

Data, data everywhere...

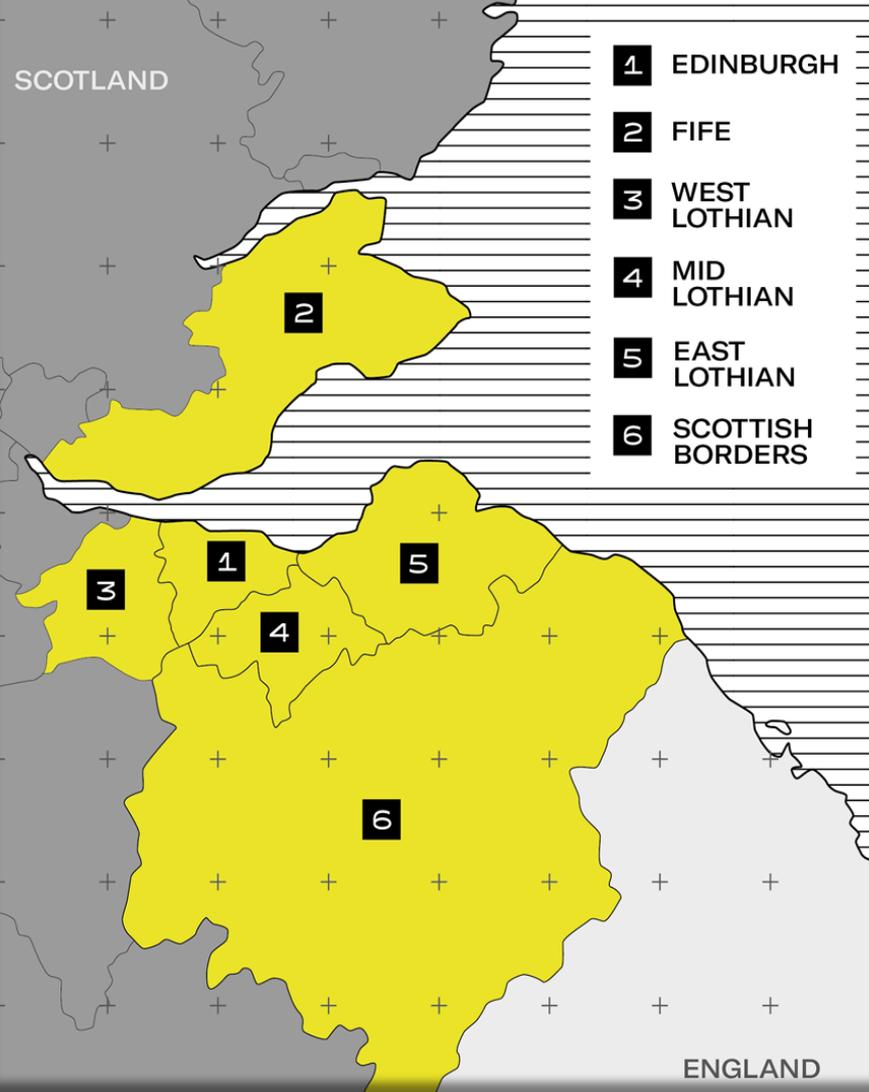
Design Informatics,
Research Responsible NLP
23rd February 2026

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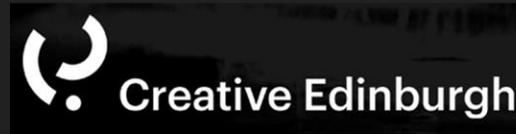
Data...

