



# Building City Dashboards Project: The Dublin Dashboard

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Senior Software Developer

Building  
City  
Dashboards



[dashboards.maynoothuniversity.ie](https://dashboards.maynoothuniversity.ie)  
[dashboards@mu.ie](mailto:dashboards@mu.ie)  
[@dashbuild](https://twitter.com/dashbuild)



# The BCD Project

Funded by SFI for 4 years

Fundamental and applied research

Open science, open source, open data

Usable by experts and novices

Increase data literacy and outreach

Work with stakeholders:

- Four Dublin local authorities

- Two Cork local authorities

- Central Statistics Office

- Ordnance Survey Ireland

## **How can we build more extensive and effective city dashboards?**

- Data issues

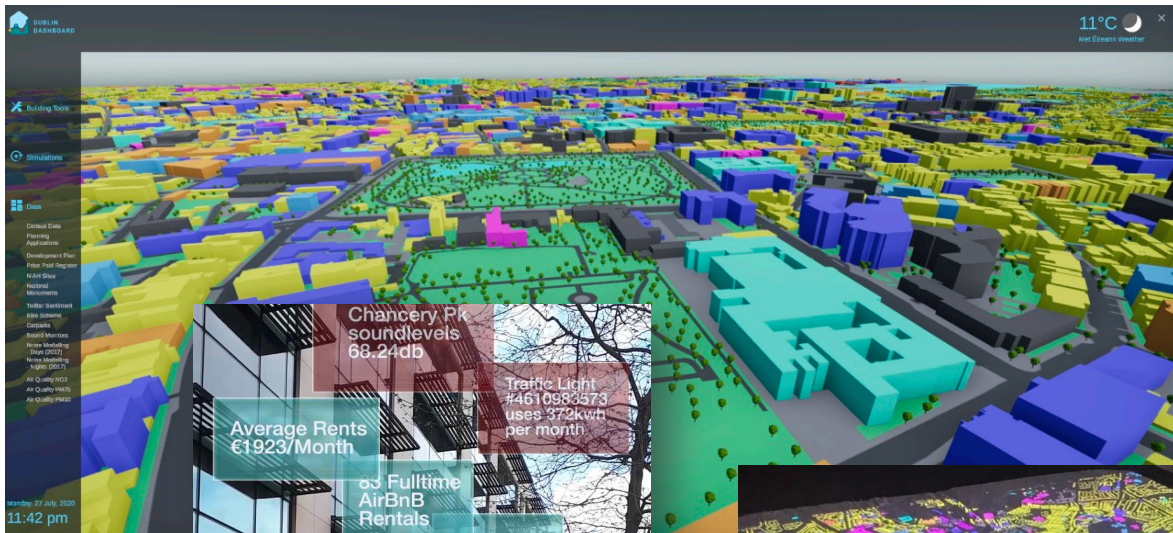
- Visualization and interaction issues

- Design, navigation and comprehension issues

