Office for Statistics Regulation

State of the Statistical System 2022/23

28 June 2023

Executive Summary

This report, the fourth in our annual series, draws together the findings from our regulatory work in financial year 2022/23 to provide our view on the state of the UK's statistical system. We explore our findings under four overarching themes and set out what we want to see from the statistical system going forward, and what are we doing to support this.

The statistical system is continuing to innovate and respond to emerging issues; however, this pace is difficult to maintain given the current pressures on resources and funding

- The statistics and data landscape is becoming increasingly complex, with greater amounts of data being made available by government departments.
- There continues to be a significant shift in government and public demand for statistics and data from COVID-19 to other key issues. The statistical system has demonstrated its responsiveness to meet these data needs. We are seeing good examples of innovation and collaboration across the system, but this is not consistent.
- Against a backdrop of financial, resourcing and capability pressures, the statistical system is facing continued challenges to keep pace with the demand for statistics and data. We caution that this pace is likely not sustainable with current resources and funding, especially if additional priorities emerge.
- Increased collaboration across the UK statistical system can make the most efficient use of data and people in a joined-up way and share learning across the system on improving efficiency.
- The increasing availability of data and the growing use of artificial intelligence should be seen as an opportunity for the statistical system.
- A successful statistical system depends on having a workforce that is sufficiently resourced and skilled.
- The role of a statistician is evolving and needs to keep pace with the increasing use of data science techniques. Statistics producers need to keep pace with these skill changes.

Developments should not come at a cost to the quality of statistics and data

- With the use of new and innovative data sources in the production of official statistics, producers need to manage risks around quality.
- Statistics producers are facing increasing challenges when using data collected from social surveys. Declining response rates are a concern across the statistical system.
- Transformation programmes are underway to improve statistical quality. It is important that any risks during transition to new methods are well understood and mitigated against.

- The user demand for statistics that are comparable across the UK has continued. With policy measures and targets differing across the UK nations, it is inherently challenging for data and statistics to be directly comparable.

- The Office for National Statistics (ONS) is a key body in the statistical system for delivering initiatives across the UK. It is important that, in this leadership role, ONS ensures it consistently engages with the devolved administrations and any other relevant government departments. This is particularly important where the ONS is leading on transforming statistics on topic areas which have a UK wide importance.

Statistics producers must prioritise user engagement to allow them to identify areas of high importance and understand the impact of changes

- We are seeing good examples of user engagement across the statistical system, but this is not consistent and engagement with a wider breadth of users of statistics is still too limited.

- Producers should be more transparent about how users can make direct contact, and find out about any planned developments or changes.

- Engagement with users can help producers to better understand the value of their statistics and whether they can reduce or stop production to help them meet new and emerging needs. This is increasingly important given the current pressures on funding and resourcing.

- Statistics producers should ensure that their statistics serve the public good, by having a clear understanding of the drivers behind priorities – ensuring they are balancing the needs of government with those of wider users, especially when these are not fully aligned.

Statistics should be made available and communicated effectively to support understanding and appropriate use

- The statistical system is demonstrating a greater understanding of the need for intelligent transparency, namely the importance of taking an open, clear and accessible approach to the release and use of data, statistics and wider analysis.

- More work needs to be done to raise awareness of these principles beyond the statistical profession – everyone working in government and in public bodies has a role in ensuring that the principles of intelligent transparency are fully embedded.

- Producers should continue to explore the most effective ways to communicate statistics to support understanding and appropriate use.

- There is a growing need for producers to communicate statistics beyond the traditional statistical bulletin. Government departments and producers are increasingly engaging with users via other methods such as podcasts, blogs and social media.

- It can be difficult for statisticians to influence how statistics are used once they have been published, with social media a factor in some cases. Statisticians

should rise to this challenge by engaging widely with people who use statistics, including media outlets, ensuring users have a clear understanding of the statistics, to minimise the risk of potential misuse.

Introduction

This report sets out what we see as the most important issues for the statistical system in the UK. We explore where the statistical system is succeeding and what we, as the UK's statistics regulator, statistics producers and other key players in the statistical system should be considering to address the current challenges.

This report draws together the findings from our regulatory work in financial year 2022/23 and what statistics producers and other stakeholders have told us their key issues are.

Each section of the report looks at a **key issue** in detail.