for better business practice
for better policymaking

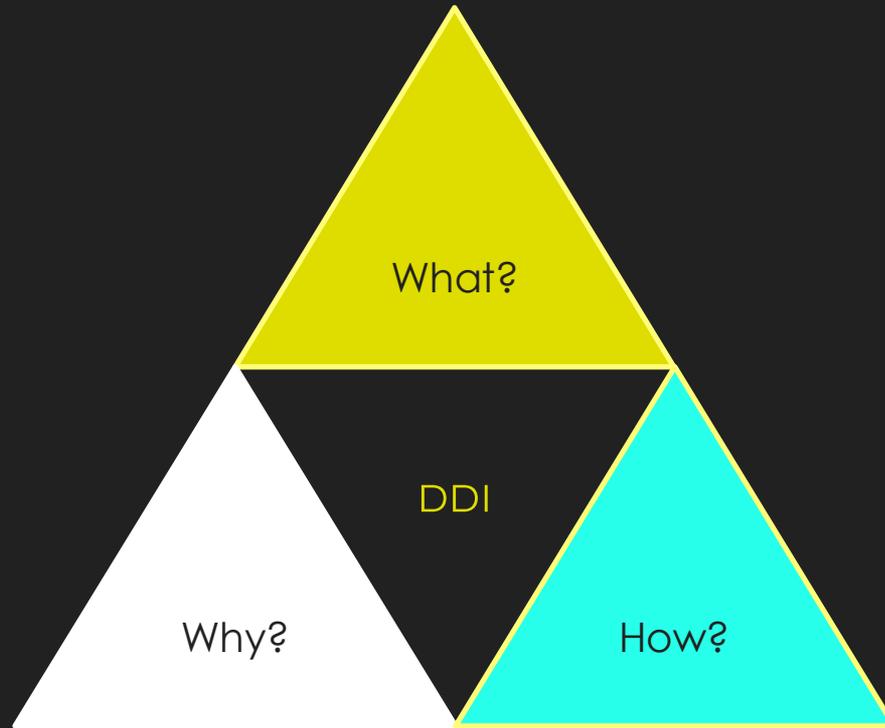


CREATIVE
INFORMATICS

2018-2024



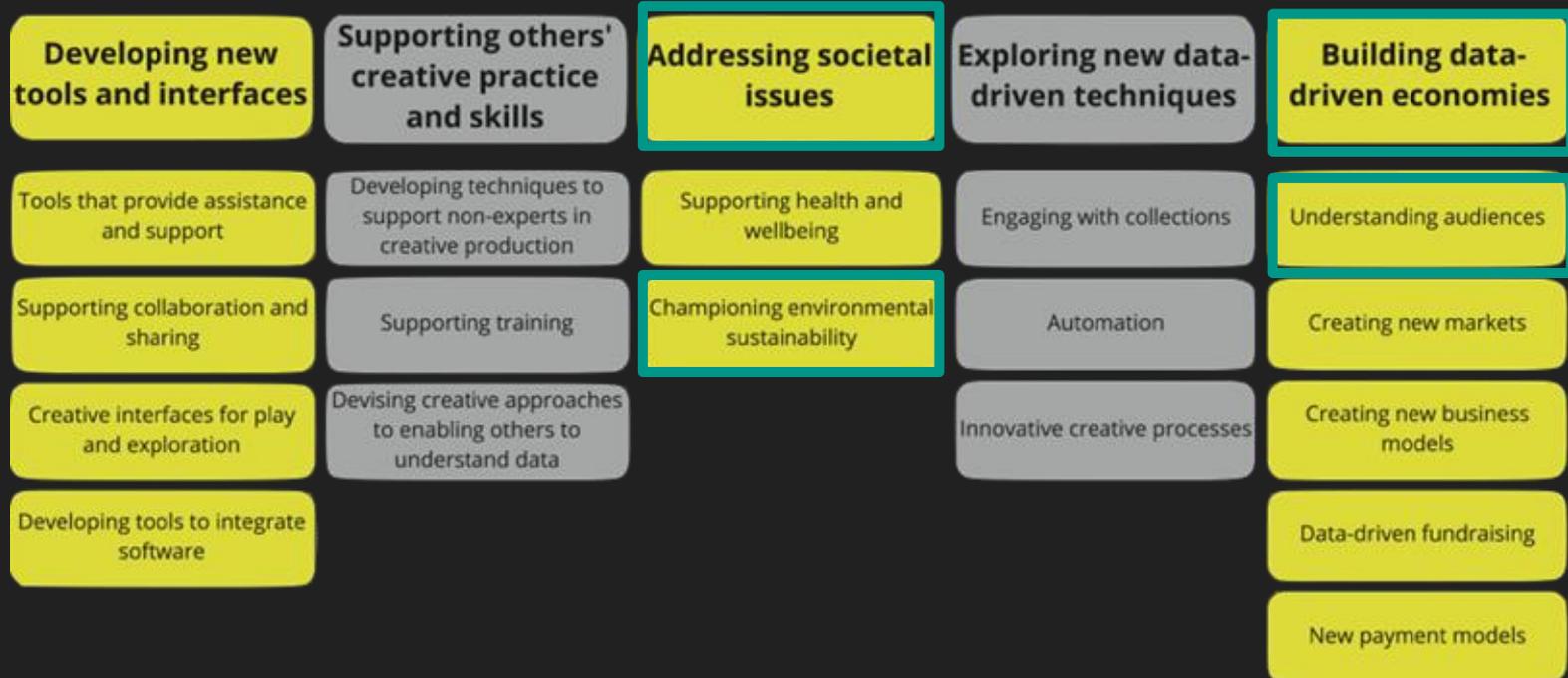
Data Driven Innovation:



