



**PORT OF  
TYNE**

**PSS - Innovation in Port Safety**

**[portoftyne.co.uk](http://portoftyne.co.uk)**



# PORT OF TYNE



[portoftyne.co.uk](http://portoftyne.co.uk)

- 650 acres, 320 employees
- Bulk and Conventional Cargoes
- Container Terminal
- Warehouses
- Cruise and ferries
- Marine Services
- Estates



National  
Innovation  
Centre  
**Data**

Powered by  
Newcastle University

MARITIME INNOVATION WEEK  
2022

**HACKATHON**



# The Catalyst

## Home to the National Innovation Centre Data

[portoptyne.co.uk](http://portoptyne.co.uk)



## **Zero Harm Hackathon Challenge**

What can the data tell us that we can't see with the naked eye?

Are there discernable patterns?

- Do incidents happen at a certain time / season / weather within a business area?
- Do near misses lead up to damage or injury?
- Do safety briefings have a positive effect on incident occurrences

Can incidents be predicted?

- Do trends point to areas of increased risk?
- Can we use trends to target safety campaigns?

Reviewing actions

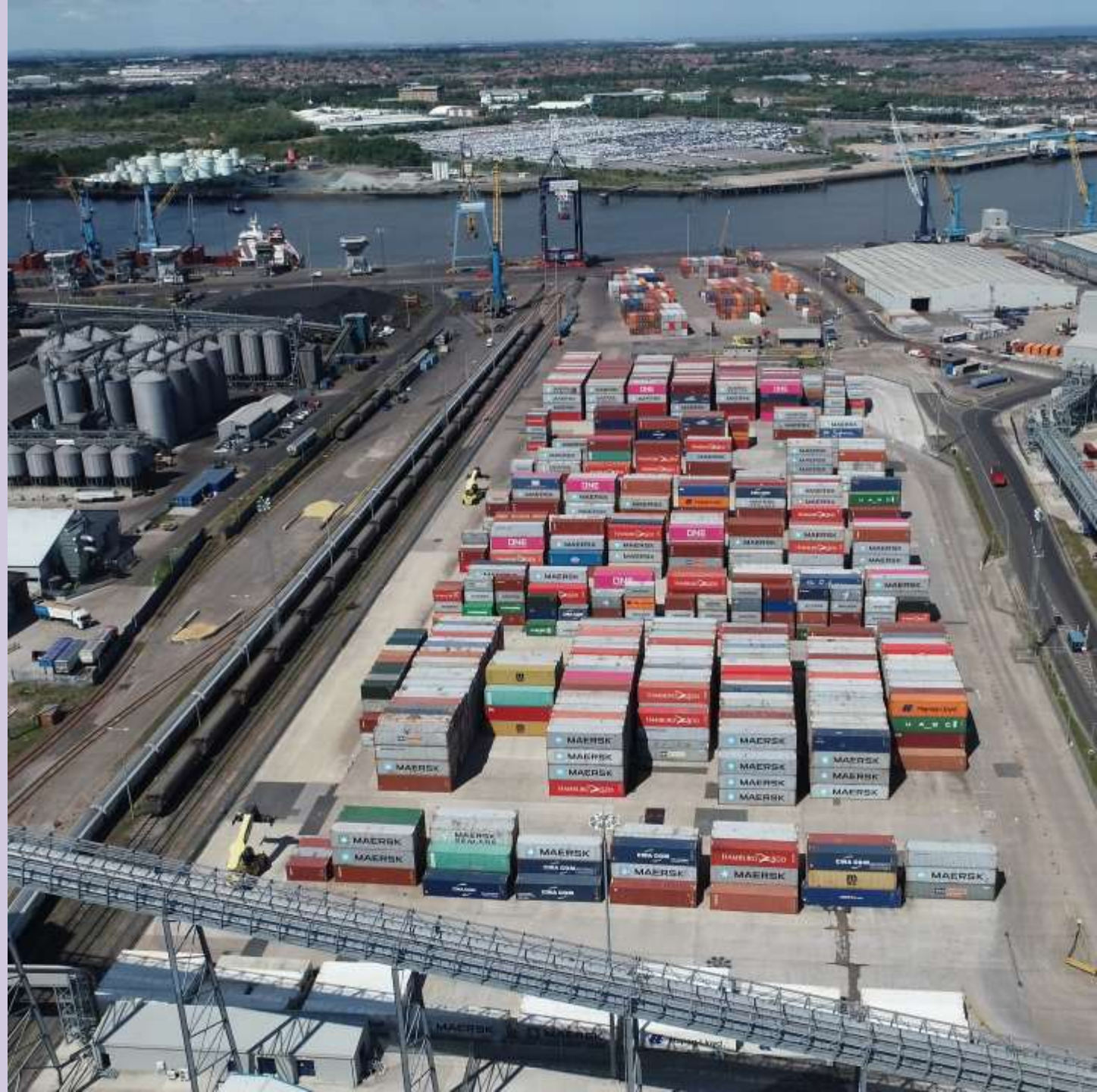
- Is there a link between audit findings and incidents?
- Does the data indicate that audit and incident corrective actions are effective?