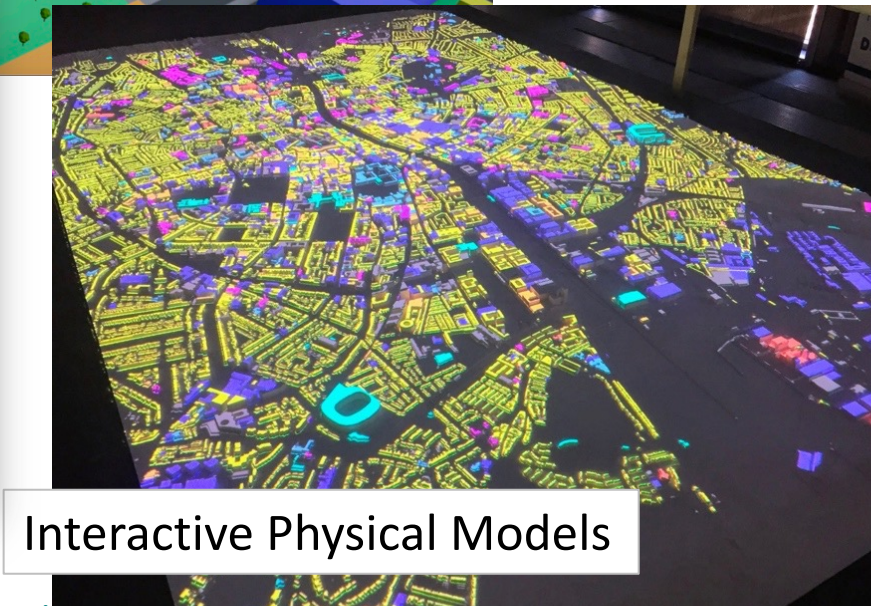
- Analytics and modelling issues



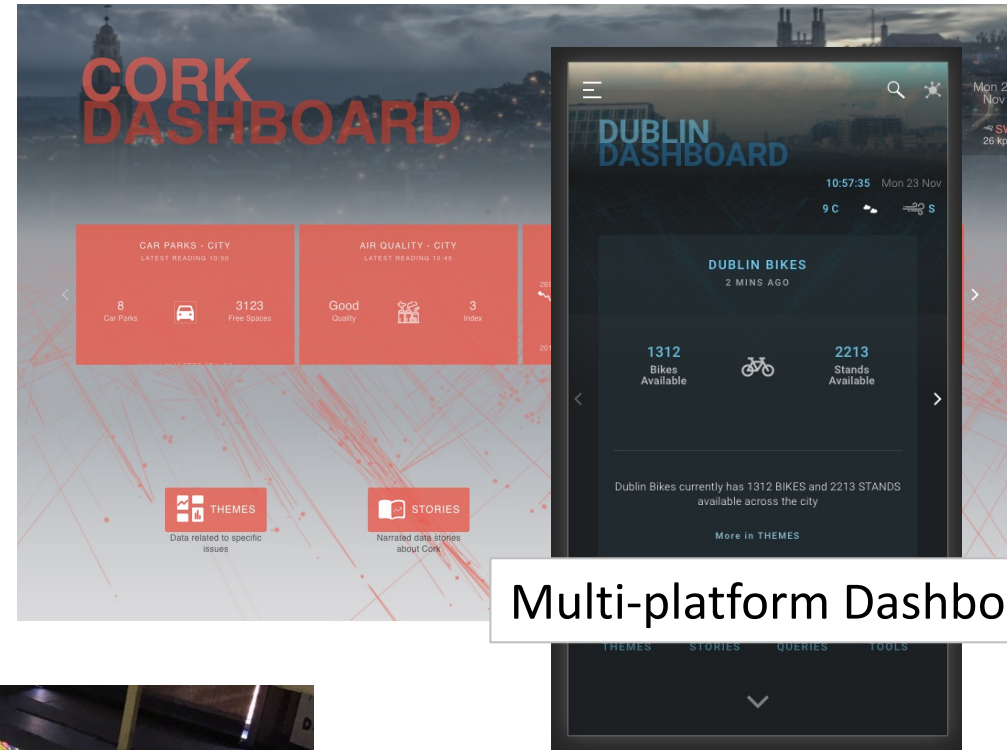
# Technological Outputs



3D & Mixed Reality



Interactive Physical Models



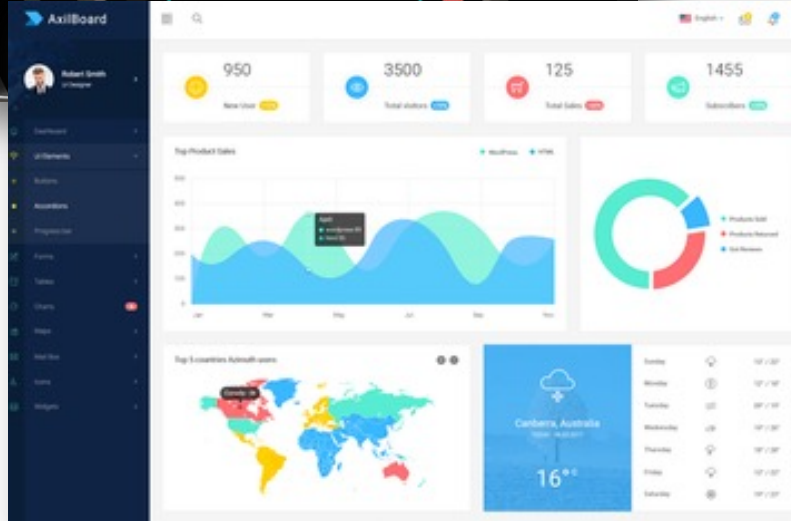
Multi-platform Dashboards



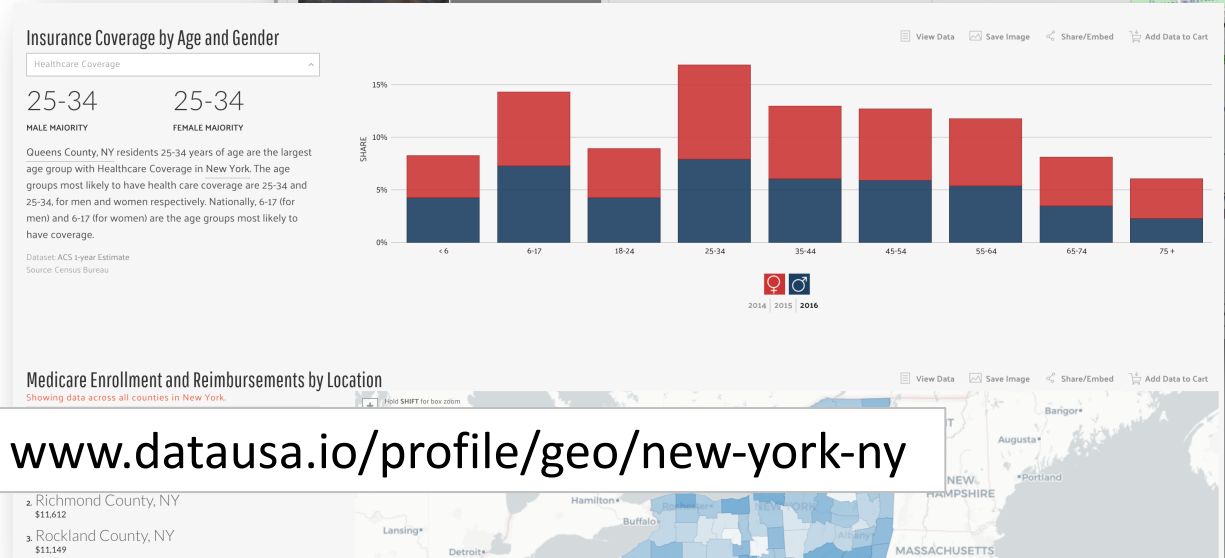
Artistic Interpretations



# What is a city dashboard?



[www.citydashboard.org/london/](http://www.citydashboard.org/london/)