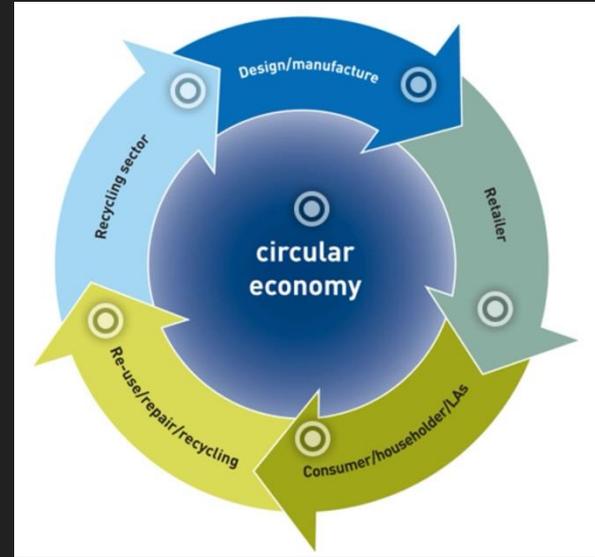
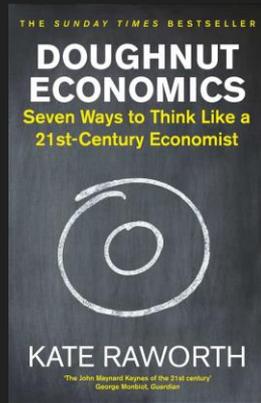
Data...

for better business practice

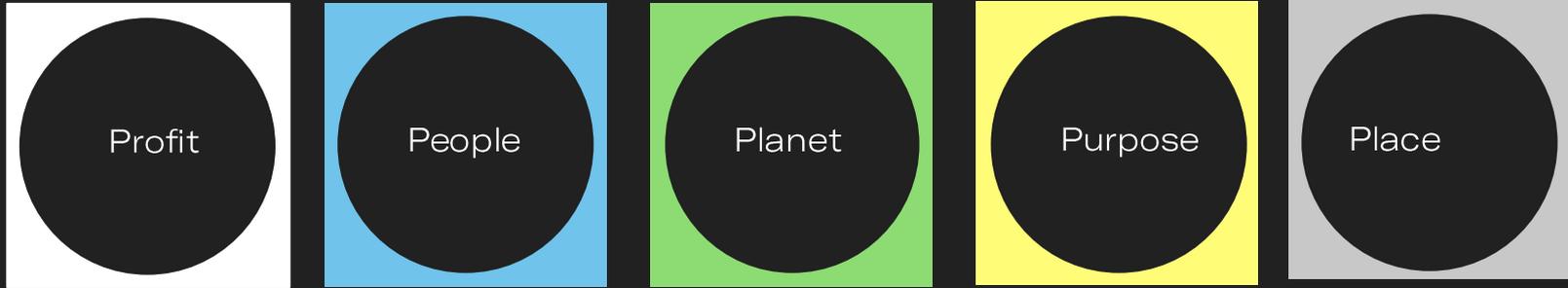
WHAT CREATIVE INDUSTRIES CHALLENGES ARE OUR PROJECTS ADDRESSING?



