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Data journalism: Past, present and future.

Foreword by Simon Rogers, Head of Google Data Lab

This is the third in the Abramis Data Journalism series and twenty first in the acclaimed 'hackademic' series. As ever with a new collection, there are new authors and fresh perspectives. A vast range of topics is covered – including the Panama Papers exposé, the role of data journalism in the recent UK general elections and referenda, the challenges facing DJ in China and Russia, and an overview of the history of DJ in the US and UK – while experts provide tips on improving DJ skills.

The authors include some of the world's leading data journalists – and top academics, trainers and activists in the field: Lucas Batt, Paul Bradshaw, Mar Cabra, Adam Cantwell-Corn, Harry Carr, Erin Coates, Aasma Day, Shiting Ding, Peter Geoghegan, Leila Haddou, Kathryn Hayes, Bahareh Heravi, Jonathan Hewett, Eliot Higgins, Bella Hurrell, Teresa Jolley, Marie Kinsey, Sixian Li, Joseph O'Leary, Isabelle Marchand, Claire Miller, Petar Milin, Rob Minto, Martin Moore, William Perrin, Damian Radcliffe, Gordon M. Ramsay, Simon Rogers, Sarah Rose, Jonathan Spencer, Anastasia Veleeva, John Walton and Hugh Westbrook.

Editors

John Mair is the series editor of the Abramis 'hackademic' books. Professor Richard Lance Keeble has co-edited many of them with him and is the author or editor of 36 books. Megan Lucero is the Director of the new data journalism hub at the Bureau of Investigative Journalism and Martin Moore is the Director of the Centre for the Study of Media, Communication and Power at King's College London.

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How data journalism can revolutionise local transport: A West Midlands case study

Never has there been a greater need for the transport sector to welcome the skills of data journalists, argues Teresa Jolley

DJ and the future of transport: A collaborative approach

Transport is a challenging area for data journalists to cover. Data is siloed, inconsistent and inaccessible while access to industry and technical resources is difficult. But never has there been a greater need for the transport sector to welcome the capabilities and skills of data journalists. This traditional, engineering-focused sector knows it must prioritise user needs and inspire new young talent to join its ranks, but needs help doing so.

Transport is a vital service that profoundly affects our health, quality of life, choice of employment, how we spend our leisure time and where we live. Rather than journalists becoming transport experts, or transport engineers becoming journalists, why not bring the skills of both together in a facilitated collaborative environment to enable the much-needed changes to happen?

By providing the opportunity for data analysts, scientists and statisticians to share knowledge and experience of data related to transport, we can facilitate a more rapid and deeper understanding of what we need to do to solve the key transport challenges.

In collaboration with Transport for West Midlands and the Innovation Birmingham campus, a Data Discovery Centre has been set up. It intends to:

- provide access to all the key datasets as a common resource for all to work with and improve (Birmingham in Real Time, and Demo Data Discovery Centre with OpenDataSoft);
- provide multiple visualisation, analysis and exploration tools to explore and understand the data;
- be a resource for a variety of public and private sector organisations with expertise and interests in data analytics, statistics, visualisation, machine learning, traffic and transport, open data, journalism, accessibility and more;

- be home to SME's building and demonstrating the next generation transport and travel solutions;
- be open for registered members to come and research/explore innovative solutions in a collaborative environment with relevance to the region, which are not possible inside existing organisations or contracts;
- act as a resource for schools, universities, colleges, companies, professional institutions, other local authorities and transport organisations, Department for Transport and others to visit, learn and collaborate.

The West Midlands challenge

Between 2017 and 2026, the West Midlands will be home to significant transport investment that will support the region for years to come. Projects include the construction of the High Speed Two (HS2) line and two new stations (Curzon Street and Solihull) (HS2 Interactive Map), major improvements to the region's motorway, trunk road, rail and utilities/telecoms networks, an extension of Birmingham's tram network and a variety of transport improvements by local authorities.

Alongside these significant transport changes and improvements, there is a declared ambition to build 100,000 new homes to meet the region's growing population. Where should the new homes be built? How should transport connect to these new homes, and existing ones, to help people live more happily and healthily and be able to work and travel more easily? How can we ease congestion, improve air quality and reduce dependency on the car as the only viable form of transport for many?