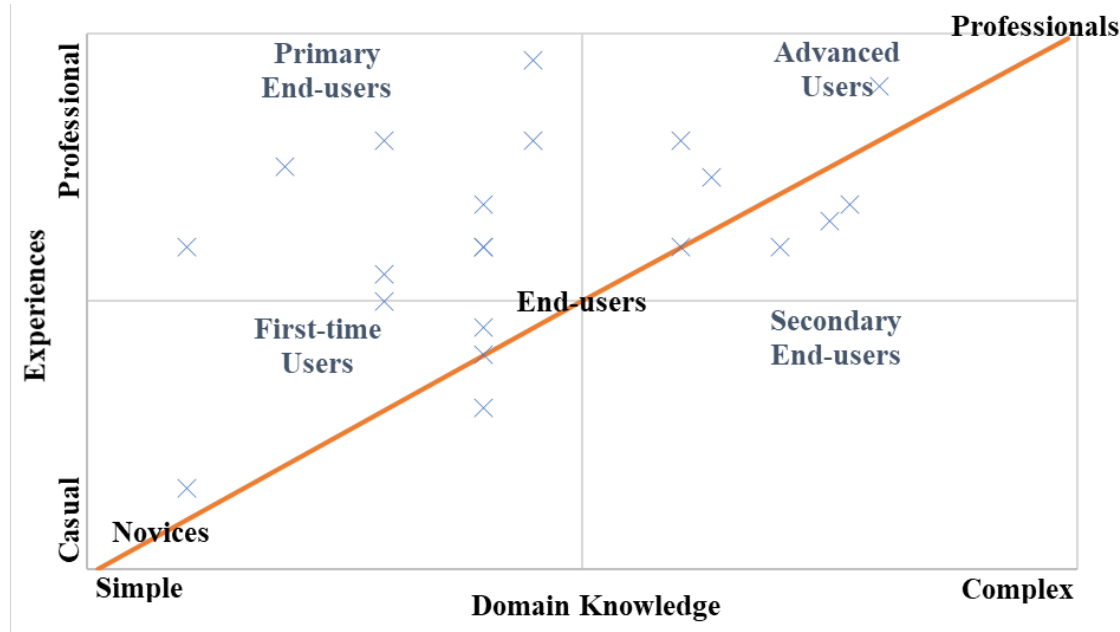


[www.datausa.io/profile/geo/new-york-ny](http://www.datausa.io/profile/geo/new-york-ny)



# User Research (Dr. Gareth Young)

What are the central dimensions that are relevant for the creation of a quality city dashboard?



Advanced User	Website Design	22%		23%
	Data Visualisation	27%		28%
	Dashboard Content	7%		23%
Primary End User	Website Design	28%		34%
	Data Visualisation	32%		42%
	Dashboard Content	7%		23%
Novice	Website Design	31%		24%
	Data Visualisation	38%		21%
	Dashboard Content	7%		13%

Legend: ■ Negative ■ Neutral ■ Positive



# User Personas

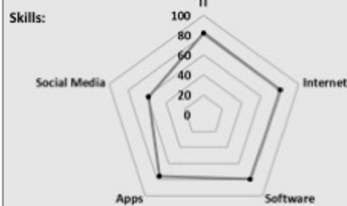


**Chris Martin "The Prof"**

**Age:** 45 - 54  
**Occupation:** Consultant  
**Education:** BSocSc (Social Sciences)  
**Expertise:** City Management  
**Family Status:** Married / 2 Children  
**Location:** Dun Laoghaire  
**Challenges:** Long-sighted / Impatient  
**Interests:** Digital Technology

**Locations:** Office / Hotel  
**Operating System:** macOS  
**Platform Types:** iMac / MacBook

**User-Group Type:** Expert  
**Dashboard Experience:** Professional  
**Domain Knowledge:** Complex



## Experience

Chris uses city dashboards informed and therefore usability of the data he wants access to diverse he can manipulate the

- Referrer: Personal
- Introduction touchpoint

## Interacting

Chris accesses multiple sometimes when travel able to view and compare as being able to explore made available, often

## Typical Tasks

Chris typically needs to upon high impact projects. He is familiar with multiple data comparisons cities in his country which isn't really facilitate be able to create and convey his findings

## Chris' Story

Chris considers himself a domain expert. Chris' knowledge efficiently, in terms of rapid response expects to be able to carrying out tasks that can be executed at a specific data resource professional present



**Jane Quinn "Science Nerd"**

**Age:** 34 - 44  
**Occupation:** Technical  
**Education:** Master's Degree  
**Expertise:** Sociology  
**Family Status:** Living with Partner & Baby  
**Location:** Greenhills  
**Challenges:** Mildly Dyslexic  
**Interests:** Music & Arts

**Locations:** Office  
**Operating System:** Windows 7  
**Platform Types:** Dell Desktop PC

**User-Group Type:** Primary End-User  
**Dashboard Experience:** Professional  
**Domain Knowledge:** Simple



## Experience & skills:

Jane uses the dashboard regularly at the local county council (CC) where she works. She is familiar with data stories and thematic data content. She regularly explores new data use-cases, routinely following links to data sources to check their veracity, and makes use of visualisations in her monthly reports.

