

SAPSED	SAPSEDNAME	CSO_Data	CSO_Name	Pop02	Pop06	Pop11	ActC0211	PcC0211	ActC0611	PcC0611	MPop11	PcMPop11	FPop11	PcFPop11	PPHU11	PPHU06	ActPPH06	PcPPH06	UnC
01001	001 Carlow Urban	1	Carlow Urban	4963	4605	4181	-782	-15.76	-424	-9.21	2130	50.94	2051	49.06	1805	1756	49	2.79	
01002	002 Graigue Urban	2	Graigue Urban	1702	1524	1272	-430	-25.26	-252	-16.54	654	51.42	618	48.58	550	605	-55	-9.09	
01003	003 Clonmore	3	Clonmore	461	530	560	99	21.48	30	5.66	280	50.00	280	50.00	188	174	14	8.05	
01004	004 Hacketstown	4	Hacketstown	1026	1065	1091	65	6.34	26	2.44	579	53.07	512	46.93	384	356	28	7.87	
01005	005 Haroldstown	5	Haroldstown	239	267	259	20	8.37	-8	-3.00	128	49.42	131	50.58	92	88	4	4.55	
01006	006 Kineagh	6	Kineagh	287	309	327	40	13.94	18	5.83	154	47.09	173	52.91	121	104	17	16.35	
01007	007 Rahill	7	Rahill	393	585	662	269	68.45	77	13.16	334	50.45	328	49.55	240	207	33	15.94	
01008	008 Rathvilly	8	Rathvilly	700	802	838	138	19.71	36	4.49	423	50.48	415	49.52	313	275	38	13.82	
01009	009 Tiknock	9	Tiknock	271	331	338	67	24.72	7	2.11	176	52.07	162	47.93	116	110	6	5.45	
01010	010 Williamstown	10	Williamstown	256	273	297	41	16.02	24	8.79	156	52.53	141	47.47	105	96	9	9.38	
01011	011 Ballynaha	11	Ballynaha	266	322	382	116	43.61	60	18.63	198	51.83	184	48.17	123	106	17	16.04	
01012	012 Ballyba	12	Ballyba	937	1005	1055	158	18.65	68	7.26	511	50.85	494	49.15	347	306	41	13.40	
01013	013 Ballyb	13	Ballyb	480	559	599	136	32.15	79	16.46	278	49.73	281	50.27	186	157	29	18.47	
01014	014 Ballon	14	Ballon	466	646	710	244	52.36	64	9.91	367	51.69	343	48.31	229	199	30	15.08	
01015	015 Ballyellin	15	Ballyellin	352	375	427	75	21.31	52	13.87	220	51.52	207	48.48	141	132	9	6.82	
01016	016 Ballymoon	16	Ballymoon	258	260	329	71	27.52	69	26.54	172	52.28	157	47.72	118	94	24	25.53	
01017	017 Borris	17	Borris	959	1008	1041	82	8.55	33	3.27	510	48.99	531	51.01	369	343	26	7.58	
01018	018 Burton Hall	18	Burton Hall	281	368	465	184	65.48	97	26.36	234	50.32	231	49.68	161	120	41	34.17	
01019	019 Carlow Rural	19	Carlow Rural	11238	12548	13947	2709	24.11	1399	11.15	6842	49.06	7105	50.94	5039	4354	685	15.73	
01020	020 Clogrenan	20	Clogrenan	687	796	996	309	44.98	200	25.13	523	52.51	473	47.49	328	248	80	32.26	
01021	021 Clongall	21	Clongall	808	905	978	170	21.04	73	8.07	472	48.26	506	51.74	338	293	45	15.36	
01022	022 Borris	22	Borris	482	504	532	50	10.37	28	5.56	275	51.69	257	48.31	178	159	19	11.95	
01023	023 Cranemore	23	Cranemore	724	893	1067	343	47.38	174	19.48	543	50.89	524	49.11	376	305	71	23.28	
01024	024 Kesh	24	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01025	025 Garryhill	25	Garryhill	594	578	589	-5	-0.84	11	1.90	301	51.10	288	48.90	190	184	6	3.26	
01026	026 Grangeford	26	Grangeford	283	324	424	141	49.82	100	30.86	217	51.18	207	48.82	155	118	37	31.36	
01027	027 Johnstown	27	Johnstown	499	532	569	70	14.03	37	6.95	281	49.38	288	50.62	194	177	17	9.60	
01028	028 Kellistown	28	Kellistown	864	1025	1001	137	15.86	24	2.79	516	51.55	485	48.45	335	322	13	4.04	
01029	029 Kesh	29	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01030	030 Kesh	30	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01031	031 Kesh	31	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01032	032 Kesh	32	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01033	033 Kesh	33	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01034	034 Kesh	34	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01035	035 Kesh	35	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01036	036 Kesh	36	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01037	037 Kesh	37	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	
01038	038 Kesh	38	Kesh	1000	1000	1000	0	0.00	0	0.00	2000	50.00	2000	50.00	2000	2000	0	0.00	

# Data Stories

Prof. Rob Kitchin

Maynooth University Social Sciences Institute and Department of Geography



**Maynooth University**  
National University of Ireland Maynooth

**Social Sciences Institute**



European Research Council  
Established by the European Commission

# Building data tools/infrastructure

All-Island Research Observatory (AIRO)  
2005-2017

Extensive work with local/regional  
authorities, Gov depts/agencies ROI & NI

The screenshot shows the AIRO website interface. At the top, there is a navigation bar with links for Home, About AIRO, News, Events, and Contact, along with a search bar. The main header features the AIRO logo and the text 'All-Island Research Observatory' and 'An Tionad Breathnaithe um Thaidiú Uile Éireann'. Below this, there are tabs for 'Mapping Resources', 'Data Visualisations', 'Services & Projects', 'Map Archive', and 'AIRO Data Store'. The central content area displays a map of Dublin with 'Dublin City Baile Átha Cliath' and 'Ordnance Survey Ireland National Mapping Agency' logos. A sidebar on the right lists 'Our Services' including Overview, Public Good Mapping Tools, Socio-Demographic Analysis, GIS, Mapping and Spatial Analysis, Environmental Analysis, Spatial Planning, and Training. At the bottom, there are sections for 'Featured Mapping Resource' (The Atlas of the island of Ireland) and 'Featured Visualisation' (AIRO has recently developed an interactive dashboard to assist in the visualisation of the results from 2012 Gateways and Hubs Development Index (GHDI)). A large map of Dublin is shown with a legend for 'Dublin Housing Observatory' and various data points.

Digital Repository of Ireland (DRI) 2009-  
2017 (PRTL15, GoI)

Trusted Digital Repository (TDR)  
GLAM sector, RTE, universities

The screenshot shows the Digital Repository of Ireland (DRI) website. The header features the 'dri' logo, the text 'Digital Repository of Ireland' and 'Tionad na hÉireann', and social media icons for Twitter, Facebook, and YouTube. A navigation bar includes links for HOME, DISCOVER, ORGANISATIONS, MEMBERSHIP, ABOUT, TEAM, and WORKSPACE. The main content area has a 'Welcome to the DRI' section with a paragraph: 'The Digital Repository of Ireland is a national digital repository for Ireland's humanities, social sciences, and cultural heritage data. You can browse and search across multiple collections from some of the finest Irish institutions. These collections are safely preserved in the DRI. Please explore and enjoy.' Below this is a carousel of featured items, including 'Letters of 1916'. A 'Featured Items' section at the bottom displays three items: 'Recording Available - Archival Activism', 'DRI Community Archive Scheme 2021 Winners', and 'Recording Available - Collecting in a Crisis'. A 'News' section on the right contains a headline 'Recording Available for "Collecting in a Crisis: Rapid Response Web and Social Media Archiving"' and a sub-headline 'Watch the recording of "Collecting in a Crisis: Rapid Response Web and Social Media Archiving" to learn how our digital cultural memory is safeguarded through the rapid response actions of digital archivists.' Below the news section is a 'Read more' link.

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# Building data tools/infrastructure

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## Programmable City (2013-18)

DCC, Smart Dublin



European Research Council  
Established by the European Commission

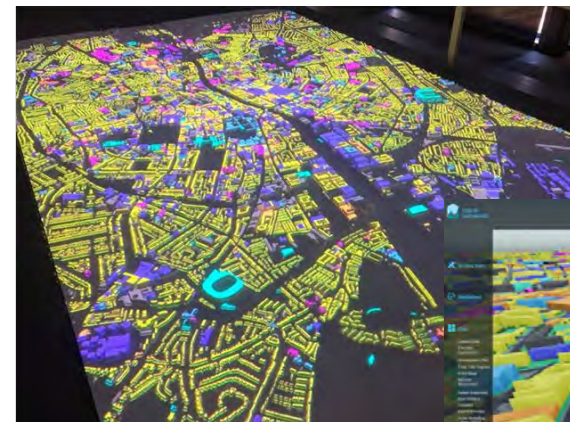
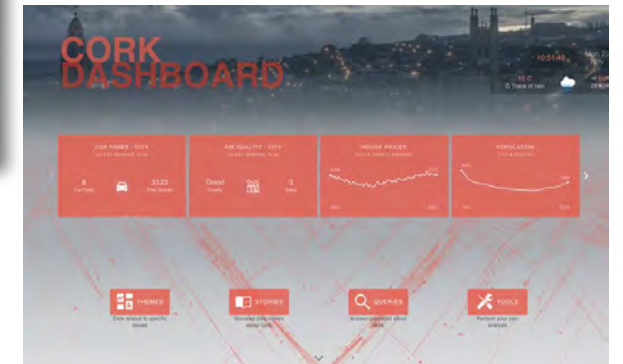