The construction and improvement activities during this nine-year period will impact on all the transport networks across the region, many of which are already close to capacity. It is, therefore, critical that the impact of any disruptions is minimised, with a clear view of the effect of closures and re-routing across the various modes of transport (car, train, tram, bike, walking etc). It is also essential that accessible and accurate information about delays/best alternative routes is made widely available to all users, including:

- commuters,
- freight and business delivery organisations,
- business travellers,
- tourists,
- blue light services (ambulance, police, fire and other incident responders),
- public service fleet operators of buses, refuse trucks and work vans,

- community transport services,
- those living close to main routes who can be expected to have concerns about air quality, noise and property values.

Transport for West Midlands, the transport arm of the West Midlands Combined Authority, is clear that disruption and congestion can only be managed by modal shift. In other words, helping people choose different transport modes in place of their habitual choice of the motor car (bus, tram, cycle, walk, taxi/Uber/rideshare, train) and being able to switch between different modes when needed for a smoother, easier journey.

Recognising this challenge, West Midlands Combined Authority are leading a Network Resilience Strategy with three key themes (West Midlands Combined Authority Regional Resilience Plans 2017):

- investing in the foundation of data sharing principles and standards, and evidencing benefits of opening up datasets to encourage innovation and collaboration;
- co-ordinating activities between all transport organisations and stakeholders to minimise the chance of unforeseen clashes of works;
- engaging with the community through local groups, communication and PR teams, and local and national media so that relevant and accurate information on travel options, reliability and best routes is available to all.

Access to datasets from a wide variety of sources is critical to success in all three areas. Understanding what data is available, its purpose and how it can be used in new ways to better inform user needs is key: recognising where there are gaps in data, such as local air quality data and campaigning for better data to be available locally in communities.

The opportunity for data journalists

Whilst this is a daunting challenge, the expertise and level of enthusiasm for change already present in the region makes this an exciting opportunity. For data journalists, the West Midlands provides a useful combination of story angles, access to datasets and technical resources to fuel immersive, engaging storytelling.

Coverage of transport by the media tends to focus either on local crashes and closures or large-scale problems with large organisations. This means there is a latent opportunity for grassroots, community-driven local journalists to collaborate with the active open data and tech communities and social value groups across the region to help reconnect the transport system with its users.

By pioneering a data-enabled, technically informed yet accessible form of storytelling, this will, in turn, help people in a busy, congested region take an active part in defining future transport technologies.

How transport missed out in £3.4 billion funding

An example of an important, data-driven exclusive focused on the £3.4 billion funding under the New Homes Bonus programme made available from the Department for Communities and Local Government (DCLG) to local authorities between 2011 and 2016 (Chatterjee 2015). The funding was not ring-fenced, meaning it was up to each of the receiving local authorities to decide how they spent the money.

Transport Network, a leading industry media channel, decided to investigate how much of this cash local authorities actually chose to allocate for transport or road improvements. No central and accessible sources of data were available on how the fund was spent, so the required data was requested from local authorities under the Freedom of Information Act. Responses from 261 English councils revealed only 17 of those 261 local authorities allocated a specific portion of the funds to transport or highway infrastructure.

The investigation – published on the *transport-network.co.uk* website – revealed the projects that were part- or fully-funded using the New Homes Bonus funds, and offered some shared perspectives on how that was achieved and delivered in different local authorities. Some examples included local authorities supporting the reopening of old railway lines, with new housing developments close to refurbished or new stations.

When data journalists delve deeper

Several new services and solutions are being trialled in the region, like Mobility as a Service (MaaS) (the first UK trial of the MaaS Global Whim app), future car design (by Jaguar Land Rover) and the testing of autonomous and connected vehicles on 40 miles of roads around Coventry (the UK CITE project).

Data journalists can play a major role in promoting the debate over these initiatives. How are these advances potentially impacting people's lives? How will these technological developments change the way we live and move around? Who benefits or who loses out? These are the kind of crucial questions data journalists can explore.

Access to datasets

Until now, users have had to rely on services from global providers such as Google, Apple and TomTom to navigate their way around local and national transport networks. This reliance is not going to be good enough for the demands of the West Midlands in the coming years, or strong enough to support improvements to local open source alternatives.

