



Aerial Thermal Mapping, Analysis & Reporting of Large-Area Heat Networks

Andy Bodycombe - HexCam

A Little About Us. . .



- Denmark-based (Aarhus)
- Founded 2015
- Service > 150 District Heating companies
- Some of largest heat networks in Denmark
- 'Teraplan' reporting platform

Working
together
since



2018

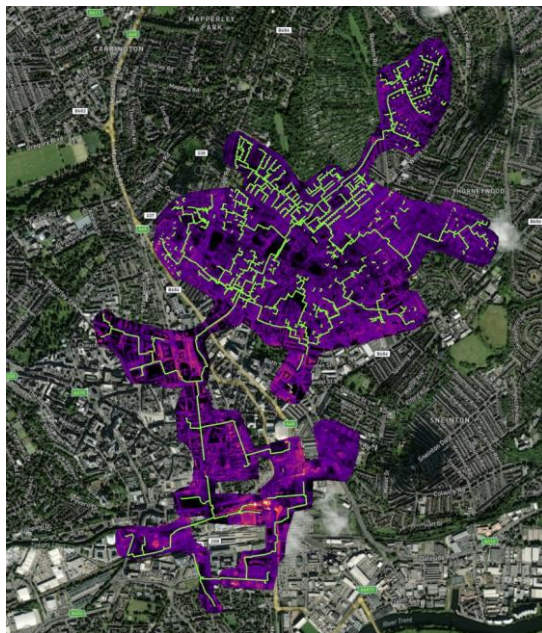


- UK-based (Norwich)
- Established 2012
- CAA Operational Authorisation
- Survey, Mapping, Inspection
- Creative Video and Stills
- 3D Point Clouds & Modelling



Nottingham
City Council

Large Area Aerial Thermography



290 hectares

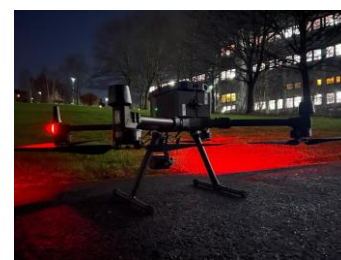
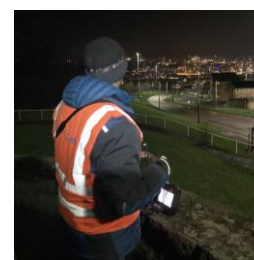
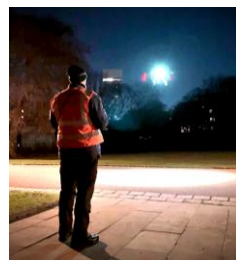
Nottingham: Jan 2019



347 hectares

UK: Feb 2021 & Jan 2022

Planning & Capture



Car parks, Schools, City Parks, Bridges, Shopping Centre Roofs, Churchyards, City Squares. . .

Work with multiple stakeholders to identify safe **Take-Off and Landing Sites (TOLS)** - 10 flights over 2 nights for Nottingham. **Site recce in advance.**

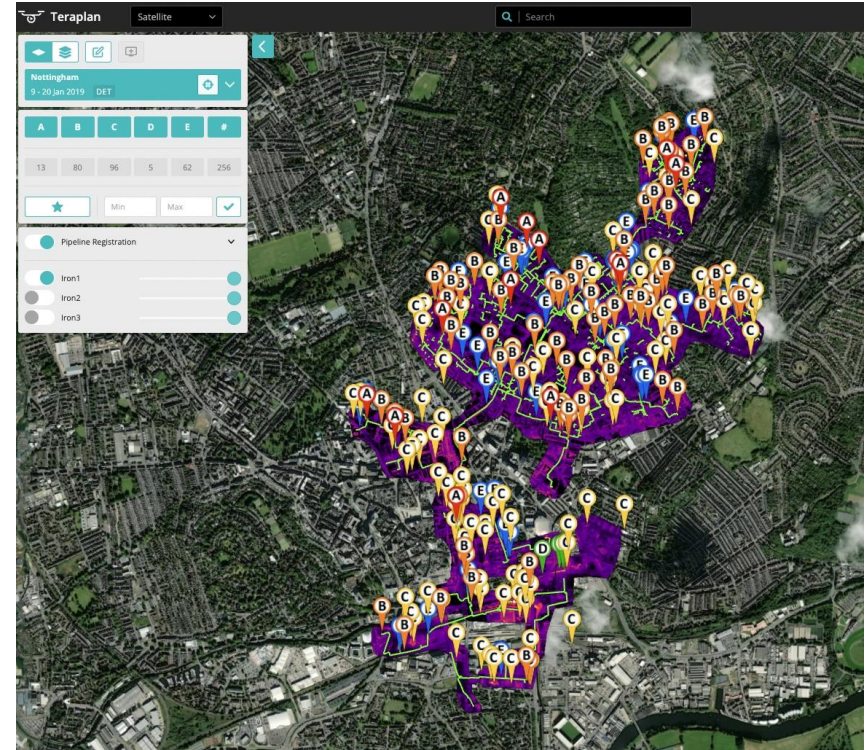
Correct weather conditions essential to detect more subtle heat signatures.