- **The statistical system is continuing to innovate and respond to emerging issues; however, this pace is difficult to maintain given the current pressures on resources and funding**
- **Developments should not come at a cost to the quality of statistics and data**
- **Statistics producers must prioritise user engagement to identify areas of high importance and understand the impact of changes**
- **Statistics should be made available and communicated effectively to support understanding and appropriate use**

What is the UK statistical system?

The statistical system in the UK system is underpinned by the Statistics and Registration Service Act 2007. This established the UK Statistics Authority, an independent body at arm's length from government, and specified specific roles and requirements that make the system what it is today.

Official statistics are produced by a wide range of public sector bodies, including government departments, the devolved administrations, arm's length bodies and the Office for National Statistics (ONS). In this report we refer to such bodies as 'producers'.

Our standalone guide, The Office for Statistics Regulation's Guide to the UK Statistical System, provides an accessible overview for readers who wish to know more about the statistical system in the UK.

The system is continuing to innovate and respond to emerging issues; however this pace is difficult to maintain given the current pressures on resources and funding

Our view

- There continues to be a significant shift in government and public demand for statistics and data from COVID-19 to other key issues, such as the war in Ukraine and the rising cost of living.

- The statistics and data landscape is becoming increasingly complex, with greater amounts of data being made available by government departments. The statistical system has demonstrated its responsiveness to meet many of these data needs in new and innovative ways.

- In a wider landscape of technological advances, statistics need to remain relevant, accurate and reliable. Producers are continuing to innovate and are looking to new data sources such as administrative data to support them in this.

- We are seeing good examples of innovation, efficiency and collaboration across the statistical system, but this is not consistent.

- Against a backdrop of financial, resourcing and capability pressures, the statistical system is facing continued challenges to keep pace with the demand for statistics and data. The direct impact on the statistical system of these pressures is currently unknown. We caution that this pace is likely not sustainable with current resources and funding, especially if additional priorities emerge.

The system has continued to respond to emerging data needs

The production of COVID-19 statistics has continued to reduce throughout the past year. The COVID-19 Infection Survey, first published in May 2020 by the ONS, transitioned from the use of in-person data collection, to a digital questionnaire and postal kits in June 2022, and was paused in 31 March 2023. In May 2023, ONS launched a new UK-wide interim survey to monitor COVID-19 and other respiratory infections. In addition, we have seen management information first published during the pandemic being halted or reduced in frequency, such as the domestic transport use by mode statistics produced by the Department for Transport which moved from a weekly to a monthly publication in December 2022, and the COVID-19 statistics dashboard for Northern Ireland which was stopped in May 2022.

Since Russia's invasion of Ukraine in February 2022, the statistical system has continued to respond to the need for statistics on the social and economic impact in the UK. Examples of statistics published to meet new user needs include the number of visa holders entering the UK under the Ukraine humanitarian schemes, experiences of Homes for Ukraine scheme sponsors, and school placements for children from outside of the UK.

The rising cost of living is a continued area of focus for governments and the wider public. In April 2022, the Royal Statistical Society (RSS) wrote to the National Statistician Sir Ian Diamond setting out the need for inflation measures to "capture the

true costs for all households". The ONS has developed experimental measures of inflation using new data sources, including scanner and web-scraped data, to better reflect the lived experience of households. In addition, the ONS has released new analysis on the impact of the rising cost of living, including the introduction of the Cost of Living latest insights tool and analysis on the rising costs of everyday food.

New data sources and technology continue to be used in production

The statistical landscape is becoming increasingly complex with a greater amount of data being made available by government departments, including alternative sources such as management information being more commonly available.

In a wider landscape of technological advances, statistics need to remain relevant, accurate and reliable. Over the last year, producers are continuing to innovate and improve statistics and looking to new data sources to support them in this.

Administrative data are increasingly being used as a data source for statistics and are helping to provide new insights and improve the quality of statistics. An example of this is the Department for Work and Pensions who are exploring the integration of administrative data into the Family Resources Survey (FRS) and related outputs through its FRS Administrative Data Transformation Project.

Statistical methods are becoming increasingly complex, with more use of data science and statistical models in the production of official statistics. As highlighted in our Guidance for Models, it is crucial that producers ensure that any development of models is explainable, and interpretable to meet the transparency requirements of the Code of Practice for Statistics (the Code).