DublinDashboard  
City Intelligence



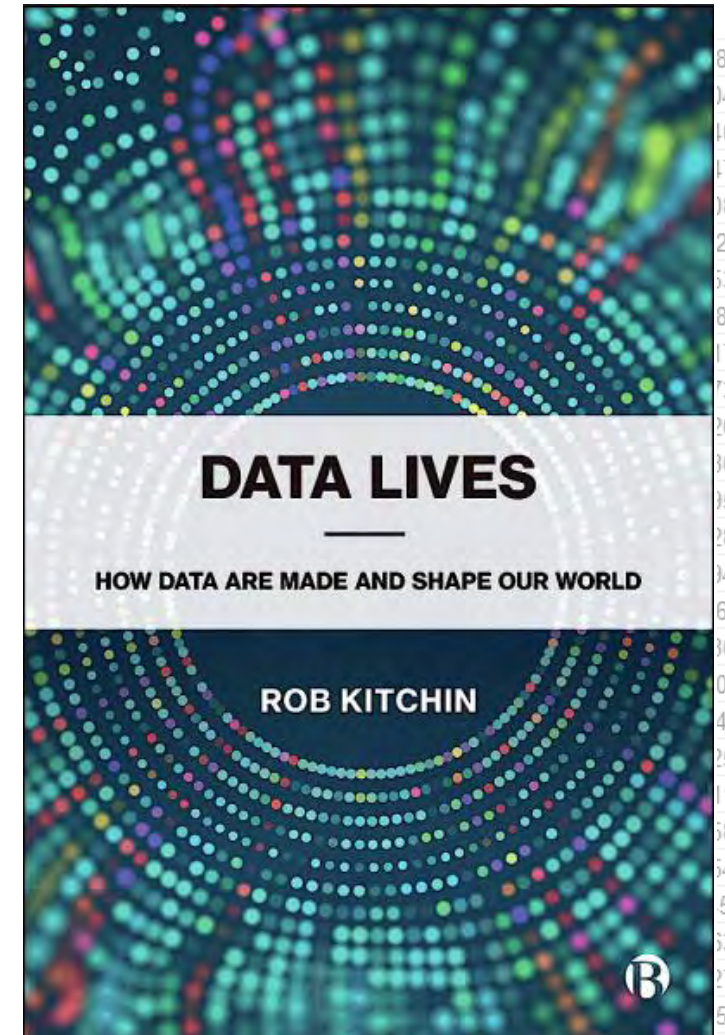
## Building City Dashboards (2016-2020)

4 Dublin LAs, 2 Cork LAs, CSO, OSI



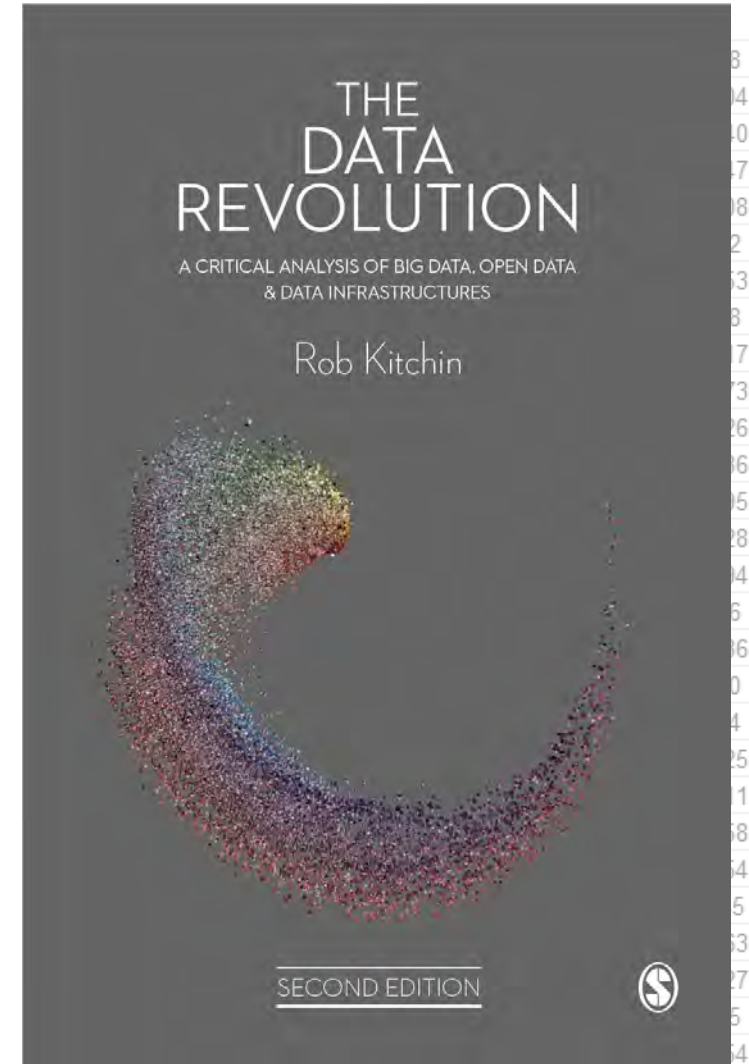
# Critical Data Studies

- Relatively young interdisciplinary field
- Approaches data from a socio-technical perspective
- Asks social, political and ethical questions to uncover how and why data-driven systems are produced, what shapes them, and their consequences
- Interested in political, economic, governance, legal and ethical issues within data ecosystems, data assemblages, data lifecycles and data use



# Critical Data Studies: Focus

- Nature of data
- Their associated infrastructures
- Data practices, mobility and frictions
- Data discourses, imaginaries and valences
- Data politics and power
- Data experiences, embodiment and affect
- Data ethics, justice and activism
- Data histories and geographies



# Data Assemblage

## System/process

*Performs a task*

**Reception/operation**  
(user/usage)

**Interface**

**Code/algorithms**  
(software)

**Data(base)**

**Code platform**  
(operating system)

**Material platform**  
(infrastructure – hardware)

## Context

*Frames the system/task*

**Systems of thought**

Modes of thinking, philosophies, theories, models, ideologies, rationalities, etc.

**Forms of knowledge**

Research texts, manuals, magazines, websites, experience, word of mouth, etc.

**Finance**

Business models, investment, venture capital, grants, philanthropy, profit, etc.

**Political economies**

Policy, tax regimes, incentive instruments, public and political opinion, etc.

**Governmentalities and legalities**

Data standards, file formats, protocols, regulations, laws, licensing, IPR, etc.

**Materialities and infrastructures**

Paper/pens, computers, sensors, databases, networks, servers, buildings, etc.

**Practices**

Techniques, ways of doing, learned behaviours, scientific conventions, etc.

**Organisations and institutions**

Corporations, government agencies, NGOs, universities, civil groups, etc.

**Subjectivities and communities**

Of data producers, curators, managers, analysts, politicians, users, citizens, etc.

**Places**

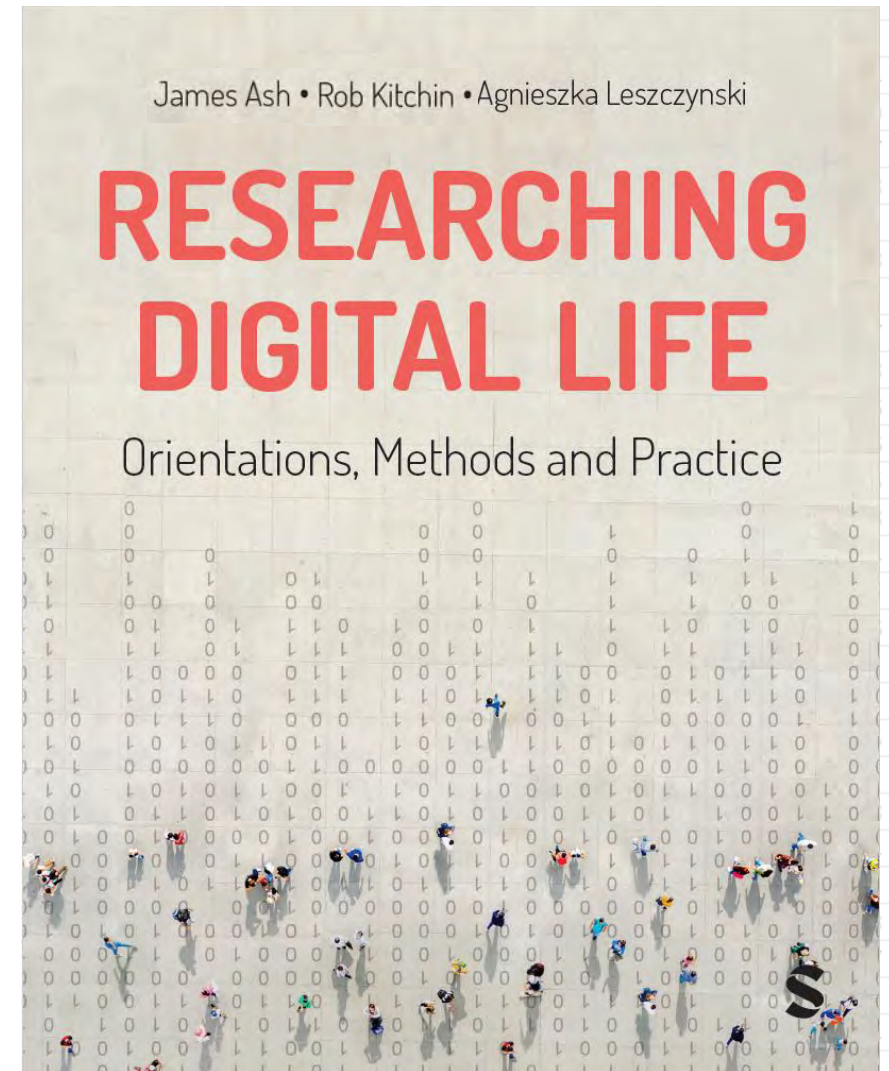
Labs, offices, field sites, data centres, business parks and their agglomerations

**Marketplace**

For data, their derivatives, analysts, analytic software, interpretations, etc.

