

Do you know your error rates?

Why measure and how to measure data quality as we head into AI

Agile Manchester, May 2025

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Martin Jordan announced error rate as a metric



Martin Jordan

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Non-fun fact:

There are error rates for various government services and related forms far beyond 90%.

Government does not ask people to submit the necessary information and documents and then cannot make a decision.

Error rate is now a central metric tracked in various of our work streams.

August 13, 2024 at 5:35 PM  Everybody can reply

For “AI”, data quality matters



Dare Obasanjo

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Harsh truths of machine learning

<https://bsky.app/profile/carnage4life.bsky.social/post/3liouuj3phs2z>

The “garbage in, garbage out” principle also applies to

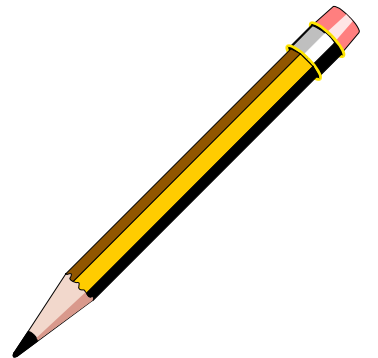
- Large language models (LLMs)
- Image recognition
- And everything else really



Quick poll:

If you've filled in any forms this year,
please raise your hand

(or do something else comfortable for you)

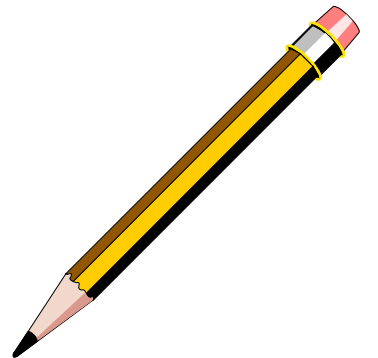


Quick poll:

If you have never “fudged*” your way through a form, please lower your hand

*To “fudge” a form:

answer one or more questions in a way that’s not entirely truthful



Takeaway

There are many ways in which the data we collect isn't entirely accurate

Agenda

- Share what we know about our error rates (if anything)
- Try using “Five ways to think about errors”
- Compare experiences with the data quality framework
- Think about what we might do differently

Share what we know about
our error rates (if anything)

Some errors hit the headlines

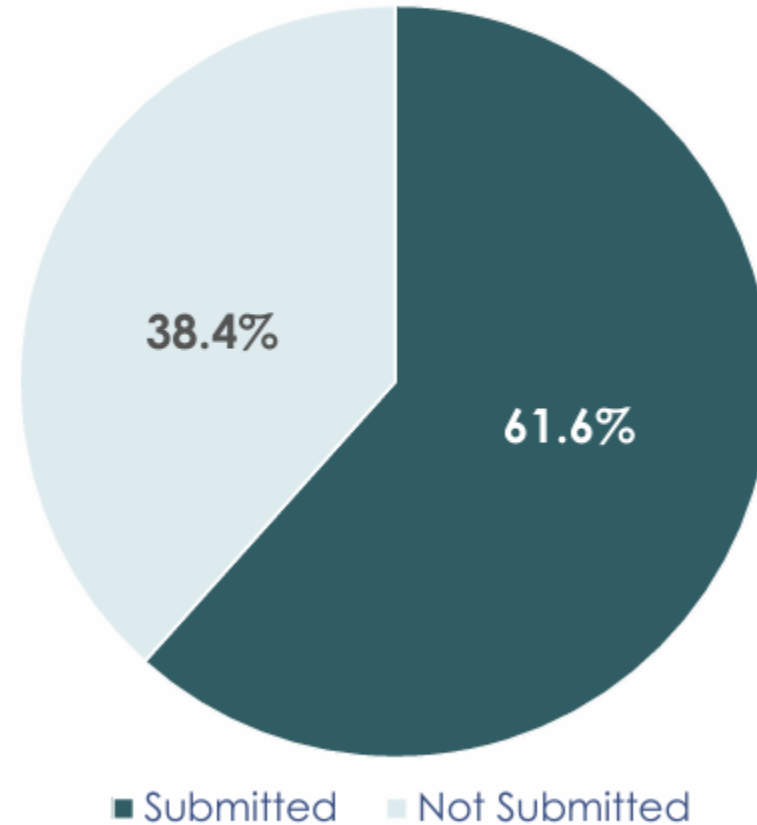
[Disabled Ipswich woman told to repay £5,000 of universal credit - BBC News](#)



Some people don't get to the end of their application

People on low incomes or no income in California can apply for government money to buy fresh food (CalFresh).