An example of the use of statistical modelling is ONS's development of a dynamic population model (DPM) to transform its population statistics. The DPM uses statistical modelling techniques to combine a range of administrative and survey data sources to estimate the population and population change. The aim of the DPM is to produce more timely, coherent, and higher quality population estimates than the current mid-year estimation approach. To date ONS has published provisional estimates for England and Wales at local authority level. To support public confidence and trust in the provisional estimates, ONS is publishing technical papers as it develops the model. The transformation of population statistics is a priority area for the Office for Statistics Regulation (OSR), and we will continue to monitor the development of the DPM and carry out appropriate regulatory work in this area this year.

The increasing use of new and alternative data sources and advances in technology are opportunities for the statistical system to embrace. Advancement and use of technology currently varies across the system. The role of a statistician is evolving and needs to keep pace with the increasing use of data science techniques. There are increasingly skills overlaps with the role of a data scientists, and producers need to keep pace with these skill changes.

Improving efficiency and use of automation in the way statistics are produced are continued areas of focus across the system

There is increasing awareness and implementation of Reproducible Analytical Pipeline (RAP) principles. These encourage greater automation of end-to-end processes and support the efficient and sustainable production of statistics and the highest standards

of the Code of Practice. Removing manual elements of statistical production enables producers to free up considerable resources, as well as enhance the quality of data processing and reduce the risk of human error.

We continue to advocate for RAP principles to be the default in statistical production. We recognise that embedding RAP principles within an organisation or government department requires access to the right tools and training and statisticians having the time and support to carry out development work.

The Government Analysis Function Reproducible Analytical Pipeline (RAP) strategy, outlines the ambition across government to improve efficiency, use digital technology, increase trust and improve business continuity. Some government departments have published plans setting out their commitment to produce better quality and more efficient outputs through the adoption of RAP principles, with varying degrees of maturity across different organisations. For example, the quarterly Welsh language statistics from the Annual Population Survey are now produced using RAP which has introduced a well-defined QA process, clearer methodology and removed unnecessary steps. This has reduced the time taken to complete the process from three to four days to one hour. Social Security Scotland are also seeking ways to implement RAP, and as a first step has automated the production of statistical tables, saving time and reducing the risk of any manual errors.

Producers should continue to seek ways to maximise insight through collaboration

The UK statistical system continues to explore ways to use data to improve insight. This involves collaboration across government departments, but also with organisations outside of government such as the RSS, Research Data Scotland, Administrative Data Research UK (ADR UK), private companies, and academics. These partnerships are a beneficial way to maximise the availability of resources as well as make use of expert knowledge.

There have been significant improvements in data sharing and linkage over the past year, enabling outputs such as the ONS's statistics on sociodemographic inequalities in suicides which show estimates for rates of suicide across different demographic groups for the first time. In addition, there are strong examples of collaboration with external organisations including the ONS's publication of UK spending on credit and debit cards, the independent Ulster University Economic Policy Centre in Northern Ireland which is partially funded by the Department for the Economy and the Department of Finance, and the Ministry of Justice (MoJ) Data First programme which is funded by ADR UK. MoJ published its areas of research interest in 2020 providing a summary of departmental evidence priorities over a three-to-five-year period to strengthen and maximise collaboration with academic experts and research funders. Proactive engagement meant that MoJ was able to create research partnerships and secure funding to extend its data-linking project, DataFirst.

However, data sharing and linkage are still not embedded consistently across government. There are many areas that would benefit, for example energy support policies, which have been highlighted by the Institute for Government. We understand that significant barriers still remain for data sharing and linkage including prioritisation by leaders, skills and retention, data protection issues, and legal processes. Our upcoming Data Sharing and Linkage report, due to be published in July, will explore these issues in more detail. While the benefits of data sharing and linkage may seem

relatively small from an individual department perspective, the benefits for the system as a whole are wide reaching.

There are continued pressures on resources and funding across much of the statistical system

A number of producers told us that they are facing continued challenges with resourcing. We heard about the challenges of high vacancy rates, often as a result of recruitment freezes and falling retention rates. We also heard of the difficulties of getting the right skilled people in post, especially as technology evolves and statisticians are required to have more technical skills. It is important to note that these challenges are not being consistently felt across the whole UK statistical system.