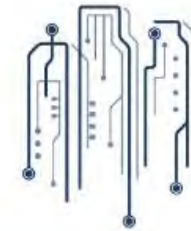
# Critical Data Studies: Methods

- Data ethnographies and autoethnographies
- Interviews and focus groups
- Data audits, archaeology and traces
- Historical analysis and genealogies
- Participatory methods
- Walking and walk-through methods
- Discursive analysis of documents
- Visualisation and mapping
- Arts-based methods
- Critical data science



# Programmable City project

progcity.maynoothuniversity.ie



## The Programmable City



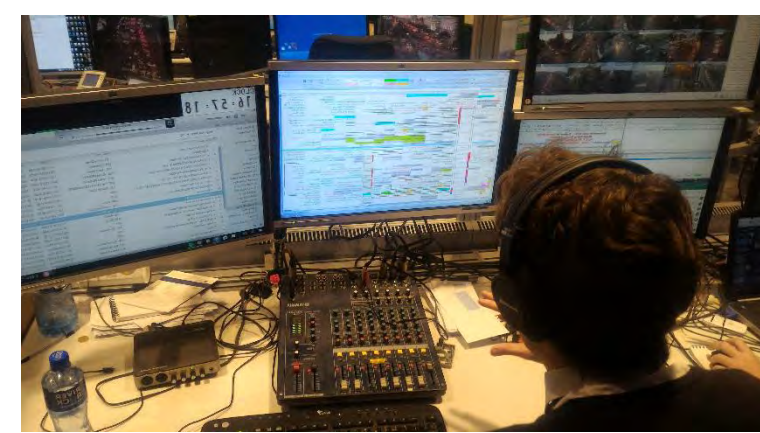
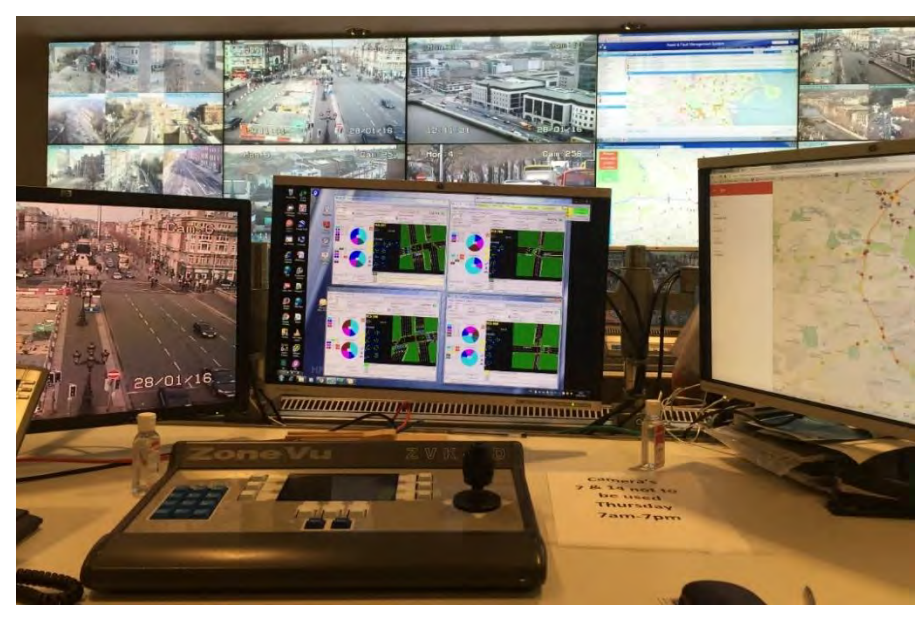
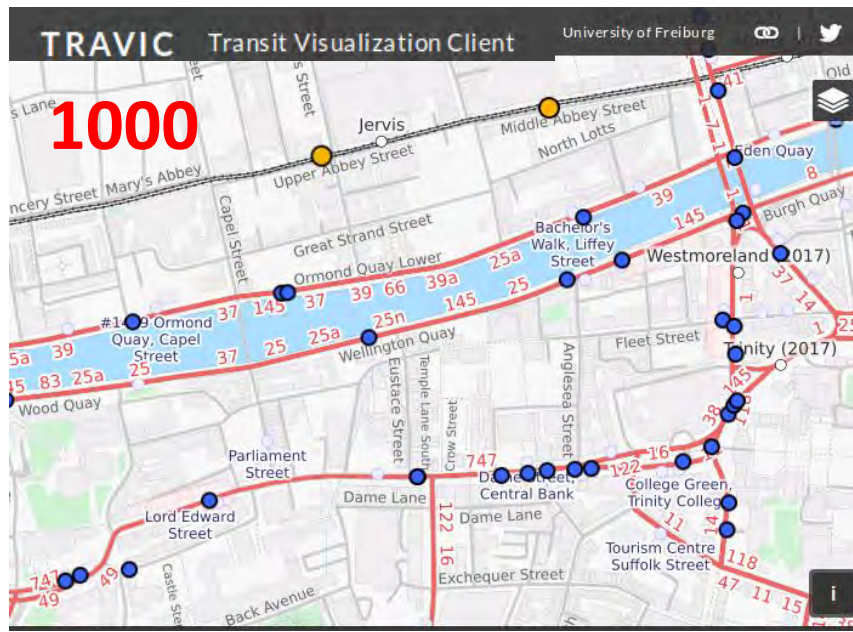
European Research Council  
Established by the European Commission

- Interested in unpacking the data assemblages of the smart city
- Along with examining issues such as data power, data politics, data ethics, data citizenship, data justice
- A number of related case studies focused on different smart city technologies/initiatives, such as intelligent transport systems, bikeshare, smart lighting, smart districts, standards
- And how these compare to each other and across places, e.g., with respect how citizen-centric they are





# Dublin traffic system data assemblage

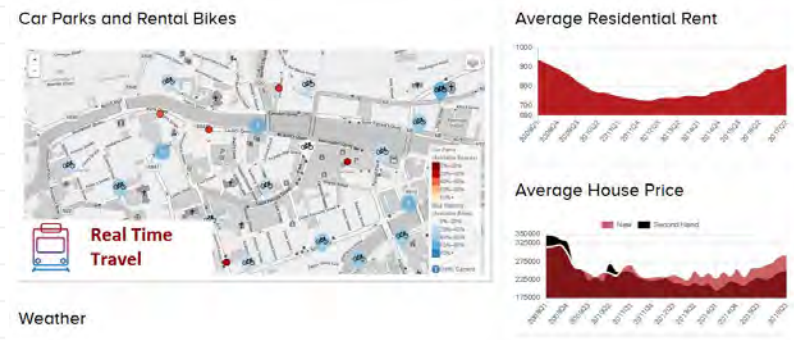


Form and Level of Participation		Role	Citizen Involvement	Political discourse/ framing	Modality	Dublin Examples
Citizen Power	Citizen Control	Leader/ Member	Ideas, Vision, Leadership, Ownership, Create	Rights, Social/Political Citizenship, Deliberative Democracy, Commons	Inclusive, Bottom- up, Collective, Autonomy, Experimental	Code for Ireland, Tog
	Delegated Power	Decision-maker, Maker				Civic Hacking, Hackathons, Living Labs, Dublin Beta
	Partnership	Co-creator	Negotiate, Produce			
Tokenism	Placation	Proposer	Suggest	Participation, Co- creation	Top-down, Civic Paternalism, Stewardship, Bound-to-succeed	Fix-Your-Street, Smart Dublin Advisory Network
	Consultation	Participant, Tester	Feedback			CIVIQ, Smart Stadium
	Information	Recipient	Browse, Consume, Act	Civic Engagement		Dublinked, Dublin Dashboard, RTPi
Consumerism	Choice	Resident		Capitalism, Market, Neoliberalism		Smart building/Smart district
		Consumer				Smart meters
		Product	Personal data generated by tech			
Non-Participation	Therapy	Patient, Learner, User, Data-point	Steered, Nudged, Controlled	Stewardship, Technocracy, Paternalism	Smart Dublin, Dublin Bikes	
	Manipulation				Traffic control	

# Building City Dashboards project

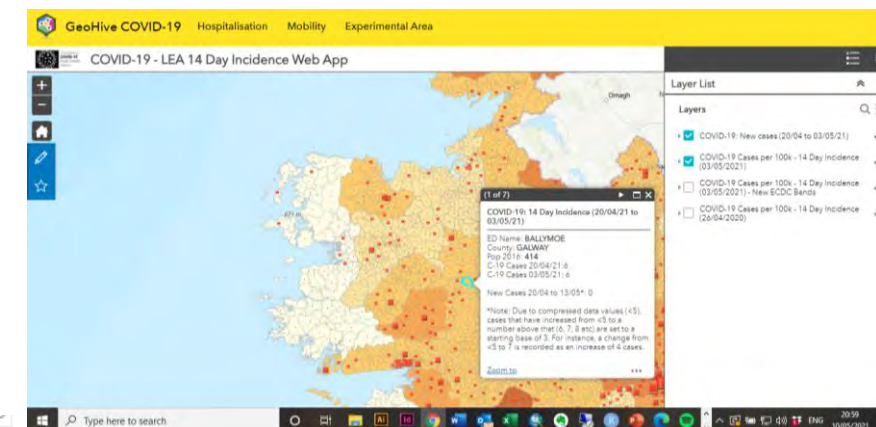
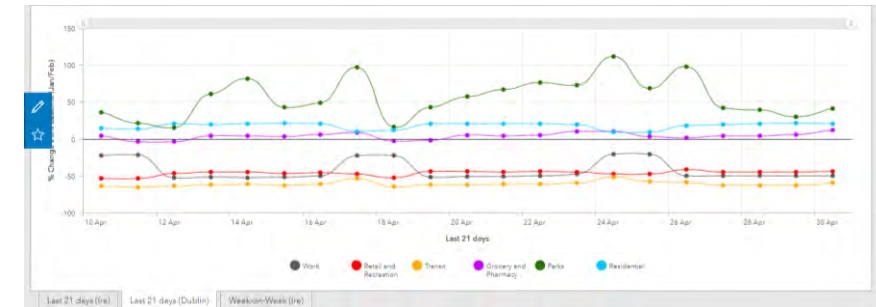
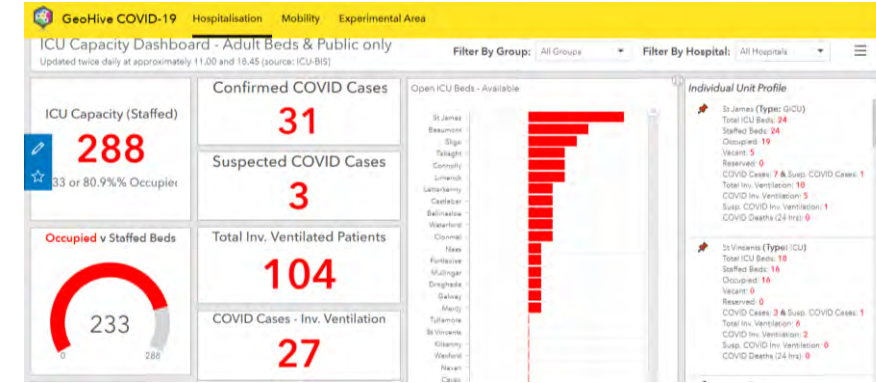
dashboards.maynoothuniversity.ie