New Economic models: Doughnut Economics for a Circular Economy



From Single → Triple → Quadruple → Quintuple Bottom Line:



Panneels, I. (2023) 'The Quintuple Bottom Line: A Framework for Place-Based Sustainable Enterprise in the Craft Industry', Special Issue: The Creative and Cultural Industries towards Sustainability and Recovery. *Sustainability*, *Sustainability* 15, no. 4: 3791. <https://doi.org/10.3390/su15043791>

DDI and the Quintuple Bottom Line:



Profit

People

Planet

Purpose

Place

CARBON FOOTPRINT

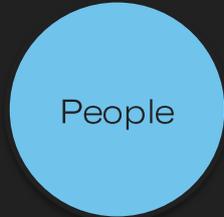
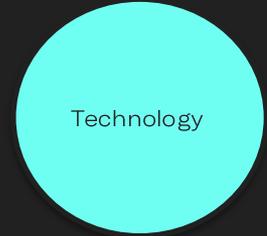
EDINBURGH TOOL LIBRARY

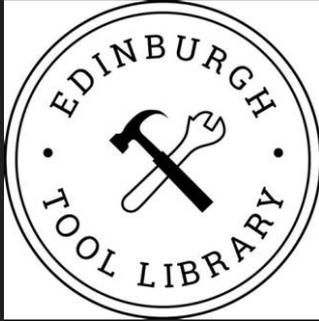
CARO OVERY + CREATIVE CARBON SCOTLAND

HISTORIC ENVIRONMENT SCOTLAND

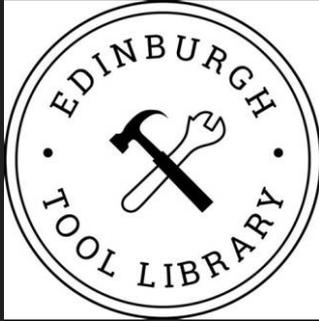
EDINBURGH INTERNATIONAL FESTIVALS

LOOPERS





case study: Edinburgh Tool Library



Quantify the carbon saved by sharing using DDI

SOFTWARE DEVELOPMENT:

Technology

EMBODIED ENERGY DATA:

Data

The calculation for each tool is:

**NUMBER OF TIMES TOOL WAS BORROWED INSTEAD OF BOUGHT X WEIGHT OF TOOL X
EMISSION FACTOR = CARBON SAVED FOR THAT TOOL**

We are working with myturn.com to integrate this calculation on their website so that every sharing library that uses myturn will be able to see their carbon saving.

<https://edinburghtoollibrary.org.uk/carbon-data-for-sharing-libraries/>

Profit

People

Planet

Purpose

Place

“Investment in social innovation such as these, which particularly address the climate emergency and work actively towards a more circular economy, should receive a significant amount of the funding currently being invested in innovation. We identified data-driven innovation as a key method to be able to support better decision making in complex interconnected systems. Implicit to the outcomes of many of the projects we have presented is the question of funding. A number of the projects remained speculative prototypes, as funding was not accessible to scale. It is possible that some of these projects might have developed into fully functional tools, given sufficient funding to develop minimum viable products (MVPs) and communities of practice. Like tech innovation, data-driven innovation for social good comes with risks. However, we suggest that in the context of the climate emergency, the risks of failure are worth it.”

Panneels, I., Lechelt, S., Schmidt, A. and Coskun, A. (2024) 'Sustainability Expectations in the Creative Economy'. In: Terras, M., Speed, C., Osborne, N. and Jones, V (Eds.) Data Driven Innovation in the creative industries. London: Routledge
(DOI: [10.4324/9781003365891-11](https://doi.org/10.4324/9781003365891-11))

Data...
for better policymaking



Creative
Edinburgh

Creative Industries & The Data Challenge



CREATIVE
INFORMATICS

Edinburgh Napier
UNIVERSITY



THE UNIVERSITY
of EDINBURGH

Creative Industries Group	SIC	Description
Advertising and marketing	70.21	Public relations and communication activities
	73.11	Advertising agencies
	73.12	Media representation
Architecture	71.11	Architectural activities
	32.12	Manufacture of jewellery and related articles
Crafts		
Design: product, graphic and fashion design		
Film, TV, video, radio and photography		
	59.13	Motion picture, video and television programme distribution
	59.14	Motion picture projection activities
	60.1	Radio broadcasting
	60.2	Television programming and broadcasting activities
	74.2	Photographic activities
IT, software and computer services	58.21	Publishing of computer games
	58.29	Other software publishing
	62.01	Computer programming activities
	62.02	Computer consultancy activities
Publishing	58.11	Book publishing
	58.12	Publishing of directories and mailing lists
	58.13	Publishing of newspapers
	58.14	Publishing of journals and periodicals
	58.19	Other publishing activities
	74.3	Translation and interpretation activities
Museums, galleries and libraries	91.01	Library and archive activities
	91.02	Museum activities
Music, performing and visual arts	59.2	Sound recording and music publishing activities
	85.52	Cultural education
	90.01	Performing arts
	90.02	Support activities to performing arts
	90.03	Artistic creation
	90.04	Operation of arts facilities