# 2050 INNOVATION HUB

## Zero Harm Hackathon Data Provided

- PSS Incident Data
- Port Incident Data
- Port Audit Findings
- Safety Shares/Alerts
- Wind Data
- Port of Tyne Locations

[portoptyne.co.uk](http://portoptyne.co.uk)



# 2050 INNOVATION HUB

## Current System

- Tendency towards lagging indicators
- Poor user interface
- Data analysis mainly manual – with spreadsheets

[portoftyne.co.uk](http://portoftyne.co.uk)



# 2050 INNOVATION HUB

## New System

- Promote recording of leading indicators
- Better visibility of data day-to-day
- Improved trending of data
- Machine learning and AI to help data analysis

[portoftyne.co.uk](http://portoftyne.co.uk)





1

Reason is hidden in incident details

Word Count Analysis

Determined the stop-words

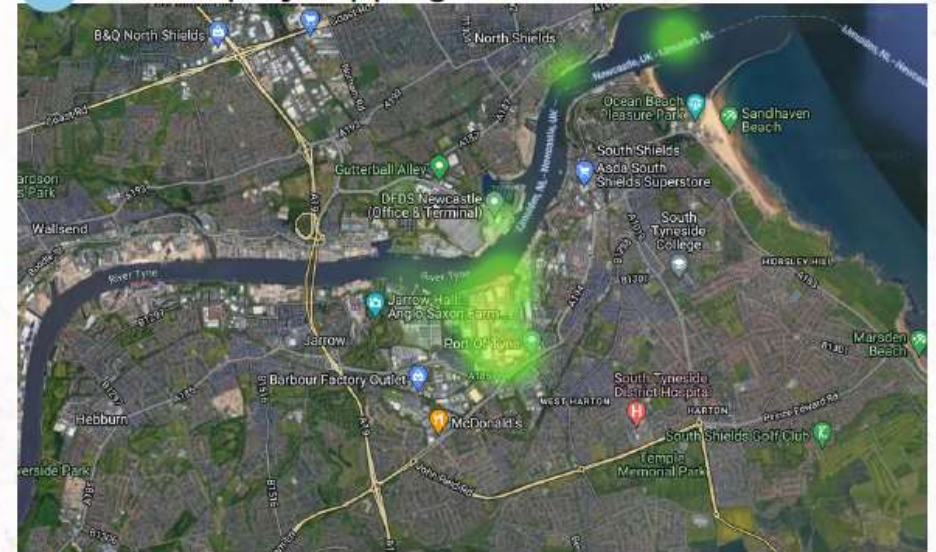
## F1. Word Count Analysis before stop-words 2018-2022