- Referrer: Internal training
- Introduction touchpoint: Data Coordinator

## Interacting with Jane:

Jane visits the site with specific tasks and goals in mind. She learned about the site from a training session that she attended through work. Jane knows that if she has to undertake a new line of enquiry, she can use the "Tasks" page to learn new skills.

## Typical Tasks for Jane:

Jane has the site saved in her "Work" bookmarks folder in Chrome. She often keeps a tab open for reference throughout the day.

Jane's job requires her to write monthly reports about housing completion rates in the local CC area. She also needs to compare her CC to other local authorities with similar population sizes.

## Jane's Story: "Crisp and clean designs with up to date data."

Jane has professional experience with city dashboards, but has a simpler understanding of the city dashboard domain as a whole. Jane is familiar with most city-specific systems and has used some of the data tools. However, she does not access in-depth data on a regular basis. Jane has regular tasks to perform for a city-specific location. This gives her explicit expectations of a system and a comprehensive understanding of task-driven applications. These motivations give her an advantage over new users, but she still has difficulty learning new menu structures and navigating to data-sets on unfamiliar or overly complex as these issues by systematically following menu patterns and page consistent and professional terminology use and an effective web-design and These support her in creating patterns-of-use that are easy to remember familiar and occasionally explorative tasks she has to perform. Jane uses the online training and help-pages, but only if they are quickly accessed, well-organised, and easy-to-use.

## Jane's Situation:

### Her Goals / Motivations

- Appreciates effective data visualisations.
- Regularly writes reports.
- Enjoys exploring new data.
- Evaluates her skill-set through task completion.

### Frustrations and Pain Points

- Not being able to verify data sources.
- Not being able to find and use data sources quickly – "Where was that... ?".
- Having to visit other websites and use unfamiliar tools without training.

### Questions

- Is the CC on track for projected housing completion?
- Is the CC going to achieve this month's target?
- What other areas will effect this; homelessness, temporary accommodation, budgets, etc.?
- What data is available from other authorities?
- Are there any new planning proposals or infrastructure issues?

### Reasons for Jane to return:

- Consuming and communicating data.
- Building new knowledges.
- Reading and writing about her city.

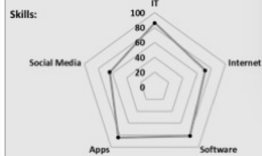


**Josh Davis "A Curious Mind"**

**Age:** 25 - 34  
**Occupation:** Irish Water Surveyor  
**Education:** Ordinary Degree  
**Expertise:** Environmental Science  
**Family Status:** Single with no children  
**Location:** Blessington  
**Challenges:** Colour-blind  
**Interests:** Nature & photography

**Locations:** Home & mobile  
**Operating System:** Android & iOS  
**Platform Types:** Phone & Tablet

**User-Group Type:** Novice  
**Dashboard Experience:** Casual  
**Domain Knowledge:** Simple



capacity to grasp the use of city dashboards, but only may experience in the initial use of city specific data, allied in the presentation of familiar, intuitive, and upon extended periods of exploration. That is, by Furthermore, the stories that the dashboard presents his current knowledge of data relationships.