the Freelancers deficit

DCMS understanding of CCI

DCMS: Department of Culture Media and Sport

CCI: Creative and Cultural Industries

SIC codes

standard industrial classification

code of economic activity

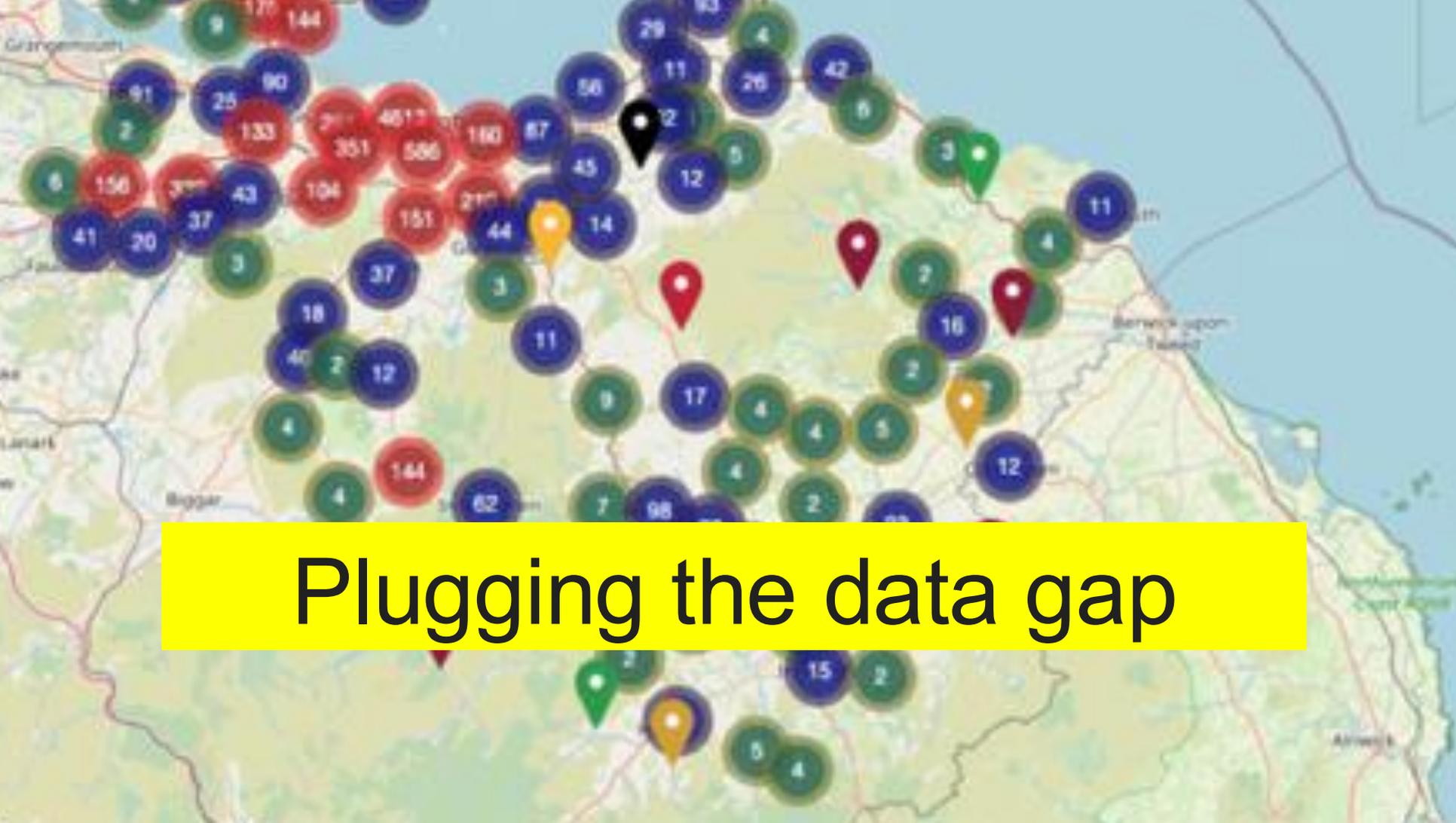
the Freelancers deficit

	Companies	Unincorporated Business		
		+ £250,000 turnover	Over £90,000 VAT threshold	Below £90,000 VAT threshold
SIC code collected	yes	yes	yes	no
Route of SIC code collection	Companies House	HMRC	HMRC	none

Plugging the data gap

https://pec.ac.uk/blog_entries/plugging-the-data-gap-freelance-and-self-employed-workers-in-the-creative-industries/

<https://blogs.napier.ac.uk/social-informatics/2021/12/mapping-creative-industries-in-south-east-scotland/>



Plugging the data gap



Detecting Dark Matter Data: data gaps for innovation and R&D activities in the Creative Industries

by McDonald, C and Jordan, J. (2023)

<https://zenodo.org/records/7418481>

Preview

Just as with innovation, when we asked about data, we received widely varying responses as to what data is and how it is used for decision-making.

- “If you’ve got good data it backs up the possibility for innovation” – Research participant 28.
- “0s and 1s in different boxes that make our work abstract in some way. It’s an intended simplification that ends up being a reduction” – Research participant 17.
- “Key points that help people to understand, create new knowledge or inform them if they are making decisions. It’s really always related to that, because data without a purpose is nothing that really matters, in my opinion” – Research participant 9.

When asked, participants typically responded to the idea of ‘data’ as machine-readable, numerical or categorical data about a business, broader industry segment, or other key topic relevant to the creative industries (e.g., information that might help a business find a collaborator with skills they themselves lacked, identify market trends, or understand the competitive landscape).

However, participants also recognised other forms of data, such as narrative descriptions of organisational activities (case studies), or personal knowledge and networking data. Policymakers recognised three categories of data that are frequently used to support a strategic policy decision: statistics, case studies, and wider evidence.