The Autumn Statement of 2022 confirmed that UK government departments need to maintain committed budgets for the remaining two years of the Spending Review. With rising costs, it is likely that funding pressures will continue in the year ahead and the statistical system in the UK therefore needs to be efficient.

The ONS is the national statistics institute and much of the Government Statistical System (GSS) support sits within the organisation. We heard mixed views from statistics producers about the role of the GSS now that the profession is part of the broader Government Analysis Function.

Some producers felt that it was a positive development that some of the central support, previously provided exclusively to the GSS by ONS, has now been expanded under the Analysis Function to support data and analysis professionals more widely. An example shared with us is the GSS Quality Centre which has been replaced by the Data Quality Hub, which provides guidance and support on data more broadly than statistics. The Analysis Function told us that the broadening of some of these support mechanisms is intended to improve statistical quality across professions and ensure a holistic offer to all analysts. We also heard opposing views which voiced concern about the potential devaluing of the GSS, and hence the specialised skills of statisticians, and more general negative impacts arising from the loss of the GSS website brand. Some of these views reflected that, as many of these changes are relatively new, the impact is not yet widely understood.

Why is this important and what is the impact?

- The increasing availability of data and the growing use of artificial intelligence should be seen as an opportunity for the statistical system. The role of statisticians and the value of official statistics outputs needs to keep pace in the landscape of new artificial intelligence tools such as ChatGPT and other large language models.

- Statistical methods are becoming increasingly complex, with more use of data science and statistical models in the production of official statistics. To maintain public trust and confidence, producers must be transparent as they develop new methods.

- The innovative approaches are inconsistent across government departments. Greater collaboration across government and between government and external organisations will support consistency.

- There is a concerning risk that continued financial and resource pressures will hinder future progress and evolution of the system to keep pace with increasing demand. A successful statistical system depends on having a workforce that is sufficiently resourced and skilled to deliver.

- Producers are pointing to the need for more prioritisation and redeployment of people in the immediate term, in addition to trialling a greater use of apprenticeships and analysts who are not aligned to a specific profession. While these are good short-term solutions, the difficulties around recruitment and retention, which have been building for a number of years, will likely have considerable knock-on effects in the years to come if they cannot be addressed in a systematic way across government.

What do we want to see from the statistical system and what are we doing to support this?

- Our guidance for models, which builds on our 2020 review of the statistical models developed for awarding grades, can help producers in the design, development and use of models. It also highlights the importance of establishing public confidence and trust in the development of new methods and models.

- The role of a statistician is evolving with more use of complex methodologies and data science techniques. Statistics producers need to keep pace with these skill changes. It is important that statisticians are supported in their roles and in professional development. The GSS and the Government Analysis Function have an important role in this.

- The direct impact on the statistical system of resourcing and funding pressures is currently unknown. We have not been able to fully quantify and validate the challenges we heard about. As an example, staffing data are not publicly available for the whole UK statistical system, as highlighted in our Statistical Leadership report in 2021, this is a data gap. It is important to collect and share this information so that the scale of the challenges can be assessed and effectively resolved.

- In the short term, government departments should be exploring alternative recruitment options such as apprenticeships. In the long term, the system must find ways to train and retain high quality staff. We are exploring how, as a regulator, we can assist producers who are facing resource pressures and we set out some initial views on this in our November 2022 blog. We are currently working on additional guidance to help producers prioritise and make these decisions.

- We encourage increased collaboration across the UK statistical system to make the most efficient use of data and people in a joined-up way and to share learning across the system on improving efficiency.

- Producers should look to make more use of cross-government capability by offering more opportunities for statisticians to apply for loans, secondments or joint project work.

Developments should not come at a cost to the quality of statistics and data

Our view

- It is encouraging to see the widening use of new and innovative data collections in statistical production, but it is important that these developments do not negatively affect the quality of statistics.
- Producers are facing increasing challenges when using data collected from social surveys. Declining response rates are a concern across the statistical system.
- Transformation programmes are underway to improve statistical quality. It is important that any risks during transition to new methods are well understood and mitigated against.
- Changes in statistical production can invite new or unknown risks around quality. The opportunities from increasing the use of administrative data must consider any associated quality risk. We continue to monitor and highlight the risks when quality information is not well communicated.
- The user demand for UK comparable statistics continues. With differing government targets, policy measures and policies across the UK it is inherently challenging for data and statistics to be directly comparable.
- The ONS is a key body in the statistical system for delivering initiatives across the UK. It is important that, in this leadership role, ONS ensures it consistently engages with the devolved governments and any other relevant government departments. This is particularly important where the ONS is leading on transforming statistics on topic areas which have a UK wide importance, such as the future of the England and Wales Census.