# Novice | Primary End-user | Advanced



# Visualization

*Explanative  
(communication of insights)*

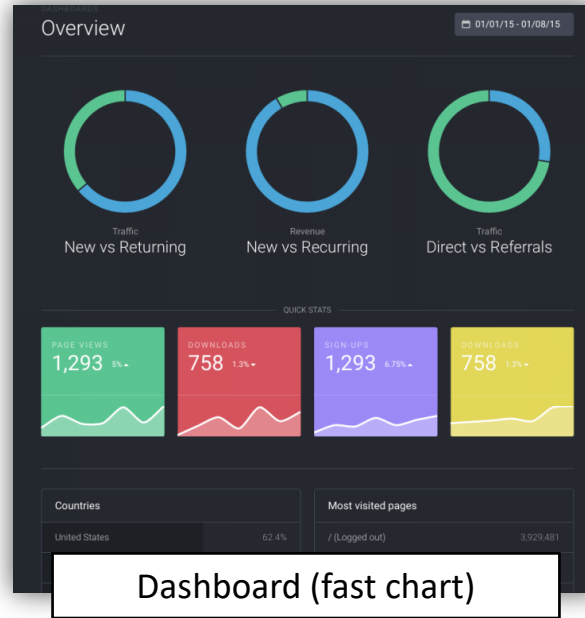
Increasing Visualization Complexity

*Explorative  
(discovery of patterns)*



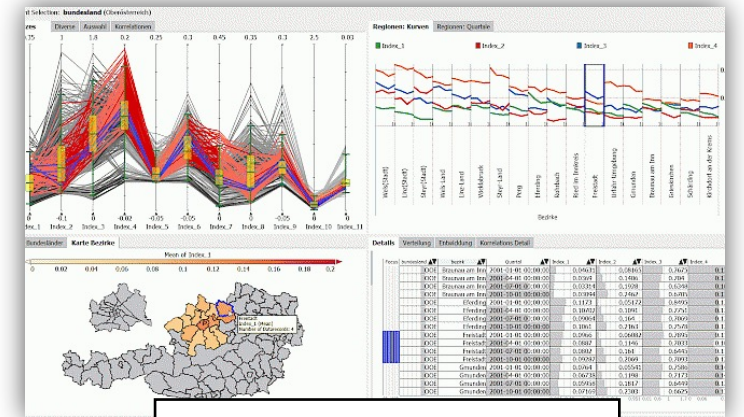
Data stories

*Novice | Casual*



Dashboard (fast chart)