West Midlands Combined Authority is one of three global city regions, alongside Melbourne (Australia), and Bloomington, Indiana (US), to work with Mapbox to solve smart cities congestion challenges with open source products and services built on OpenStreetMap (Franken 2017). OpenStreetMap, the collaborative,

global editable map, has a vibrant local community in the West Midlands, called Mappa Mercia. They have done a lot of work with Birmingham City Council to make highways and transport data available on OpenStreetMap (Prangle 2017). *Wikidata* also has a strong local community in the region and is exploring open, editable resources for defining and linking data.

The Open Data Institute has a Birmingham node, based at the Innovation Birmingham campus (ODI Birmingham), which is also home to a large number of technical, digital and data start-ups. In addition, the campus hosts the Transport Systems Catapult and Transport for West Midlands Intelligent Mobility Incubator, supporting SMEs to develop future transport solutions (Transport Systems Catapult 2015). SMEs need access to reliable and open data sources to build their products and services.

Open source is a way to assist future transport solutions that are more collaborative and valuable to wider society needs. But there are perceived and real security risks around choosing which data to open up (Gleave 2017).

As well as benefiting from improved access to data to inform stories, journalists are better placed to answer a range of important questions. For instance, how is personal data protected? What are the risks and opportunities to individuals and businesses? And how can individuals and communities contribute to and police this?

Technical resources to boost DJ in the region

The region's universities have internationally recognised expertise in related fields which are useful research resources for more in-depth stories by data journalists. Birmingham City University (located adjacent to the new HS2 Curzon Street station) has specialisms in digital media and technology, including two MAs run by Paul Bradshaw: Multiplatform and Mobile Journalism, and Data Journalism (Bradshaw 2017).

Aston University specialises in transport and engineering. The University of Birmingham has strengths in energy sources, sensor technology and city-focused data analytics and research through its CitiREDI programme at the Birmingham Business School (CitiREDI). The recently opened National College for High Speed Rail is located in Birmingham whilst the National Transport Design Centre is based in Coventry.

Schools and academies are keen to support Science, Technology, Engineering and Mathematics (STEM) and STE(Arts)M activities, and welcome engagement and involvement with 'real-life' industry challenges such as through the UK Engineering's Tomorrow's Engineers programme (Tomorrow's Engineers). Academies include the seven Royal Society of Arts (RSA) academies across the West Midlands (RSA Academies) and Aston University Engineering Academy.

Conclusion

The collaborative approach highlighted here provides a high quality, fast-paced, industry-led innovation centre that enables research, prototyping and development of solutions to help solve the West Midlands transport challenges in a user-centred way. By welcoming data journalists as key participants, they will be able to access data and knowledge to inform their stories. This will provide the greater depth and quality to transport-related stories that have previously been so hard to attain.

In turn, the closer involvement of journalists with the transport sector will raise awareness of the way our transport network operates and how readers can shape and influence it to deliver a future transport system that meets society's real needs.

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- West Midlands Combined Authority (2017) Regional resilience plans. Available online at <https://www.wmca.org.uk/news/regional-resilience-plans-approved/>

Website resources

- Association of Community Rail Partnerships: <https://acorp.uk.com/>
- Aston University Engineering Academy: <http://www.auea.co.uk/>
- Birmingham in Real Time: <http://dmmlab.bcu.ac.uk/alandolhasz/birt/data.html>
- CitiREDI: <http://www.birmingham.ac.uk/schools/business/research/city-redi/about.aspx>
- Demo Data Discovery Centre with Open Data Soft: <https://datadiscoverycenter.opendatasoft.com/pages/homepage/>
- HS2 Interactive Map: <http://interactive-map.hs2.org.uk/>
- ODIBirmingham: <https://theodi.org/nodes/birmingham>

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National College of High Speed Rail: <https://nchr.ac.uk/>

National Transport Design Centre: <http://www.coventry.ac.uk/business/ntdc/>

OurNewUnion.org: <http://ournewunion.org/>

Royal Society of Arts (RSA) Academies: <http://www.rsaacademies.org.uk/>

Tomorrow's Engineers: <http://www.tomorrowsengineers.org.uk/>

UKCITE project: UK Connected Intelligent Transport Environment: <https://www.ukcite.co.uk/>

Note on the contributor

Teresa Jolley is Creative Director of DEFT153 Ltd – delivering efficiency for transport for the 153 local authorities in England.