With the use of new and innovative data sources in the production of official statistics, producers need to manage risks around quality

The introduction of new data sources can have both positive and negative impacts on statistical quality and producers need to manage and mitigate any associated risks.

The transformation of UK economic statistics is an example of where a producer has managed quality risks in its efforts to improve the statistics. As part of its continued ambition to improve UK consumer price statistics, ONS has introduced new data sources to improve its measurement of prices and is developing experimental measures of inflation to reflect the lived experience of households using scanner and web-scraped data.

As of March 2023, rail fare transaction data for Great Britain is now included in the Consumer Prices Index, with plans to incorporate new data and methods on second-hand car indices in spring 2024, though these were also originally planned for spring 2023. For second-hand cars, the data and methods are more complex. When incorporating new data sources, there is a need to carefully assess the accuracy and credibility of the information they provide. Given the high-profile nature of the

consumer price statistics, and the need to have full confidence in the systems and quality assurance of data being incorporated into them, the team took the decision to delay inclusion of the second-hand cars data.

Different data structures, definitions and formats can create challenges and lead to errors in statistical outputs. In 2022, the implementation of updated Standard Occupational Classification (SOC) from SOC10 to SOC20 led to an error in some occupational data derived from ONS surveys. Subsequent analysis identified the scale and impact of the error and led to a large-scale re-coding exercise of affected data.

Sufficient data infrastructure, processes and systems are needed to support successful delivery of statistics across the UK. There is a diverse landscape of bespoke systems used in statistical production, ranging from modern to traditional legacy systems. Legacy systems (outdated software which is still in use) are often unequipped to deal with new sources of data and can be a contributing factor in statistical errors.

There are increasing challenges when using data collected from surveys, with more reliance being placed on statistical methods

Producers are facing increasing challenges when using data collected from surveys. Declining response rates, sample biases, and data privacy concerns can have a significant impact on the quality of statistics, with increased reliance on statistical methods to ensure accurate and reliable insights. In addition, we are seeing a shift in approach to gathering social survey data, with face-to-face interviewing being increasingly replaced by digital collection methods. Recent examples include the ONS Labour Force Survey, the Natural England People and Nature Survey for England and the ONS COVID-19 Infection Survey.

Response rates, especially to social surveys, are falling. We have explored some of the issues around this in our public good research. We heard that an important factor is people not understanding why providing information is important. Low response rates can cause more variability and increased reliance on weighting methods to improve the accuracy of survey estimates. Low response rates in face-to-face interviews, and the resulting impact on quality, was a factor in ONS requesting the temporary suspension of National Statistics status for the estimates from the Crime Survey for England and Wales.

There are a number of projects underway to respond to this challenge and improve the quality of data derived from social surveys. In some cases, transformation projects are underway (for example, the Labour Force Survey and household financial statistics) to improve statistical quality. It is important to manage and mitigate any risks during any transition.

We continue to highlight the risks where the quality of administrative data sources is not well explained

Administrative data are, by definition, data that are primarily collected for administrative or operational purposes. The use of such data in the production of official statistics can lead to challenges such as a lack of data completeness, variation in definitions, validity, accuracy and consistency.

In our regulatory work we continue to highlight the fundamental need for producers to understand any quality issues in administrative data and publish quality information. Strengths and limitations of the statistics and data should be clearly explained to support appropriate use and mitigate against the risk of misuse. As an example, in January, our assessment of Scottish prison population statistics, asked the Scottish Government to publish more-detailed information about its quality assurance approach.

The Northern Ireland Statistics and Research Agency (NISRA) carry out an annual quality audit providing an overview of quality management and performance against the NISRA Business Plan quality target, and includes an indicator around Quality Assurance of Administrative Data (QAAD) documentation. This organisation-wide focus is helping to identify where improvements can be made, and efforts should be targeted.