PROPORTION OF APPLICATIONS SUBMITTED
(Nov – Dec)



<https://www.calsaws.org/wp-content/uploads/2025/02/BenefitsCal-Usage-Metrics-Report-Nov-Dec-2024.pdf>

The result matters more than the journey

- People don't fill in forms for fun
- We're aiming to achieve some result

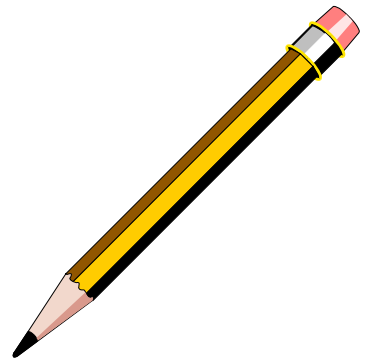


Let's learn from our experiences and ideas about errors

In pairs or threes, share:

- a brief description of a service that you work on or are familiar with
- whether you know the error rates
- what you count as an error
- anything you are able to share about the consequences of errors, for the organisation or for the individual

7 minutes



Agenda

~~Share what we know about our error rates (if anything)~~

Try using “Five ways to think about errors”

Compare experiences with the data quality framework

Think about what we might do differently

I've been thinking about ways to think about errors

Thanks to the team at HMRC who inspired this

Errors	Examples
Problems along the way	Validation problem, abandoned attempt
Wrong result	Attempt wrongly rejected
Unnecessary action	Progress chasing
Delayed-impact problem	Data OK when collected, not when used
Non-uptake	Eligible person does not use the service
Over-uptake	Ineligible person does use the service
Something else	?

For example, “non-uptake” and “over-uptake” gets complex quickly

[Week 39: OK Arrrr - Frankie Roberto](#)

Not recording a vaccination

We did some timeboxed design exploration this week about how we could better let users record when someone is not given a vaccination.

Whenever we come to this topic it opens up a bit of an existential can of worms, as our service is called [Record a vaccination](#), and the scope of recording non-vaccinations could be quite wide.

Non-vaccinations covers anything including non-attendance at a booked appointment, a walk-in patient who has to be turned away for some reason, or someone changing their mind at the last minute.

We have heard some valid reasons for recording this though, including to schedule follow-up actions, to opt patients out from vaccination invitations, or for analysis.

As with many things in the NHS, the question becomes more about where is the best place to record the information, and what happens with the data?

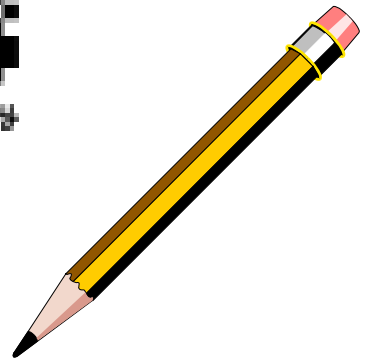
Hopefully our design sketches can at least help to prompt some of this wider conversation.

Did you find any examples of these errors?

- Problems along the way
- Wrong result
- Unnecessary action
- Delayed-impact problem
- Non-uptake / over-uptake
- Something else?

5 minutes

<https://bit.ly/5wayserrors>



What about error rates?

UK government services must publish completion rates

The screenshot shows the GOV.UK website interface. At the top is the GOV.UK logo and a navigation menu. Below the header is a blue banner with the text 'Beta' and a link to 'Contact the Service Manual team'. The main content area has a breadcrumb trail 'Service manual > Measuring success'. The title 'Measuring success' is followed by the main heading 'Measuring completion rate'. To the right of the heading is a link 'Give feedback about this page'. Below the heading is the text 'From: Performance analysis community'. On the left side, under the heading 'Contents', there is a list of three links: 'Calculating completion rate', 'Configure your service to measure completion rate', and 'Counting users who are ineligible for a service'. To the right of this list, there are two paragraphs of text. The first paragraph states: 'Your service's completion rate is the number of digital transactions that your users complete as a percentage of all digital transactions that your users start.' The second paragraph states: 'This includes transactions where the user receives support from someone to use the digital service (called assisted digital support).' A mouse cursor is visible near the bottom right of the page.

GOV.UK

Menu

Beta [Contact the Service Manual team](#) if you have feedback, questions or suggestions.

