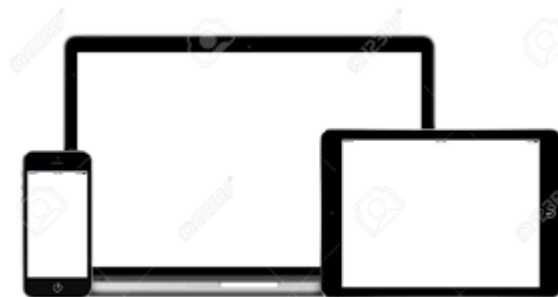




# Passive Wireless Sensor Technology Workshop

Sensors for Fire and Explosion in the Waste Management Process

# Technology



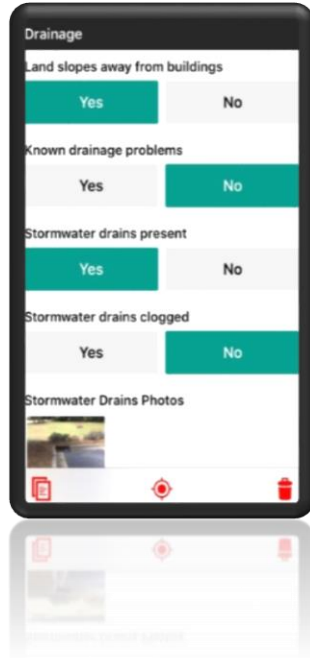
# Technology



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# Technology – Digital Property Platform – Mobile Apps, Aerial Solutions, Sensors, AI



## Sensor-based data capture

- Affordable, user-installed sensors
- Captures data at building, regional & global scales



## Analysis

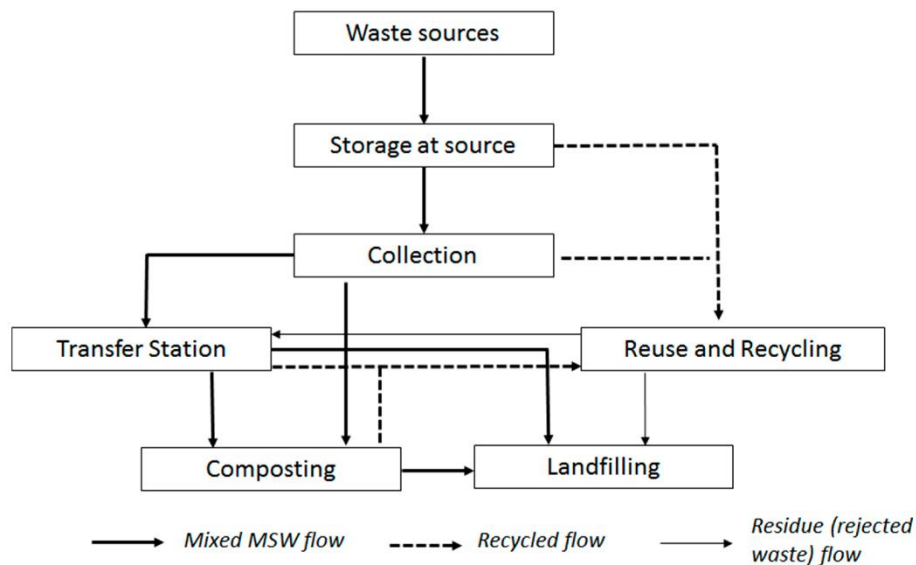
- Digital signal processing
- Risk modeling
- Artificial intelligence



## Risk & damage info

- Real-time & building-specific
- Portfolio analysis

# Solid Waste Disposal and Management Industry Overview





# The Opportunity

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- Americans generate approximately 700,000 tons of waste per day
- Approximately 60,000 trucks in US

*Sources:*

*\*<https://www.wastetodaymagazine.com/article/recycling-fire-prevention-lithium-ion-battery/>*

*\*\*[https://www.epa.gov/sites/production/files/2018-03/documents/timpane\\_epa\\_li\\_slides312\\_ll\\_1.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/timpane_epa_li_slides312_ll_1.pdf)*

# Waste Disposal and Management Industry Fires



# Waste Disposal and Management Industry Fires

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- Increase in serious losses
  - On body
  - Transfer Stations
  - Materials Recovery Facilities (MRF)
- Lithium-ion batteries may be contributing factor
  - 50% of MRFs surveys say fires increasing
    - 78% indicate Li-ion batteries are found at MRFs (38% say they are found “a great deal”)\*
- In the period June 2017 – June 2018, news organizations have reported 347 fires in waste and recycling facilities in the U.S. and Canada. This is compared with 277 reported fires in the previous 12 months. More alarming is that in the first four months of 2018, there has been a 93 percent higher rate of reported fire incidents over the same period in 2017.\*\*