There is a continued demand for data and statistics that are comparable across the UK

The user demand for UK comparable statistics has continued over the past year. With differing government targets, policy measures and policies across the UK, it is inherently challenging for data and statistics to be directly comparable. As an example, for devolved matters such as health or education statistics are tailored to the needs of the individual nation, meaning that the same concept could be defined and measured in four different ways.

The 2021 Censuses of England and Wales, and Northern Ireland and Scotland's Census 2022 are an example of the complexity of producing UK comparable statistics. The Census offices (National Records of Scotland, ONS and NISRA) agreed the conduct of the censuses in the UK, which included aspects where the Censuses would aim to achieve harmonisation.

Each office developed and implemented its own Census plans and made decisions about live census operations. In England, Wales and Northern Ireland the census was undertaken in 2021 which was during the COVID-19 pandemic. In Scotland, the Census collection was moved to 2022 at which point pandemic restrictions had been lifted. There were also differences in some of the questions asked in the censuses depending on the data needs of the respective country. For example, the Censuses for Scotland, England and Wales, asked voluntary questions about gender identity or trans status, whereas Northern Ireland did not. And there were differences between Scotland and England and Wales in how these questions were asked. The censuses highlight the complexities of producing comparable data across the UK.

Whilst it is not always possible to produce comparable statistics due to differing policies and services, these series can be very beneficial to users of statistics. As highlighted in our Lessons learned for health and social statistics from the COVID-19 pandemic: 2022 update, users of health and social care statistics have a strong interest in comparable UK-wide data. We have endorsed the approach taken by the Scottish Ambulance Service (SAS) in developing new operational statistics on unscheduled care in response to high public interest on the topic, particularly on the issue of ambulance response times. To help with the comparability of data across the UK, SAS is due to make changes to its methodology for response times to bring it in line with methods used across the rest of the UK.

The ONS is a key body in the statistical system for delivering initiatives across the UK. It is important that, in this leadership role, ONS ensures it consistently engages with the devolved administrations and any other relevant government departments. This is particularly important where the ONS is leading on transforming statistics on topic areas which have a UK wide importance, such as the future of the England and Wales Census.

It is important to note that the GSS has a statistical coherence work programme. Examples of recent work on improving coherence include the creation of the Health Statistics Leadership Forum, the prototype UK Climate Change Statistics Portal, and fuel poverty, with a recent article published by the GSS coherence team outlining the similarities and differences in the way fuel poverty is measured across the UK.

Why is this important and what is the impact?

- Statistics need to be accurate, robust and reliable. Quality relies on having data and methods that produce assured statistics, and are not materially misleading. It is important that in the use of new and innovative data collection methods, producers understand if and where potential errors may occur and mitigate against those risks.

- Any data limitations need to be explained so that any risk of misuse or misinterpretation is minimised. Publishing quality information helps to support that understanding.

- Confidence in official statistics may be undermined if there are concerns around quality that are not sufficiently actioned.

- There is continued demand for UK comparable statistics and to serve the public good, statistics should aim to meet these needs. Where comparability is not feasible, due to differing measures, it is important to signpost users to available data sources.

What do we want to see from the statistical system and what are we doing to support this?

- Statistics producers need to understand the quality of their statistics. Producers should embed a strong 'quality-assurance' approach to manage risks around quality. The Government Data Quality Hub, also known as DQHub, can help to support this, providing strategic direction across government, producing guidance and delivering training and support to share best practice in data quality. Our recent paper 'Quality and statistics: an OSR perspective' also explores this topic in more detail.

- Our guidance on the Quality Assurance of Administrative Data (QAAD) recognises the increasing role that administrative data has in the production of official statistics and clarifies our expectations for what producers should do to assure themselves and users of the quality of these data.

- Producers should use resources/guidance such as the Administrative Data Quality Framework (ADQF) developed by the ONS Methods and Quality

Directorate, to routinely assess the quality of administrative data for use in the production of official statistics.

- We are undertaking a programme Assuring Confidence in Economic Statistics. This comprises a quality-focused programme of assessments using a new quality assessment framework which combines principles from the Code of Practice for Statistics and elements from international statistical Quality Assessment Frameworks. This programme provides assurance to key stakeholders, and the wider public, on the quality and independence of economic statistics in the UK.