Data flow is currently a one-way street



Figure 9

This means that some stakeholders in the ecosystem are not getting value out of the data they produce: there are few mechanisms to review or challenge decisions made with this data, nor can individual creatives or creative organisations make use of the bigger picture derived from data for their own strategic planning and decision-making. They do not get to see the full jigsaw puzzle.



Plugging the data gap

On the other side of the data coin, data platform providers expressed some frustration that the organisations they work with do not make as much use of their own data as they might for creating strategic and tactical plans. Rather than analysing their own ticketing or sales data to investigate changes in audience behaviour or to test theories about what impact proposed changes might have, many

organisations asked platforms to provide 'one size fits all' monitoring dashboards and templates that fall more in the 'monitoring/evaluation' than the 'analysis'/decision-support category. There appears to be a learned helplessness even for medium to large organisations working in the creative industries, particularly in relation to numerical data.

For Policymakers

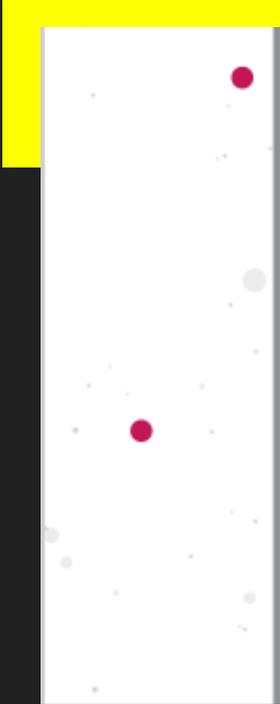
Conduct a review of your data-driven decision-making:

1. What data do you need to make meaningful decisions?
2. How do you collect that data? Where do you keep it? Who has access to it and how do they use it? What possibilities are you exploring for automation in your data collection, matching and analysis?
3. Consider the 'three bubbles' for robust policy narrative:
 - a. Which of these do you rely on most, and why?
 - b. What might you learn from trying a different approach?
4. What data do you give back to the communities in your remit and how do you do that?
5. How does the data you collect represent the diversity of people, organisations and structures operating within your remit? Who is currently getting left out? How could you find ways to represent them in your policy narratives?
6. How can you support a data cycle that serves everyone in the creative industries ecosystem, rather than a one-way data street?