- Creating city dashboards for Dublin and Cork
- Technical and data challenges, inc. data quality
- User-centred design
- Politics and praxes of dashboards, critically reflecting on city dashboards re.:
  - epistemology
  - scope and access
  - veracity and validity
  - usability and literacy
  - use and utility
  - ethics
- Posed as six questions designed to expose the *politics* and *praxes* of city dashboards
- Heuristic for examining other data-driven technologies



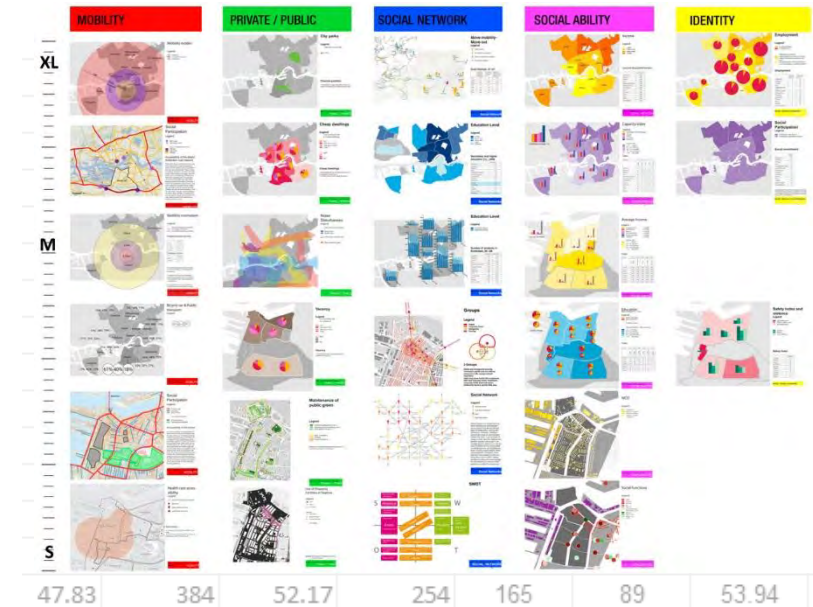
# How are insight and value derived from city dashboards?

- **Epistemology**
- Dashboards rely on visual analytics
- Adopt a realist epistemology
- Urban data are neutral, value-free, objective, essential in nature
- When analysed in similarly objective ways reveal the truth about cities
- From a CDS perspective, however, data are produced not collected, and dashboards:
  - are not neutral, commonsensical tools; constitute a socio-technical data assemblage
  - act as translators and engines, rather than mirrors
  - are reductive, atomizing complex, contingent relationships
  - decontextualizes a city



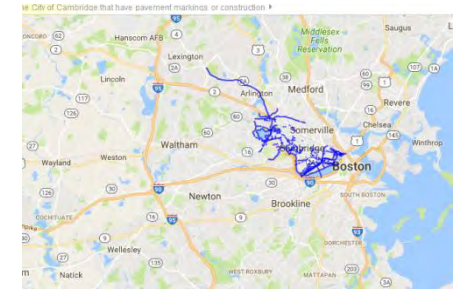
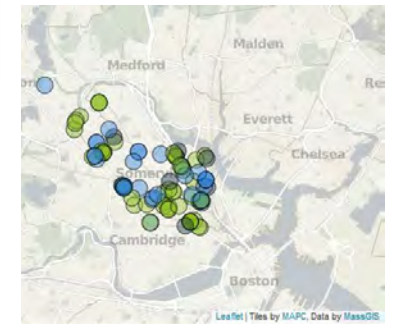
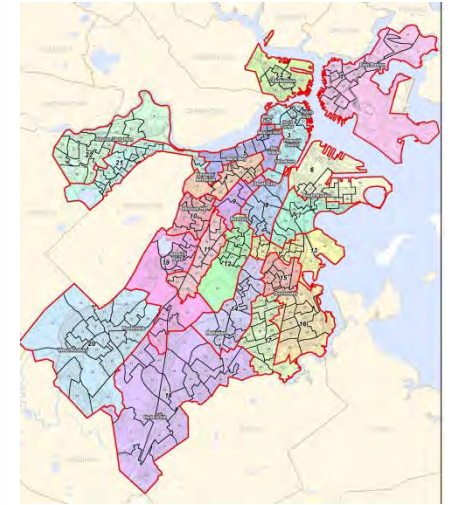
# How comprehensive and open are city dashboards?

- **Scope and access**
- Dashboards process and display quantitative data that are generated recurrently so can be tracked over time/space
- Enormous amount of information about cities absent
- Ignores the metaphysical aspects and intangibilities of urban life
- Significant gaps and silences in the data that are displayed
- Level of openness and access varies across administrations and places
- Access to data a significant issue in the building city dashboards
- Even when data are available there are often issues related to data measurement, data formats and media, metadata, data standards, modes of sharing



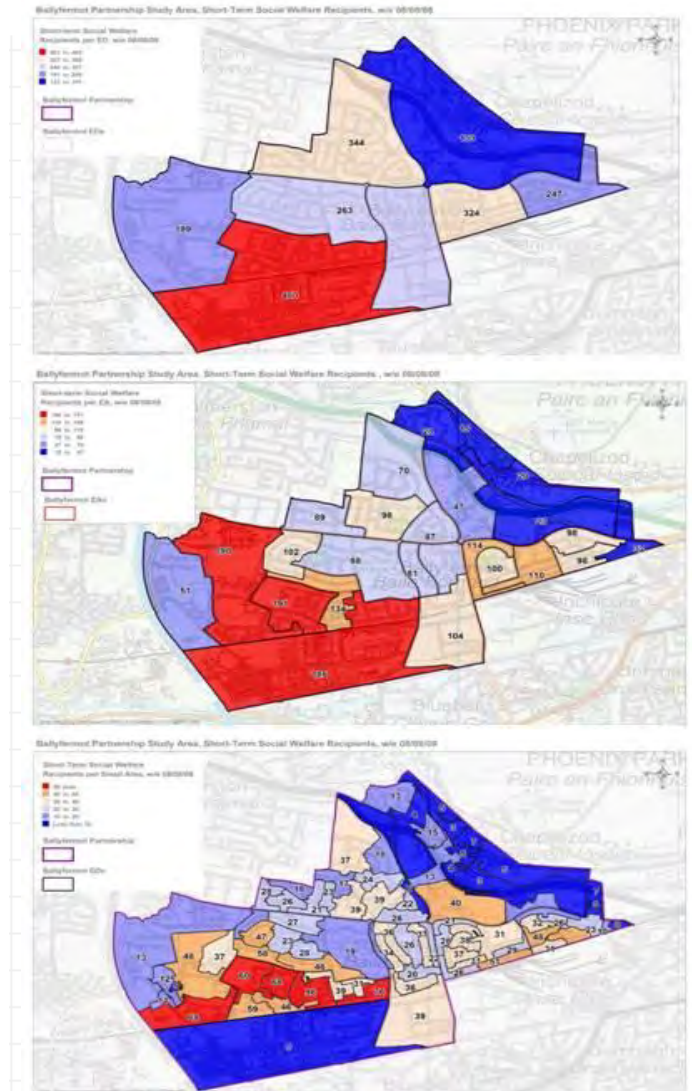
# Fracturing effects of political geography

- Fractured data landscape
- With respect to geography
  - Scalar organisation – local, county, regional, state, federal
  - Back-to-back services and planning across municipalities
  - Mismatch of functional territories and administrative geographies
- With respect to stakeholders
  - Within municipalities, across municipalities, with public sector agencies, industry, universities, NGOs, community organisations
  - Different goals, resources, practices, institutional structures, funding models, etc.



# To what extent can we trust city dashboards?

- **Veracity and validity**
- Data quality
- Instrument and human error and bias;
- Abstraction, representation, generalisation and calibration
- Data shaped by technical instruments of varying specification and parameters, handling procedures, scientific norms and standards, scientist behaviour and organisational processes
- Often published without metadata re. measurement, sampling frame, handling, veracity (accuracy, fidelity), uncertainty, error, bias, reliability, calibration, lineage