- In cases where it is not feasible to produce UK comparable outputs, producers should ensure that they are still supporting users by signposting to other related statistics and clearly explaining what is and is not comparable across the UK as well as differences between the methodologies.

Producers must prioritise user engagement to identify areas of high importance and understand the impact of changes

Our view

- We are seeing good examples of user engagement across the statistical system, but this is not consistent and engagement with a wider breadth of users of statistics is still too limited.

- Engagement with users can help producers to better understand the value of their statistics and whether they can reduce or stop production to help them meet new and emerging needs. This is increasingly important given the current pressures on funding and resourcing. Without this information, producers will not be able to effectively allocate resources across their statistical outputs.

- Statistics producers need to take more active steps to seek the views and understand the needs of their full range of users. Producers should be more transparent about how users can make direct contact, and about any planned developments or changes.

- Producers should ensure that their statistics serve the public good, by having a clear understanding of the drivers behind priorities – ensuring they are balancing the needs of government with those of wider users, especially when these are not fully aligned.

There is a need for producers to widen their engagement beyond key users

Statistics are produced so that they can be used to make important and impactful decisions. It is therefore vital that producers have a strong understanding about the needs of their users and the questions that they are trying to answer. Without this information, producers are not able to ensure that the statistics remain relevant and useful.

Most producers have strong relationships with their key users, especially when these users are within government. However, our regulatory work has shown that many producers still have limited engagement with wider users including academics and the public. In addition, we have heard that users often struggle to contact producers directly, as contact details are not consistently made available.

We understand that there are often many barriers to in-depth user engagement. These include identifying users and having the resources and funding to develop and carry out different engagement approaches. In addition, it can be difficult to balance the needs of internal users, such as ministers, with the needs of users outside of government. An example of good user engagement, as highlighted in our 'Lessons learned for health and social care statistics from the COVID-19 pandemic: 2022 update', is the ONS COVID-19 Infection Survey strategic development hub. The hub was set up to better understand who was using the statistics and how to meet their needs. This allowed ONS to publish outputs targeted at different audiences.

As the statistical system continues to adapt to new technologies as well as pressures on funding and resources, it is important that efforts are concentrated on the most important areas. Producers should ensure that their statistics serve the public good by having a clear understanding of the drivers behind priorities – ensuring they are balancing the needs of government with those of wider users, especially when these are not fully aligned.

Producers should be engaging with their users to determine which statistics could be discontinued or produced less frequently. Working with users to identify these outputs will enable producers to free up additional resources so that greater value can be added in areas of high priority. We have seen several instances over the last year of producers reviewing statistical outputs with users to help inform decisions about pausing or stopping publications. For example, The Office for Standards in Education, Children's Services and Skills (Ofsted) conducted a review of its statistical publications in early 2022 and, based on the feedback received, sought to increase the use of data commentaries (alongside management information releases) and slightly reduced the frequency of some official statistics where data was available as management information. Ofsted also replaced its dataview product with a Five-Year Inspection data tool and implemented changes around accessibility.

It is also important that producers are regularly sharing transparent and detailed information on current and upcoming developments for their statistical outputs. This approach ensures that users are fully informed of any potential changes to the statistics and are able to actively contribute to the decision-making process. We have seen several examples of this from across government over the last year including the Department for Work and Pension's statistical work programme and updates from the ONS on development plans for funded occupational pension schemes in the UK and the cost of living. However, this approach is not consistent across government which means that some users are still being excluded from important conversations.

Why is this important and what is the impact?

- If producers do not engage with a wide range of users, then there is a risk that their statistics will not remain relevant and fit for purpose.

- Without effective user engagement, producers will not be able to identify high-priority areas as well as outputs that could potentially be stopped or reduced.

Without this information, producers will not be able to effectively allocate resources across their statistical outputs.

- Producers must share information publicly about their development plans so that users are made aware of any changes and are able to contribute to them. Without this, producers are at risk of making changes to the statistics that negatively impact their use.

What do we want to see from the statistical system and what are we doing to support this?

- User engagement should be embraced and never undertaken as a tokenistic exercise. Producers should be regularly engaging beyond their key users to gather views and feedback which then form part of their decision-making processes. There are several resources available to support user engagement including our regulatory guidance and the Analysis Function user engagement guidance.