*End-user | Professional*



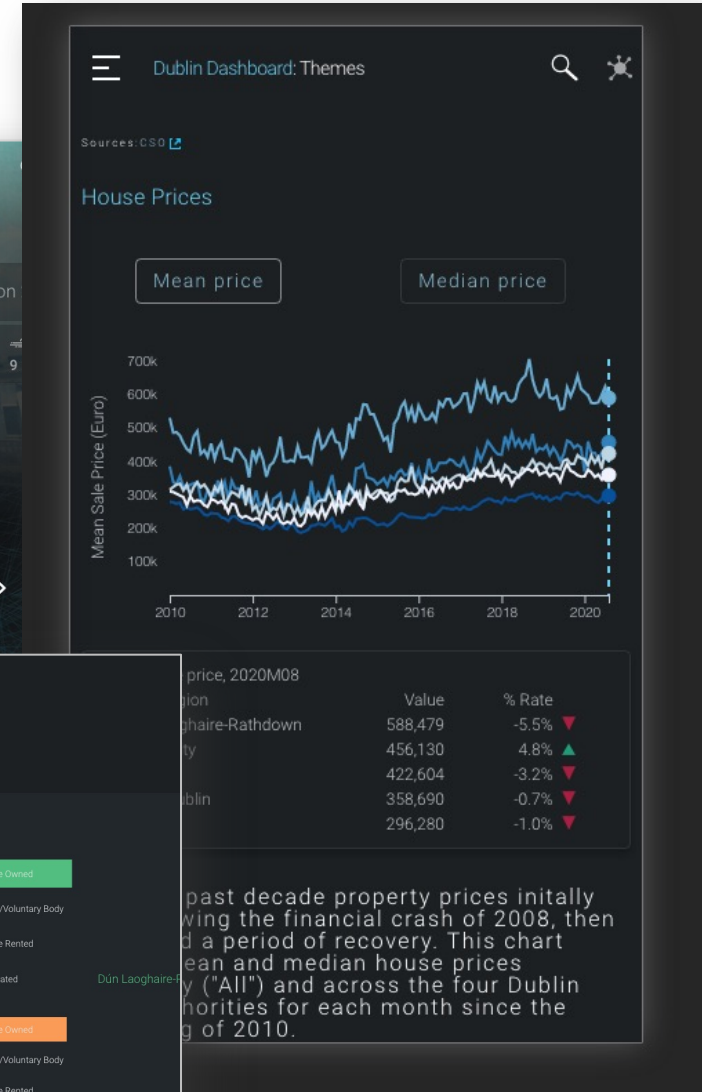
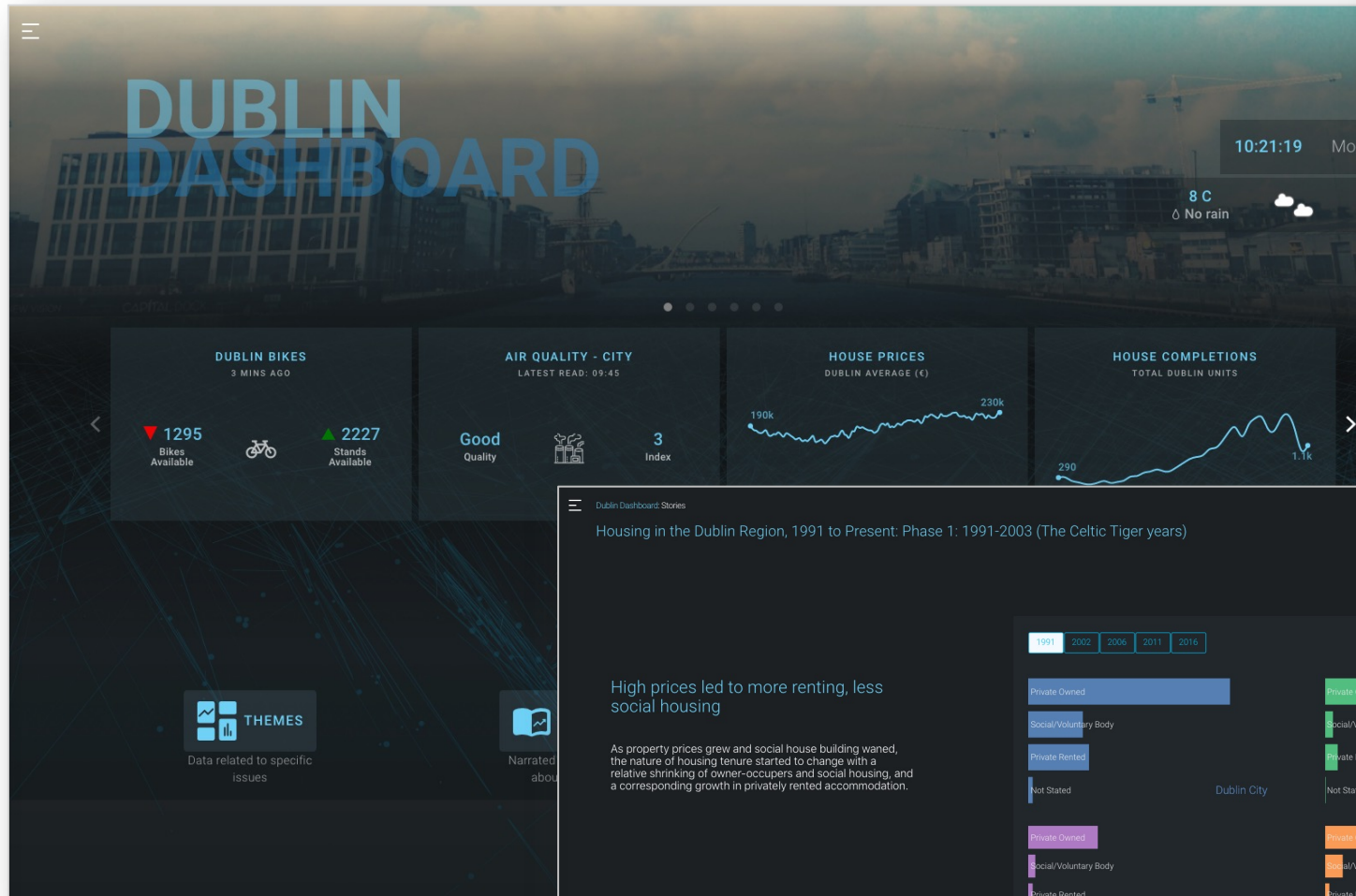
Analytic (slow chart)

*Advanced | Professional*

Increasing Contextual Information



# Demo: dublindashboard.ie







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