#### Sources:

\*[https://www.epa.gov/sites/production/files/2018-03/documents/timpane\\_epa\\_li\\_slides312\\_ll\\_1.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/timpane_epa_li_slides312_ll_1.pdf)

\*\*<https://www.wastetodaymagazine.com/article/recycling-fire-prevention-lithium-ion-battery/>

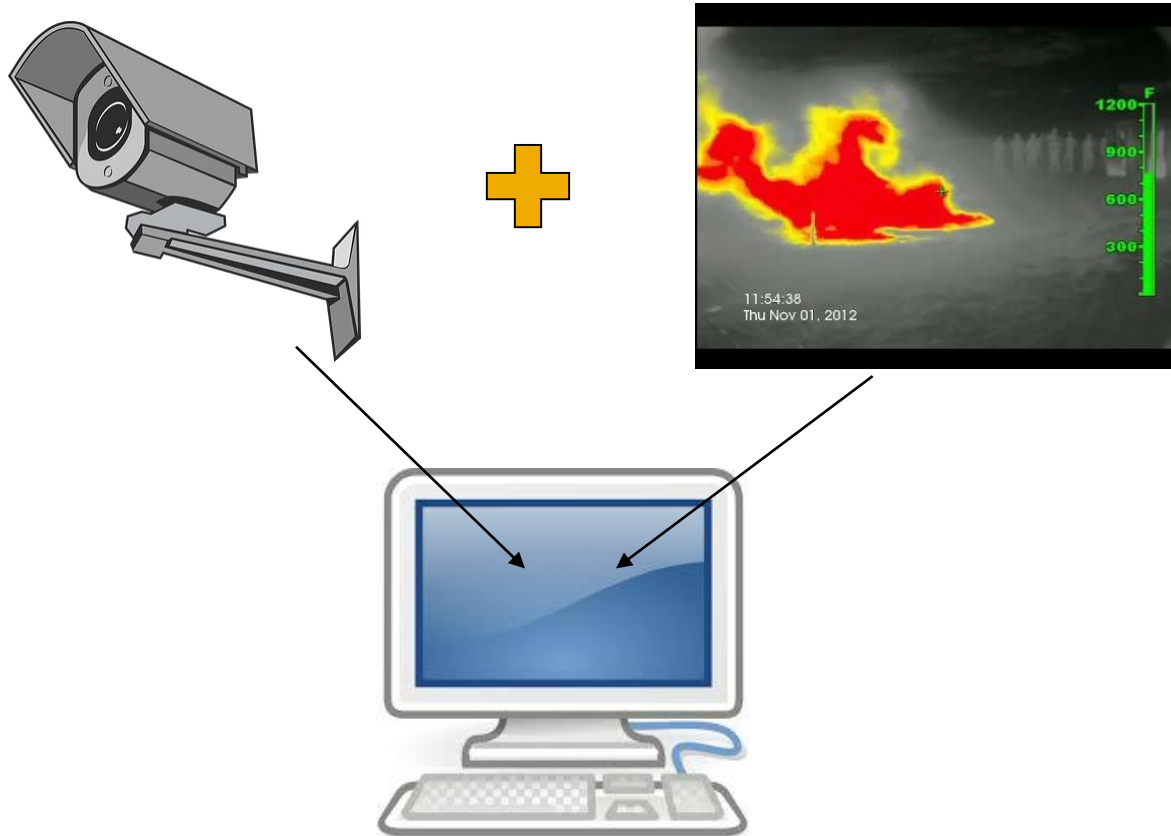


# Fire Detection & Suppression

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- On body
  - No detection, no suppression systems in wide use (none known to Aon)
- Transfer Stations & MRFs
  - Detection
    - Optical
    - Infrared
    - Air sampling
  - Suppression
    - Automatic sprinklers
    - Compressed Air Foam Systems (CAFS)
    - Monitor nozzles

# Improved Fire Detection



# Passive Wireless Sensors – Possibilities?

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- On body
  - Attached to vehicles
  - In the waste
- Transfer Stations & MRFs
  - In the concrete floor
  - In the waste pile

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QUESTIONS, AND THANK YOU!