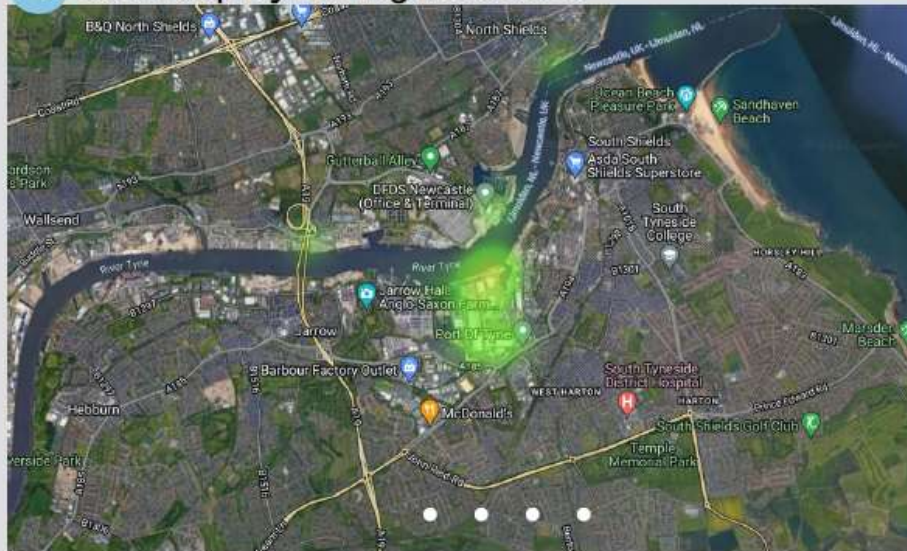
F3. Heat Map by Fire Locations



F4. Heat Map by Slipping Locations



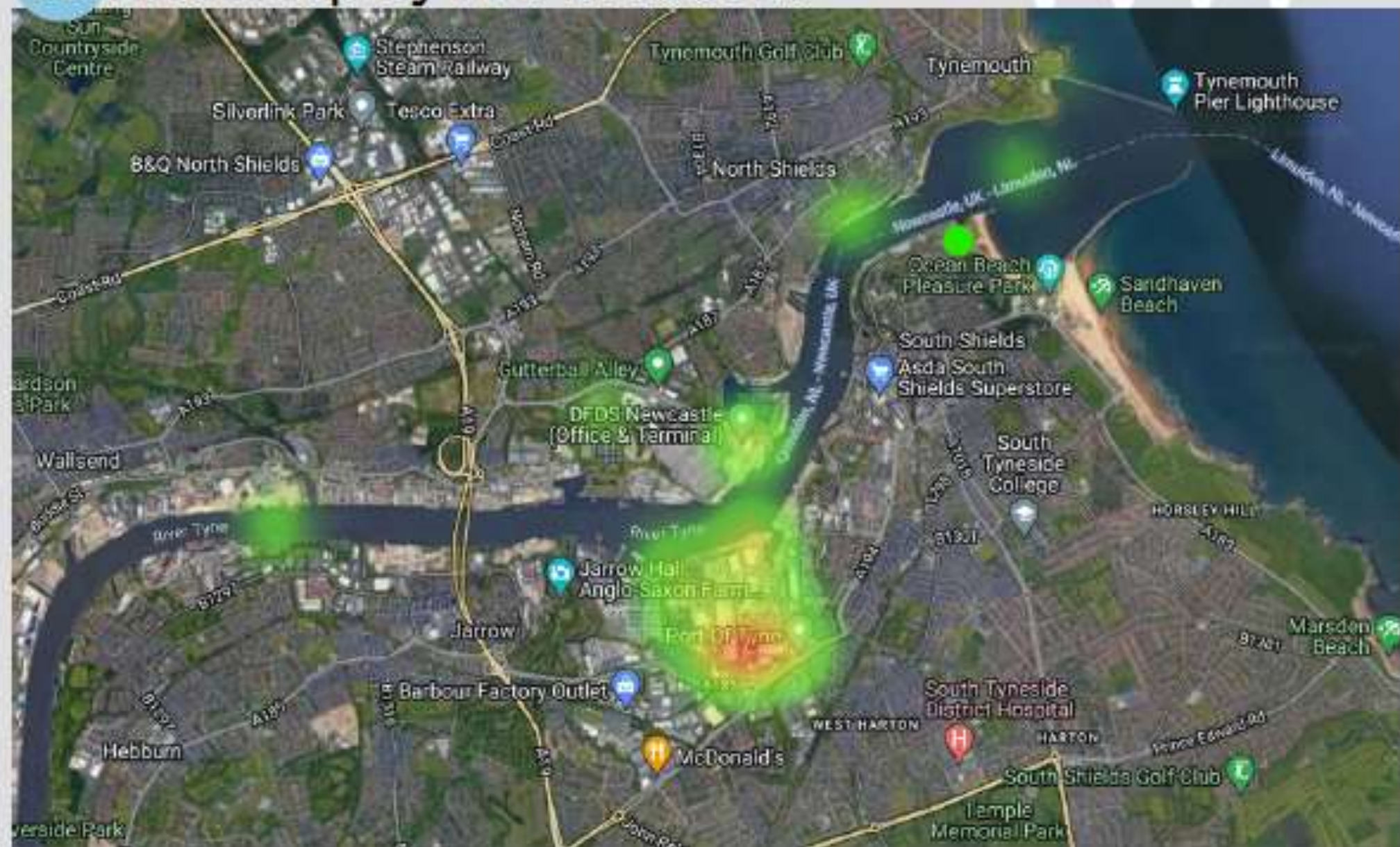
F5. Heat Map by Falling Locations



F6. Heat Map by Injury Locations



### F3. Heat Map by Fire Locations





**PORT OF  
TYNE**

[portoftyne.co.uk](http://portoftyne.co.uk)