For Creative Organisations and Individual Creative Practitioners

Discover and tell your data-driven creative story:

1. How can you find your own 'pockets of knowledge' who contribute to your professional skills development and collaboration opportunities? What data sources can you use to discover these resources?
2. What data do you use to prepare for investment / grant / commissioning opportunities? Are you aware of how that data is being used? How do you situate yourself in the broader creative landscape through your responses?
3. What case studies could you use to help articulate your creative story? How could you use visuals (including data visualisations) to have greater impact?



For Trade Bodies, Advocacy Organisations, and Unions

Enrich the data landscape by working together:

1. How can you collaborate with other bodies working in the creative industries to identify common patterns of information in use for decision-making?
2. Who can you work with to use these common patterns to advise on a shared data standard?
3. What possibilities can you explore to combine data sets with other organisations to find new insights? What safeguards would you need to put in place?
4. What resources would you need to develop more longitudinal research on career trajectories and innovation development over time?

For Data Platforms, Providers and Aggregators

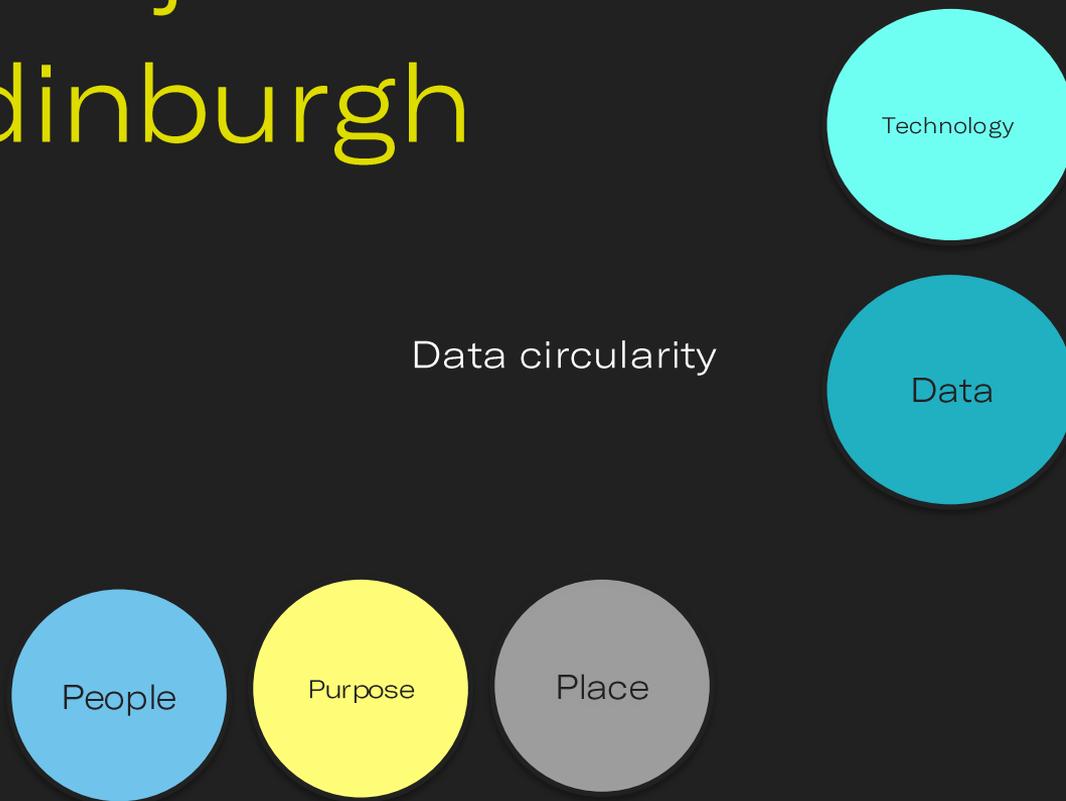
How can you leverage the power of open data to create new value for everyone?