[Service manual](#) > [Measuring success](#)

Measuring success

Measuring completion rate

[Give feedback about this page](#)

From: [Performance analysis community](#)

Contents

- [Calculating completion rate](#)
- [Configure your service to measure completion rate](#)
- [Counting users who are ineligible for a service](#)

Your service's completion rate is the number of digital transactions that your users complete as a percentage of all digital transactions that your users start.

This includes transactions where the user receives support from someone to use the digital service (called [assisted digital support](#)).

Completion rate is a relatively simple calculation

$$\text{Completion rate} = \frac{\text{Number of people who complete}}{\text{Number of people who start}}$$

Error rate is theoretically simple

$$\text{Error rate} = \frac{\text{Number of errors}}{\text{Number of people who start}}$$

Other error rate calculations are available

$$\text{Error rate} = \frac{\text{Number of attempts with an error}}{\text{Number of people who start complete are eligible other?}}$$

Example: there are at least 3 definitions of turnout

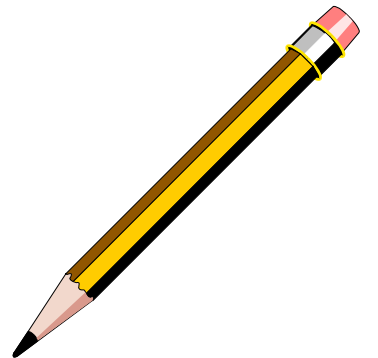
In an election, a failure to vote is an error

$$\text{Turnout} = \frac{\text{Number of votes counted}}{\text{Number of people who}}$$

1. Send in postal votes or go in person
2. Are on the electoral roll
3. Are in the voting-eligible population

In the error rate, what do we divide by?

- Any thoughts?



Agenda

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~~Try using “Five ways to think about errors”~~

Compare experiences with the data quality framework

Think about what we might do differently

Previous takeaway

There are many ways in which
the data we collect isn't
entirely accurate

Reframed

There are many ways in which
the data we use isn't
entirely accurate

Data quality can deteriorate or change all by itself

People change

- Move house
- Change jobs
- Lose their phones
- And many others

Organisations change

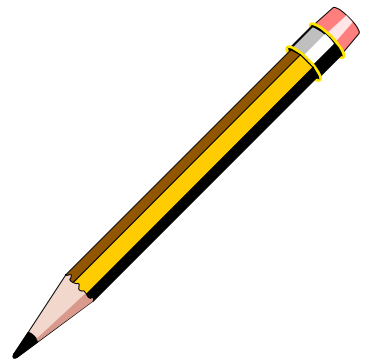
- Add a new product
- Delete an old one
- Are affected by energy costs
- And many others



Photo by [Michal Balog](#) on [Unsplash](#)

What is the longer-term life of our data?

Are there data quality issues that might arise over time?



There is a Government Data Quality Framework

Guidance

The Government Data Quality Framework

Published 3 December 2020

Contents

Foreword

Acknowledgments

Why do we need a data quality framework?

The strategic context

How to use the data



Our thoughts on Data Quality Framework

If you wish to, have a look at the Data Quality Framework
Compare your experiences (if any) with the Data Quality
Framework on your table

<https://bit.ly/UKGOVDQ>

7 minutes



Takeaway

Data quality is important but not easy

Agenda

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Think about what we might do differently

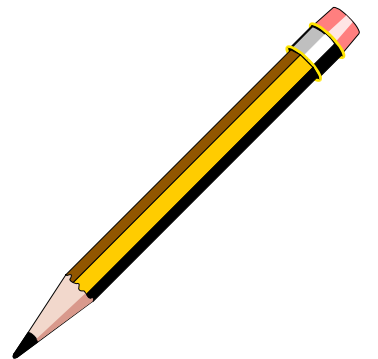
Reflect on what we've shared

Current practice what best practice, tip, or next steps suggestion would you most like to share?

Next step is there anything that you now plan to find out or to do differently?

Something else do you have any other observations or thoughts you'd like to share with the workshop?

We'll use 1-2-Many over the next 10 minutes



Takeaway

AI may help to start useful conversations about error rates and data quality

I'm starting to collect some resources

General advice on measurement

Steve Messer [Metrics, measures and indicators: a few things to bear in mind](#)

Official / government guidance

ONS [Quality in official statistics - Office for National Statistics](#)

Headline stories

The Guardian [Windrush victims could have compensation reconsidered](#)

Disability News [DWP helped cause mental distress of claimant who took her own life](#)

Academic research

The King's Fund [Lost In The System: The Need For Better NHS Admin](#)

Keep up the conversation: Caroline Jarrett

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