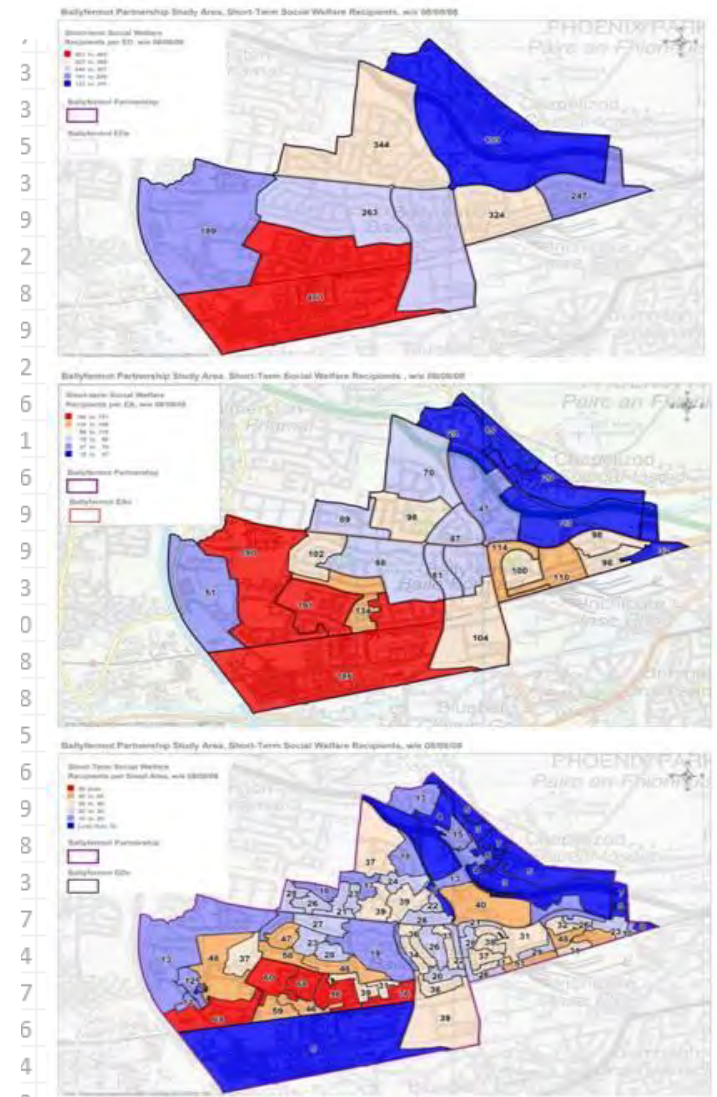
# Veracity of urban big data

Hyperdimension	Source			Data					Metadata				
Data	Sustainability/Reliability Status	Transparency and interpretability	Privacy	Fidelity	Cleanliness	Completeness	Coherence	Metadata availability	Changes over time	Standardisation	Methodological transparency	Relevance	
Public transport GPS location	Good	Fair	Poor re. drivers, good re. public	Fair	Fair	Good	Good	Fair	Fair	Good	Good	Good	
Public transport at stops (bus, tram and train) – RPTI	Fair	Not ready	Good	Fair	Good	Good	Fair	Fair	Good	Fair	Not ready	Good	
Travel time/Roadway traversal time	Fair	Good	Good	Fair	Good	Not Ready	Fair	Fair	Good	Fair	Fair	Fair	
Car park spaces	Fair	Good	Good	Good	Good	Not ready	Fair	Fair	Fair	Good	Fair	Not ready	
Inductive loop counters	Good	Good	Good	Good	Good	Not ready	Good	Not Ready	Good	Good	Good	Good	
Flight locations	Good	Good	Good	Good	Good	Fair	Good	Good	Good	Good	Good	Good	
Flight arrivals/departures	Good	Good	Good	Good	Good	Good	Fair	Good	Good	Good	Good	Good	
Marine vessel location	Good	Good	Good	Good	Good	Fair	Good	Good	Good	Good	Good	Fair	
Bikeshare	Fair	Good	Good	Good	Good	Good	Good	Fair	Good	Fair	Not ready	Fair	
CCTV cameras	Fair	Fair	Fair	Good	Good	Not ready	Poor	Fair	Good	Fair	Good	Poor	



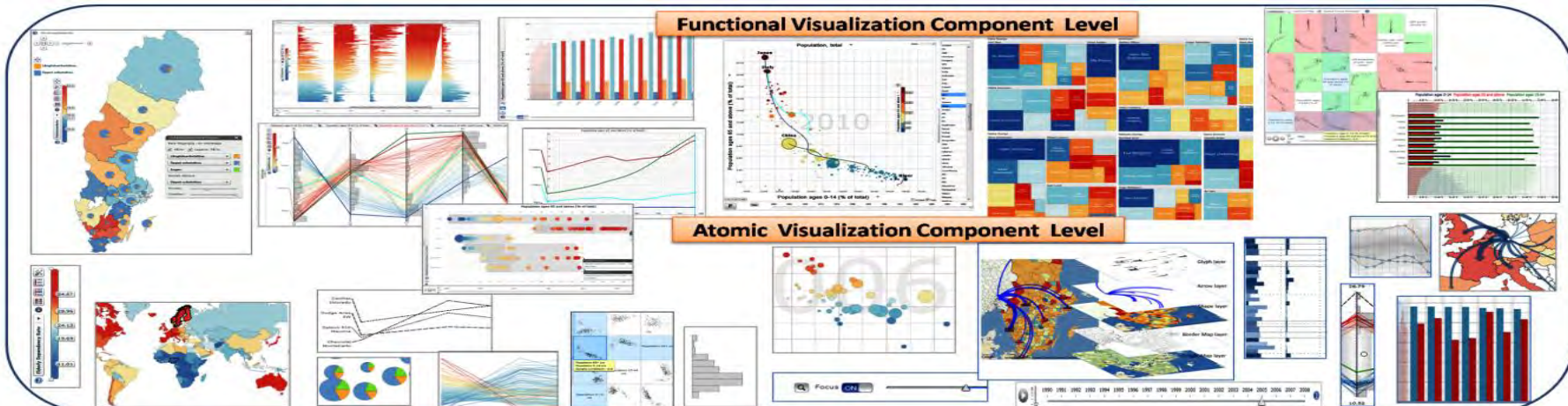
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- Often published without metadata: measurement, sampling frame, handling, veracity (accuracy, fidelity), uncertainty, error, bias, reliability, calibration, lineage
- **Appropriateness of the method used and other methodological issues**
- **Validity of the analysis and interpretation**
- Rarely are the algorithmic black-boxes exposed so that calculations are open to scrutiny
- There are issues such as MAUP and other ecological fallacies that shape interpretation



# How comprehensible and useable are city dashboards?

- **Usability and literacy**
- Assumption: enable urban data to be explored and analyzed in an easily digestible and intuitive way without the need for specialist skills or knowledge
- There are three practical issues – navigation of site, use of tools, and data/analytics literacy
- Sometimes not at all clear how to display data, change data layers, perform analysis, interact with data
- Data and analytic literacy is highly variable
- Affect use and utility



# What are the uses and utility of city dashboards?

- **Use and utility**

- Used in three main ways:

- for monitoring performance and managing urban services;
- for contextually understanding and formulating policy;
- for creating public knowledge and producing counter-narratives

- Can be used:

- tactically (e.g., for delaying a strategy, substitute for action, deflect criticism)
- symbolically (e.g., to provide reassurance or place promotion)
- politically (e.g., to support a particular position)

- If the data within them are open they can help facilitate and promote an open data economy

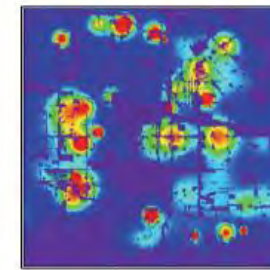
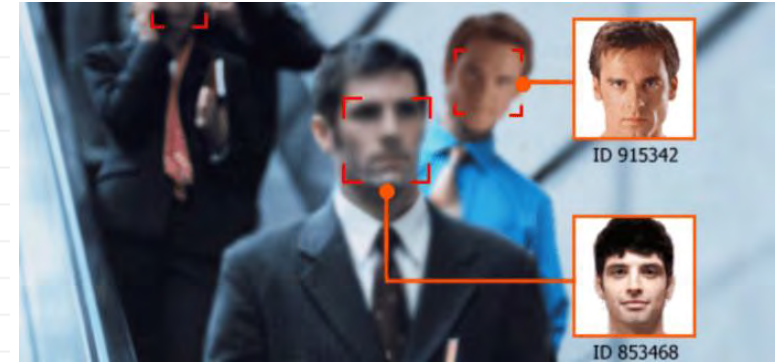
- There's a politics to how deployed and used

	DAY	WEEK	MONTH	QUARTER
STABBINGS (TREND)	2.50	1.17	1.61	1.58
LIBRARY USERS	1.81	1.82	1.71	1.67
PART 1 CRIMES	1.80	1.36	1.34	1.40
ON-TIME PERMIT REVIEWS	1.28	1.14	1.15	1.12
MISSSED TRASH ON-TIME %	1.25	1.25	1.25	1.22
PARKS MAINTENANCE ON-TIME %	1.25	0.86	0.88	0.92
SIGN INSTALLATION ON-TIME %	1.25	1.22	1.14	1.07
TREE MAINTENANCE ON-TIME %	1.25	1.25	1.19	1.17
SIGNAL REPAIR ON-TIME %	1.20	1.12	1.09	0.99
BFD INCIDENTS	1.16	1.04	1.11	1.29
EMS INCIDENTS	1.06	1.01	1.03	1.07
EMS RESPONSE TIME	0.99	1.05	1.03	1.03
POTHOLE ON-TIME %	0.99	0.99	0.91	0.91
BFD RESPONSE TIME	0.98	0.97	0.96	0.94
311 CALL CENTER PERFORMANCE	0.91	0.95	0.97	0.95
CONSTITUENT SATISFACTION SURVEYS	0.75	0.89	0.92	0.93
STREETLIGHT ON-TIME %	0.75	0.84	0.98	0.96
BPS ATTENDANCE		0.97	0.96	0.97
GRAFFITI ON-TIME %		1.16	1.18	1.19
HOMICIDES (TREND)			4.60	4.48



# How can we ensure that city dashboards are used ethically?

- Ethics
- Privacy
- Ownership & control
- Data markets, surveillance capitalism
- Social sorting, redlining, geodemographics
- Predictive profiling and anticipatory governance
- Nudge
- Data security
- Control creep



**TACTICAL AMBIGUITY**  
*rear-view mirror heat map*



**TACTICAL CLARITY**  
*forward-looking PredPol boxes*



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# Data Stories project

datastories.maynoothuniversity.ie



- Focusing on property, planning and associated demographic & financial data
- These are central to:
  - government policy and legislation
  - media discourses and public perception
  - corporate investment strategies
  - NGO advocacy work and activities
- Yet relatively little close, *critical* attention has been paid to such data
  - how they are generated, managed, shared, transformed and used
  - their associated data politics

# Property and planning data ecosystem

## Planning

Development plans, zoning, permissions, enforcements, etc.

## Stock

Numbers, type, floor area, beds, amenities, site size, energy, vacancy, dereliction, obsolescence, etc.

## Land

Land use, coverage, conditions, ownership

## Household/population demographics

Size, composition, economic status, migration, etc.

## Housing/development finance

Loans, mortgages, interest rates, taxes, grants, etc.

## Housing management (LAs/landlords)

Stock, tenants, payments, maintenance, etc.

## Construction activity

Units, commencements, stage, etc.