Ground Control Points (GCPs) surveyed in advance.

Processing & Reporting



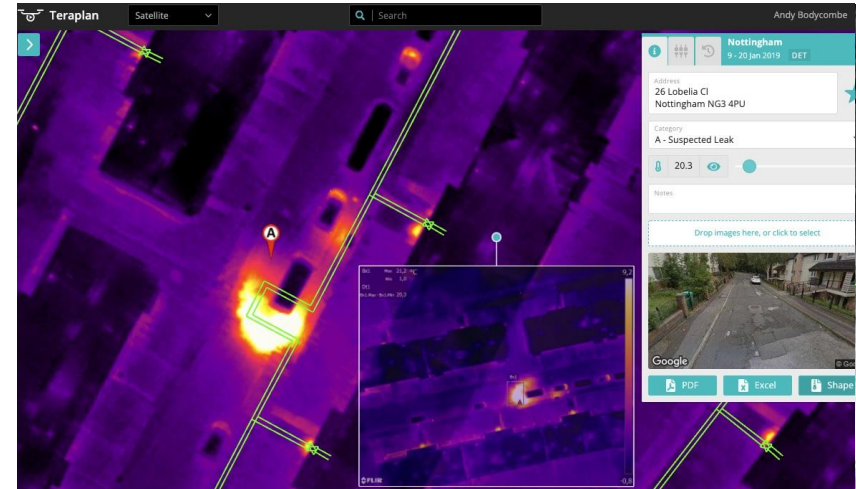
- Thousands of **radiometric** thermal images captured (circa 600GB)
- Processed to form a network-wide thermal orthomosaic (ironbow & monochrome palettes) tuned to highlight ‘delta-Ts’ from DHN network components.
- Geolocation checked and aligned.
- Anomalies identified and categorised.
- All reported via web-based ‘Teraplan’ – ‘Handover’



Teraplan – Complete & Systematic



- **Tagging and filtering** to categorise, prioritise and to monitor work status.
- **Pipe routes** can be compared to record drawings. 'GIS' layering.
- **Comparison of data** from year to year – emerging problems and trends and assessing results of maintenance.
- **Maintenance Scheduling** - critical and emerging future leaks.
- **Multiple Users** with specific access and editing rights.
- **Google Streetview** integrated

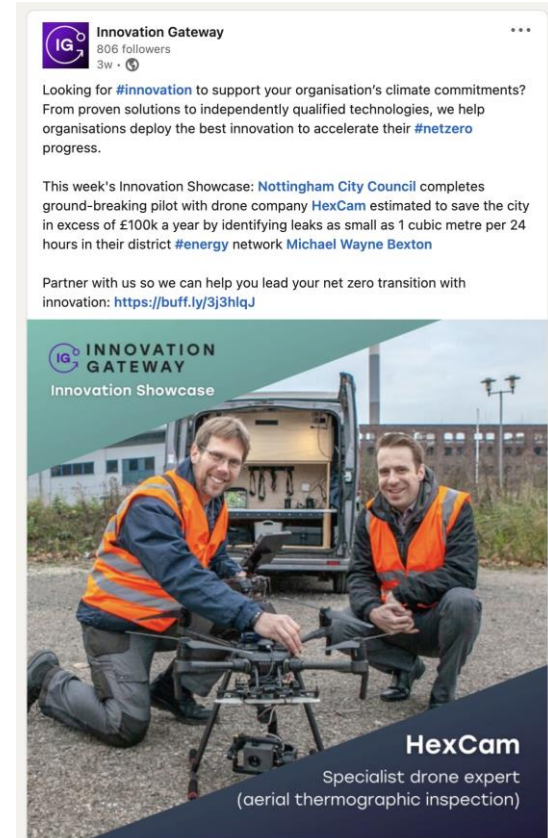


Teraplan – Complete & Systematic



Key Benefits

- COST SAVINGS by reduced water and heat loss through early detection of all leaks - not just major ones.
- FUTURE LEAK identification.
- FAST data capture in areas 'inaccessible' to hand-held cameras.
- PLAN and PRIORITISE maintenance schedules and budgets.
- ACCURATE data = targeted street works.
- MULTIPLE USE DATA – e.g. maps can be 'tuned' to show rooftop heat loss.



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This week's Innovation Showcase: [Nottingham City Council](#) completes ground-breaking pilot with drone company [HexCam](#) estimated to save the city in excess of £100k a year by identifying leaks as small as 1 cubic metre per 24 hours in their district [#energy](#) network [Michael Wayne Bexton](#)

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INNOVATION GATEWAY
Innovation Showcase

HexCam
Specialist drone expert
(aerial thermographic inspection)

Live Teraplan Demos Available



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