1. Who can you collaborate with to combine data sets to uncover novel insights? How can you make those available throughout the creative industries knowledge ecosystem (policymakers, creatives, trade bodies, etc.)?
2. What interoperability and **open source** principles can you adopt to facilitate a freer flow of information?
3. What potential pitfalls might arise from combining data in new ways or using old data for new purposes? How can you mitigate these challenges ethically, fairly, and legally for all stakeholders?
4. How can you leverage the knowledge of interdisciplinary groups with a shared interest to shed new light on existing data challenges? What are the key points of data intervention that are most important for each group of stakeholders?

McDonald, & Jordan. (2023). Detecting Dark Matter Data: data gaps for innovation and R&D activity in the creative industries (1.0).

Zenodo. <https://doi.org/10.5281/zenodo.7418481>

Data Pilot Project Creative Edinburgh



1. User Centricity

2. Data circularity

3. EDI considerations

User-Centricity

- Work with relevant stakeholders of the community to gain first-hand understanding of the kind of data that is needed
- Adapt the overall data collection plan
- Always follow the mandate 'quality over quantity'

Data Circularity

- Data circularity as a two-way flow of information the organisation and its community
- A traditional data flow typically is when organisations collect data from their members using surveys, sign up applications but the data flow is one-directional.
- Data circularity emphasises a more reciprocal exchange where members are also encouraged to contribute data and receive value in return as it has the potential to empower creatives to achieve a sense of community and shared purpose

EDI

- Make sure the overall survey follows ED&I considerations, be mindful of how minorities might perceive questions
- Make sure to show how members can entirely delete or change the information they provided
- Be very transparent and clear which information that is provided will be displayed publicly, anonymized or not, and which stays private/within the data collecting organization
- Make those that provide information feel like they are in control of the whole data collection process

Recommendations for Creative Edinburgh

- Alter data collection methodology to focus on user-centricity, data circularity and equality, diversity and inclusion.
- Revise member sign-up survey.
- Become a data-driven champion for the creative sector by advocating for members more accurately and effectively.

Opportunities



- A more concise sign up form leads to higher completion rates, potentially improving membership acquisition.
- The recognition of emerging fields within the standardised code framework ensures the internal data collection method adapts to industry evolution.

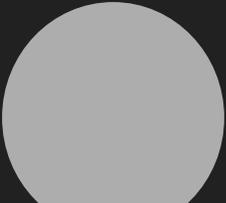


Opportunities cont...

- Unlock the true potential of data for Creative Edinburgh and the wider creative sector by using accurate and comprehensive data.
 - Present policymakers and industry partners with compelling data-driven arguments that highlight the needs and contributions of creatives in Scotland.
- 



Challenges

- Time constraints - non stop fundraising...
 - Staff changes - need for time to allow for knowledge transfer & learning.
 - Funding - no funding for follow on activity or deeper industry dissemination.
- 

Zeller, F., Panneels, I., Dubey, N., Osborne, N., & Terras, M. (2024). Understanding Membership Data in the Creative Industries: The Creative Edinburgh Data Project (1.0). Zenodo. <https://doi.org/10.5281/zenodo.11494860>

Some Resources:

<https://creativeinformatics.org>

Short films:

Data Driven Innovation for Sustainable Creative Practice:
<https://vimeo.com/723299867>

There Be Dragons: what does data mean for creative practice?
<https://vimeo.com/creativeinformatics/therebedragons>

Zeller, F., Panneels, I., Dubey, N., Osborne, N., & Terras, M. (2024). Understanding Membership Data in the Creative Industries: The Creative Edinburgh Data Project (1.0). Zenodo. <https://doi.org/10.5281/zenodo.11494860>

Panneels, I., Lechelt, S., Schmidt, A. and Coskun, A. (2024) 'Sustainability Expectations in the Creative Economy'. In: Terras, M., Speed, C., Osborne, N. and Jones, V (Eds.) Data Driven Innovation in the creative industries. London: Routledge (DOI: [10.4324/9781003365891-11](https://doi.org/10.4324/9781003365891-11))

Panneels, I., Jones, C., Parkinson, C. and Komorowski, M. (2024) 'Ecosystems and Partnerships'. In: Terras, M., Speed, C., Osborne, N. and Jones, V (Eds.) Data Driven Innovation in the creative industries. London: Routledge (DOI: [10.4324/9781003365891-2](https://doi.org/10.4324/9781003365891-2))

Thank you for listening

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