## Employment and materials

Workers, apprenticeships, courses, building supplies

## Market activity and conditions

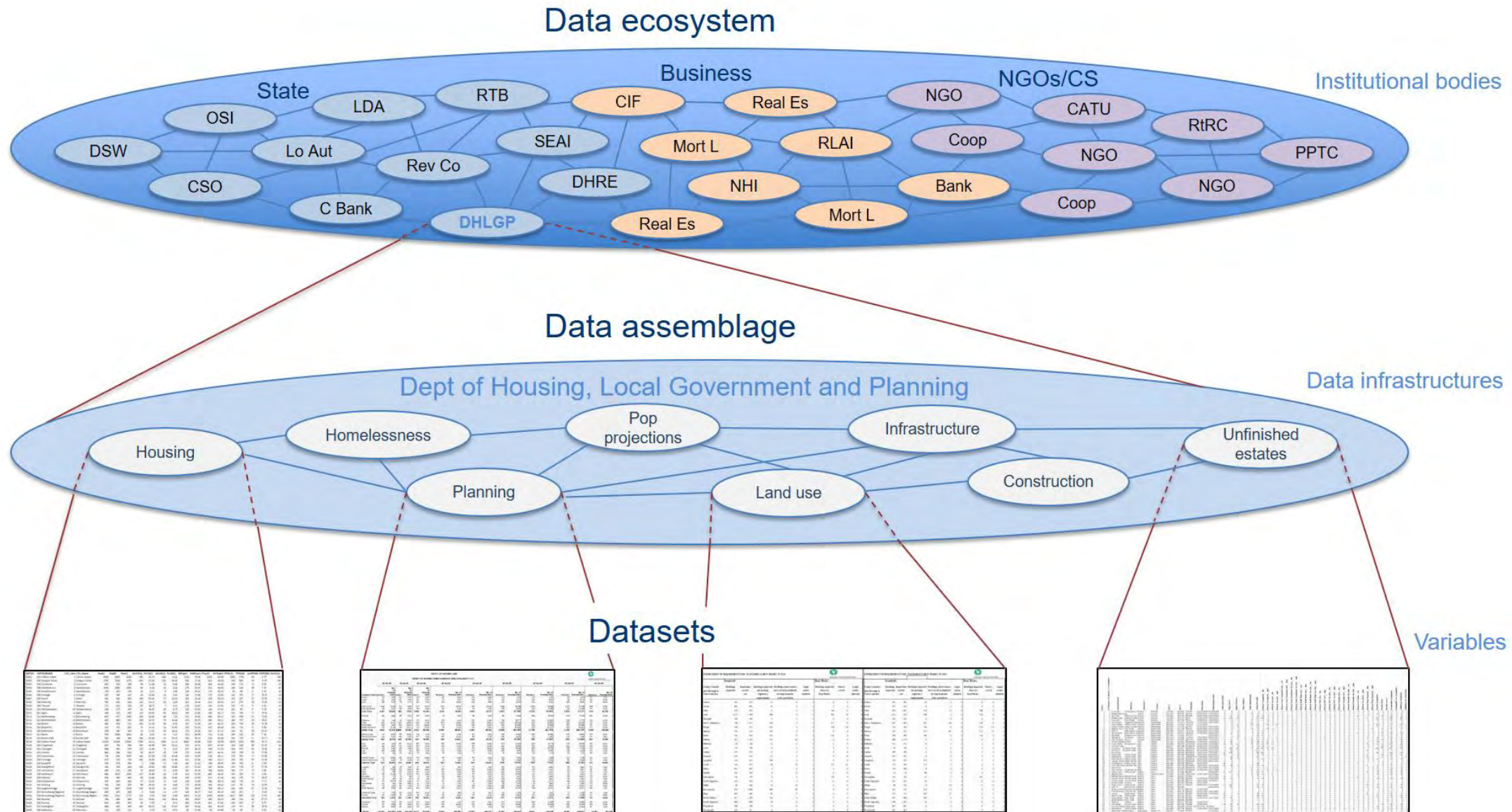
House prices, rental prices, transaction volumes, rates valuations, land values, landlord/tenant numbers, evictions, etc.

**Homelessness; direct provision; refugee accommodation; Traveller accommodation; student residences; nursing homes**

**Housing actors**  
Agencies, developers, AHBs, landlords, real-estate, banks, etc.

**Contextual factors**  
Infrastructure, services

# Phase 1: Mapping the planning and property data ecosystem



Knowledge Hub

# Planning system at planning authority level

## Strategic

### (pre-development)

- RA: Regional Spatial and Economic Strategies
- RA: Metropolitan Area Strategic Plans
- LA: County Development Plan
- LA: Local Area Plans
  
- Environmental Report
- Natural Impact Report (NIR)
- Strategic Flood Risk Assessment (SFRA)
- Area Based Transport Assessment (ABTA)
- Statement of Character (SoC) for Architectural Conservation Area (ACA)
- Habitats Survey and Green Infrastructure Mapping
- Surface Water Management Study
- Urban Regeneration Framework
- Social Infrastructure Audit (SIA)
- Settlement Capacity Audit (SCA)
- Housing Need Demand Assessment (HNDA)

## Development & Control

### (development pipeline)

- Planning permissions
- Appeals
- Building control

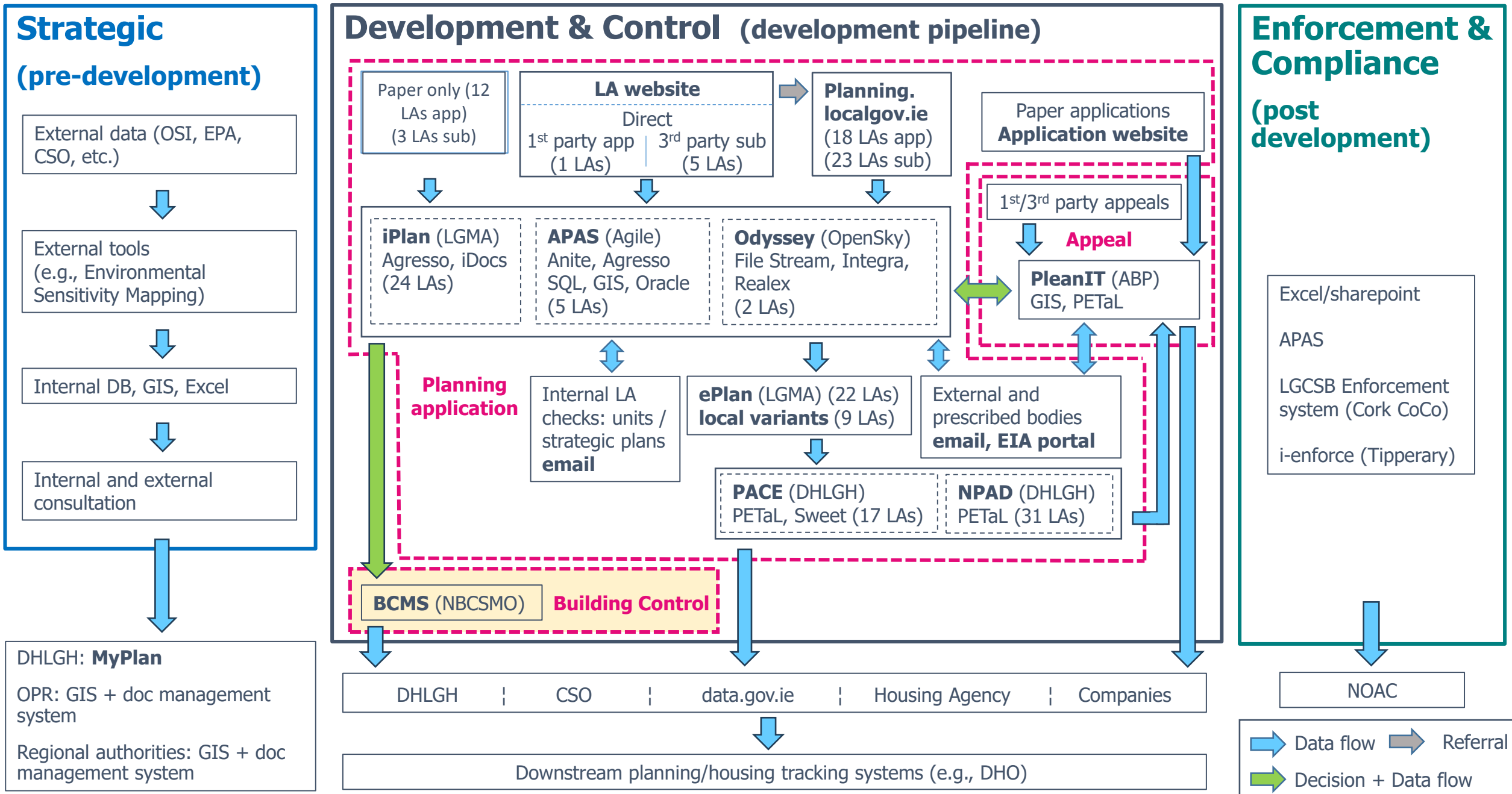
## Enforcement & Compliance

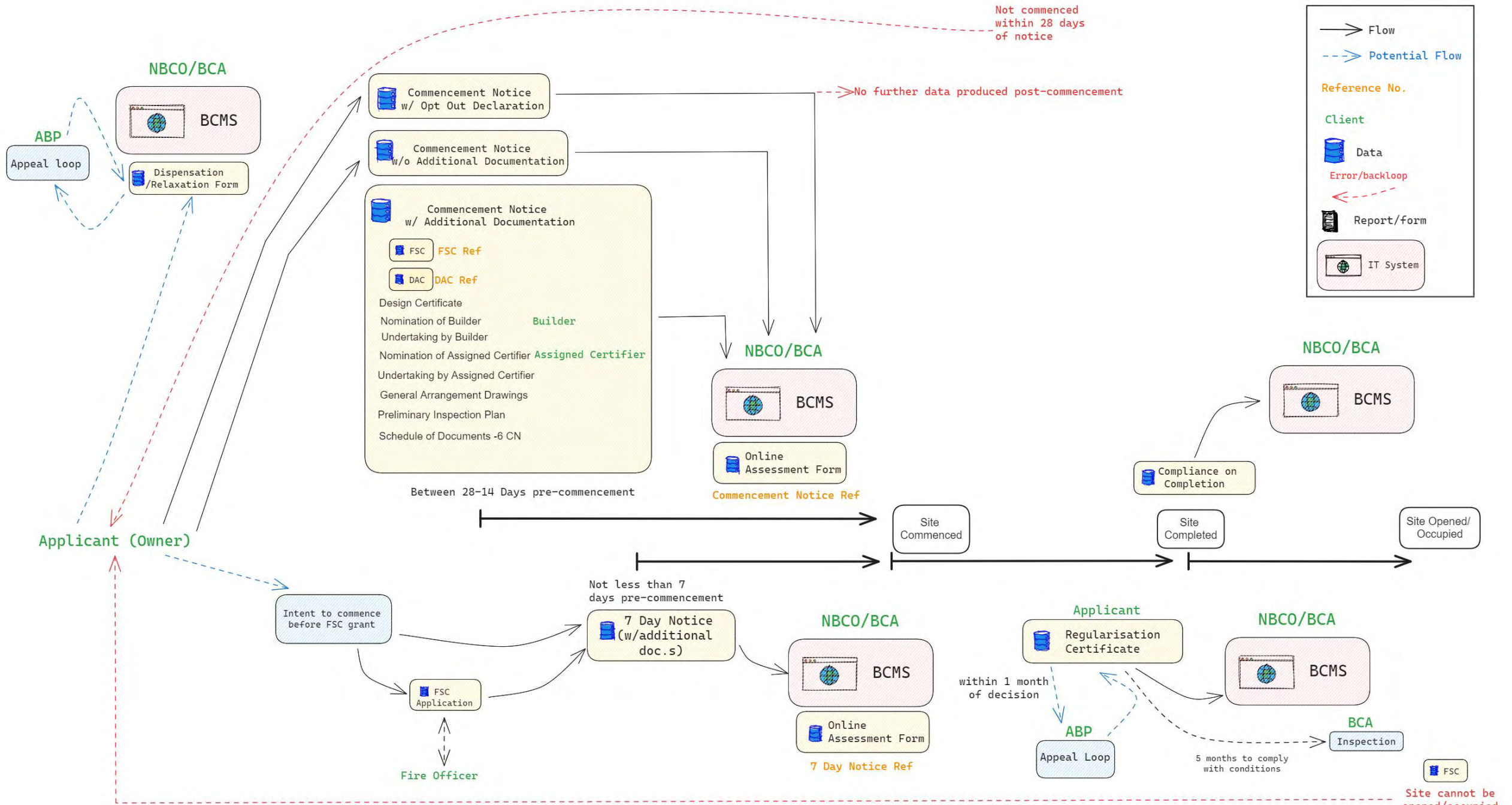
### (post development)

- Inspection
- Retention
- Legal enforcement



# Planning IT systems and data flows





Plus full data dictionary

Site cannot be opened/occupied before FSC granted

# Audit example (reverse engineered from reports/website)

Title	Description		Rights	Creator	Source	Contributor	Coverage			Identifier(s)			
	Variable	Description	Method	Open/Closed	Generator (e.g., CSO)	Source system (e.g., BCMS) or raw data	Cleaner/Transformer	Spatial	From	To	Frequency		
number of people living in private rented sector	"The number of persons				CSO (Quarterly National Household Survey - QNHS), daft.ie			Dublin/outside Dublin	Q2 2007	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of households in private rented sector	"The number of persons				CSO (Quarterly National Household Survey - QNHS), daft.ie			national				<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of dwelling units in private rented sector					CSO (Quarterly National Household Survey - QNHS), daft.ie			national	Q2 2007	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
average size of privately rented household	number of people				CSO, Savills Research		Savills Research	national	Q4 2007	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of people renting from private landlord					Census			national	2011	2016		<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of investment units owned outright					CSO (Quarterly National Household Survey - QNHS), daft.ie, CSO, CBI			national	Q2 2012	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
investment units owned with a performing mortgage					CSO (Quarterly National Household Survey - QNHS), daft.ie, CSO, CBI			national	Q2 2013	Q2 2018	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
investment units owned with non-performing mortgage					CSO (Quarterly National Household Survey - QNHS), daft.ie, CSO, CBI			national	Q2 2014	Q2 2019	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
average number of persons per household	derived data - number of persons in private rental sector				derived data - see description		Savills Research					<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of occupied private rental sector units	"The number of occupied				daft.ie - derived data - see description		Savills Research					<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of vacant private rental sector properties	derived data - "the				daft.ie - derived data - see description		Savills Research					<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
total number of units in private rental sector	achieved through: number of PRS households + number of vacant private rental sector properties				daft.ie		Savills Research	Dublin/outside Dublin	Q2 2007	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
private rental sector vacancy rate	"The PRS vacancy rate is							national	Q2 2007	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
% (proportion) of Ireland's population living in private rented accommodation							Savills Research	national	Q2 2007	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
vacancy rates in private rented sector	"The vacancy rate is simply the number of vacant private rental sector properties divided by the total number of private rental sector units						Savills Research, CSO (Quarterly National Household Survey - QNHS), daft.ie	Dublin/outside Dublin	Q2 2007	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
natural vacancy rate (NVR)	mathematical calculation -											<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
total number of Buy-to-Let mortgages							Central Bank of Ireland		Q2 2012	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
total number of Buy-to-Let mortgages in arrears							Central Bank of Ireland Data	national	Q2 2012	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of private rental sector units owned outright by investors	calculated by taking total number of private rental sector units and subtracting the number of private rental sector units owned outright by private landlords											<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of performing buy to let mortgages	calculated by doing the following calculation (total number of buy-to-let mortgages - number of buy-to-let mortgages in arrears) ^ 4 (https://pdf.euro.savills.co.uk/ireland-research/shifting-ownership)											<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of private rental sector units owned outright by investors	"Source: Savills Research based on CBI, CSO, Daft.ie				CBI, CSO, Daft.ie		Savills Research		Q2 2012	Q2 2017	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
% change in private ownership units by ownership	"Source: Savills Research based on CBI, CSO, Daft.ie				CBI, CSO, Daft.ie		Savills Research		Q2 2013	Q2 2018	quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
average rental yield					Daft.ie, CBI, investing.com				Q3 2017		quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
bond and deposit rates					Daft.ie, CBI, investing.com				Q3 2017		quarterly	<a href="#">Savills - 2017.12 - Shifting Ownership</a>	
number of prime country home international buyers	"Using the Property Price Register data, we examined prime											<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
number of prime country home cash buyers	"Using the Property Price Register data, we examined prime											<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
number of prime country home sales	"Using the Property Price Register data, we examined prime						Savills Research, Property Price Register		2018	2022	annually	<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
value of prime country home transactions	"Using the Property Price Register data, we examined prime						Savills Research, Property Price Register		2018	2022	annually	<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
profession of prime country home transactions	"Using the Property Price Register data, we examined prime											<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
age of prime country home buyers	"Using the Property Price Register data, we examined prime											<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
buyers' intention of prime country house use	"Using the Property Price Register data, we examined prime						Savills Research, Property Price Register					<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
prime country house transactions by county	"Using the Property Price Register data, we examined prime							county	2022		annually	<a href="#">Savills - 2023 - Prime Country Home Sales</a>	
net household saving deposits							Central Bank of Ireland (quarterly bulletin No. 4 (2021))					<a href="#">Savills - 2021 Winter - Prime Country Home Sales</a>	
mortgage rates												<a href="#">Savills - 2021 Winter - Prime Country Home Sales</a>	
average house price inflation							CSO	region			quarterly	<a href="#">Savills - 2021 Winter - Prime Country Home Sales</a>	
average annual value of country home sales	"Using Property Price Register data, we examined prime						Property Price Register, Savills Research	national	2010	2018	annually	<a href="#">Savills - 2019.04 - Country Home Sales</a>	
annual labour costs	"Indeed, any significant						CSO	national			annually	<a href="#">Savills - 2021 Winter - Prime Country Home Sales</a>	

LEGEND KEY:

Consistent Methodology

Break in Methodology

No Data Collected

Table 2: Details of Performance Measurement Indicator Changes, 2014-19

Indicator	2014	2015	2016	2017	2018	2019
<b>H1 Social Housing Stock</b>						
1	Number of dwellings provided by local authorities	Consistent	Consistent	Consistent	Consistent	Consistent
2	Number of dwellings in the ownership of local authorities at start of year	Consistent	Consistent	Consistent	Consistent	Consistent
3	Number of dwellings directly added (i.e., constructed or purchased) by local authorities to housing stock	Consistent	Consistent	Consistent	Consistent	Consistent
4	Number of dwellings in the ownership of local authorities at year-end	Consistent	Consistent	Consistent	Consistent	Consistent
5	Number of social housing dwellings in local authorities at year-end	Consistent	Consistent	Consistent	Consistent	Consistent
6	Number of directly provided (i.e., constructed or purchased) social housing dwellings in the ownership of local authorities at year-end	Consistent	Consistent	Consistent	Consistent	Consistent
7	Number of local authority owned dwellings sold in year	Consistent	Consistent	Consistent	Consistent	No Data Collected
8	Number of local authority owned dwellings demolished	Consistent	Consistent	Consistent	Consistent	Consistent
9	Number of local authority owned dwellings planned for demolition under D/HLGH approved scheme	Consistent	Consistent	Consistent	Consistent	Consistent
<b>H2 Housing Vacancies</b>						
10	Percentage of local authority owned dwellings vacant at year-end	Consistent	Consistent	No Data Collected	Consistent	Consistent
<b>H3 Average Re-letting Time and Costs</b>						
11	Time taken (weeks) from the date of vacation of a dwelling to the date in year when a new tenancy had commenced in the dwelling, averaged across all dwellings re-let in that year	Consistent	Consistent	No Data Collected	No Data Collected	Consistent
12	Cost expended (€) on getting dwellings re-tenanted ready for re-letting, averaged across all dwellings re-let in that year	Consistent	Consistent	No Data Collected	Consistent	Consistent
<b>H4 Housing Maintenance Cost</b>						
13	Expenditure (€) during year on the repair and maintenance of housing bought or built by local authorities compiled on a continuous basis from 1 January to 31 December in that year, divided by the number of directly provided dwellings in the local authority stock at year-end	Consistent	Consistent	No Data Collected	Consistent	Consistent

# Local Authority National Performance Indicator Trend Report, 2014-2019 (6 years)

87 sub-indicators, only 43 for all years

Housing 18 sub-indicators, 9 for all years, 4 not altered

Number of original consistent indicators 2014-2019 and still in use	Number of original modified indicators 2014-2019 and still in use	Number of original indicators discontinued during period	Number of new indicators introduced during period and still in use	Number of new indicators introduced during period modified and still in use	Number of new indicators introduced but discontinued during period	Total
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	
43	6	2	23	11	2	87
49%	7%	2%	26%	13%	2%	100%

Indicator	2014	2015	2016	2017	2018	2019
<b>H5 Private Rented Sector Inspections</b>						
14	Number of registered tenancies in local authorities	Consistent	Consistent	Consistent	Consistent	Consistent
15	Number of rented dwellings inspected by local authorities	Consistent	Consistent	No Data Collected	Consistent	Consistent
16	Percentage of inspected dwellings that were non-compliant with Standards Regulations	Consistent	Consistent	Consistent	Consistent	No Data Collected
17	Number of non-compliant dwellings that became compliant	Consistent	Consistent	Consistent	Consistent	Consistent
<b>H6 Long-term Homeless Adults</b>						
18	Number of adult individuals in emergency accommodation that are long-term (i.e., 6 months or more within the previous year) homeless as a percentage of the total number of homeless adult individuals in emergency accommodation at year-end	Consistent	Consistent	Consistent	Consistent	Consistent

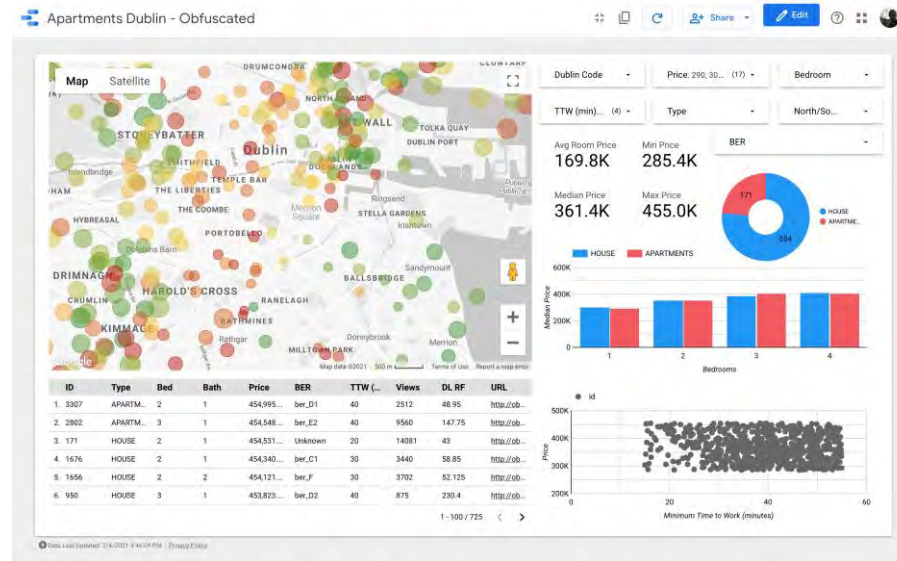
# Phase 2

## Producing Data Stories

### 12 Case studies

- Interviews
- Walk-through observation
- Ethnographies
- Research-creation
  
- 3 data stories per case study

### Data Story 1. Research team



### Data Story 2. Creative Writer/Artist

'But I'm not actually behind with my rent right now, am I?'

'I'm afraid you're three days late. This is the third month in a row you've been late. In that sense you're a risk to the City and there are others on the housing waiting list who deserve city-supported housing.'

'So, you're going to evict us because of what some bullshit algorithm thinks might happen?'

'That's one way of looking at it.'

'One way! It's the only way. I've a wife and three kids. Where are we meant to go?'

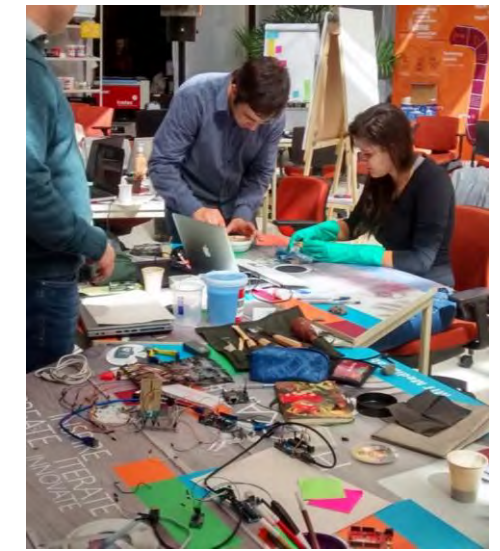
'That is your issue, Mr Jenkins. There are a wide variety of other housing options in the city from short term and long-term private rental through to home ownership.'

'And homelessness!'

'We don't tolerate homelessness, Mr Jenkins.'



### Data Story 3. Stakeholder team



# Dublin Housing Observatory data assemblage



All-Island Research Observatory  
An tIonad Breathnaithe um Thaighde Uile-Éireann

<https://airomaps.geohive.ie/DHO/>

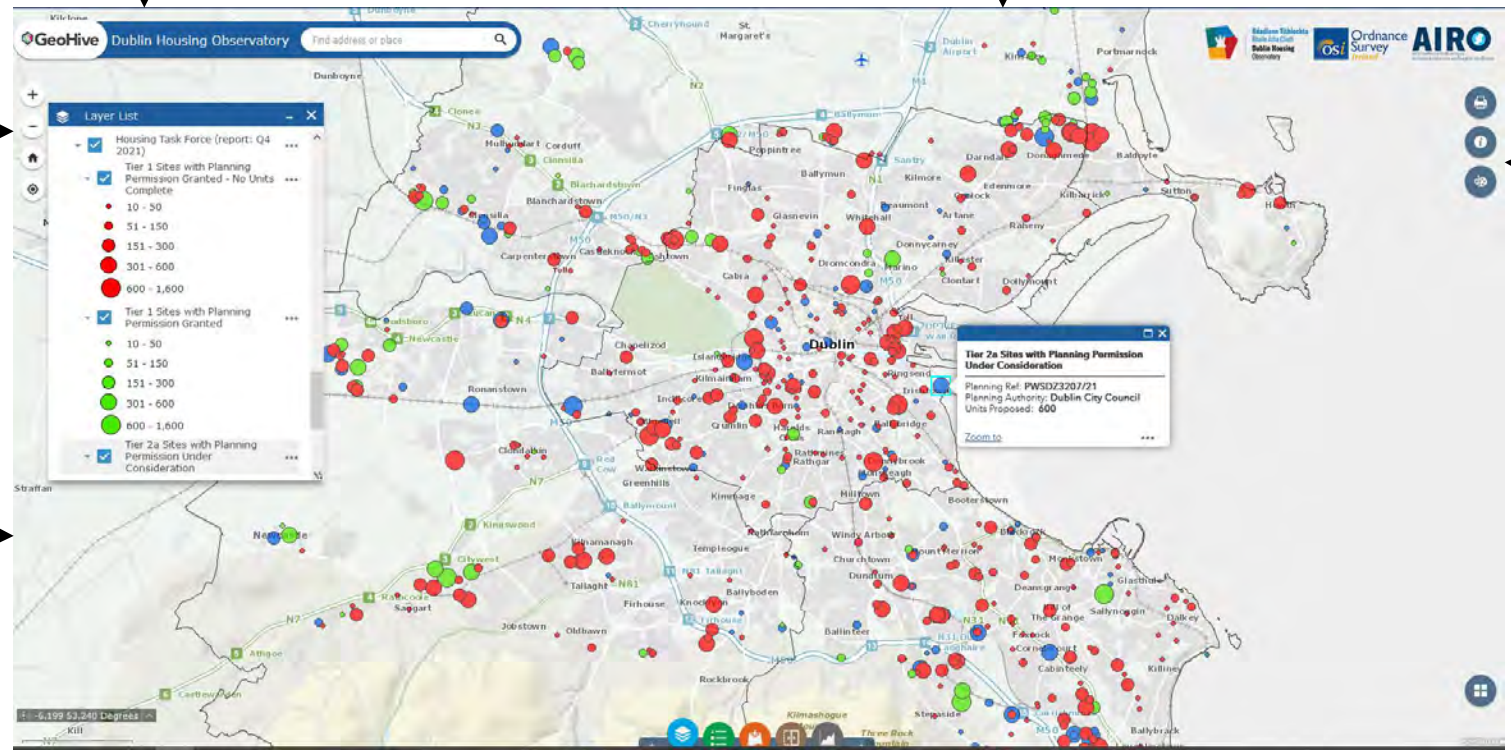
**Other (CSO, Census)**  
 Household tenure, type, composition  
 Vacancy  
 Year built  
 Heating, water supply  
 Population density  
 Social deprivation (POBAL)  
 Principal economic status  
 Family cycle stage  
 Nationality and ethnicity

**Market conditions**  
 RTB rental index (RTB)  
 RTB market profile (RTB)  
 HAP payments (DSP)  
 Property price index (PRSA)  
 Local property tax bands (Revenue)

**Construction activity (LAs)**  
 Completions  
 Planning permissions grants  
 PP under consideration

**Zoning and planning (LAs)**  
 Residential phasing  
 Unfinished housing  
 Planning applications  
 Strategic Housing  
 Development Applications

**Infrastructure and services (Geodirectory)**  
 Transport  
 Education locations  
 Health services  
 Amenities





# Conclusion

- Data systems are socio-technical in nature
- Their constitution, operation and effects are contingent, relational and contextual
- They are full of data politics and power, and they produce diverse outcomes
- We need to be mindful of such socio-technical contingencies when
  - designing, operating and evaluating such systems
  - formulating and enacting governance, regulation and policy
  - imagining future developments
- Producing data stories is a means to surface and rethink such contingencies





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