- In our regulatory work we hear from users that not knowing how and who to engage with can be a significant frustration and barrier. Producers should actively encourage users to engage with them directly. This can be done through simple steps such as having clear contact information for pieces of work, responding to engagement requests promptly and developing a process whereby regular engagement is maintained. This will ensure that users of statistics can more easily find the 'right' person. Producers should be more transparent about how users can make direct contact, and about any planned developments or changes.

- Producers should be regularly reviewing their statistical outputs and taking steps to cease or reduce the production of outputs where needed. More guidance on this can be found in our November 2022 blog.

- Producers should look to share more public information on their current and upcoming development plans.

Statistics should be made available and communicated effectively to support understanding and appropriate use

Our view

- The statistical system is demonstrating a greater understanding of the need for intelligent transparency, namely the importance of taking an open, clear and accessible approach to the release and use of data, statistics and wider analysis. However, this is not consistent across government departments, and we are still seeing issues in this area.

- Communication of statistics remains important with an increase in the number of concerns that have been raised with us. It is important for producers to understand if statistics are being communicated poorly or whether the statistics have been communicated well, but are being used incorrectly.

- It can be difficult for statisticians to influence how statistics are used once they have been published, with social media a factor in some cases. Statisticians should rise to this challenge by engaging widely with people who use statistics, including media outlets, ensuring users have a clear understanding of the statistics to minimise the risk of potential misuse.

- Many government departments are proactively looking at ways they can communicate their key messages beyond the traditional statistical bulletin. It is important that key methodological and contextual information is clearly provided regardless of how the statistics are presented.

- Statistical literacy should not be viewed as a deficit that needs to be fixed; instead, producers of statistics should focus on how best to publish and communicate statistics in a way that can be understood by audiences with varying skill levels and abilities.

More work is needed to fully embed the principles of intelligent transparency across government

Transparency is vital to support public confidence and maintain trust in statistics and those producing them. A lack of transparency can result in confusion about where numbers have come from or can lead to accusations of manipulating the data. Our principles of intelligent transparency are equality of access, understanding and leadership. While there is a greater understanding of the need for transparency, there is more work to do to fully embed the principles of intelligent transparency consistently across government, especially in relation to equality of access. We are still seeing concerns raised with us via our casework process in relation to Ministers and other government officials quoting unpublished figures in the public domain, most commonly when these figures are based on management information.

In June 2022, the Department for Work and Pensions posted a tweet and press release claiming that over half a million people had been helped into work by the Way to Work campaign, meeting its target. The 'half a million' figure was taken from an answered Parliamentary Question, using management information, which did not contain a clear explanation of how the Way to Work target was defined, how it would be measured, and the methods used to support claims that the target had been reached. In line with our expectations on the use of management information, we highlighted the need for more formal structured reporting to ensure equality of access, including appropriate explanations of context and sources to support public use such as in this case.

In November 2022, we wrote to the Home Office regarding the transparency of its statistics following concerns raised with us about the use of unpublished data and statistics by Ministers. These concerns were in reference to claims made about arriving on small boats, the number of asylum caseworkers and the number of adult male migrants claiming to be children. We urged the Home Office to review its ways of working to ensure that the transparent release and use of data and statistics became the default in future.

Where unpublished statistics are quoted in the public domain, this is often reported to be the result of poor communication between the statistical teams and other areas of the government department such as communications or the ministerial private office.

Statisticians have a key role to play in proactively supporting and championing intelligent transparency in their departments. We have heard of producers taking a variety of approaches to minimise the risk of unpublished statistics being quoted in the public domain, including embedding analytical teams within private offices, setting out agreements on the use of statistics with departmental communications team and providing training on the use of statistics to the wider government department.

Producers must ensure that they are communicating statistics effectively to support understanding and appropriate use

Whilst the production of high quality of statistics is important, the way statistics are communicated to users and the public more widely is key to supporting understanding and appropriate use. As with equality of access, communication of statistics is a common theme in our casework, and we have seen an increase in the number of concerns raised with us throughout the last year. These concerns have been spread across all of our domains, with the majority focused in our Economy, Health and Social Care, and Population and Society domains.

We regularly investigate concerns raised with us through casework and publicly intervene when appropriate. Our intention with any intervention is to deliver positive change, whether that is an improvement in the production or communication of official statistics, or a more responsible use of statistics in public debate. For example, in February 2023, we wrote to HM Treasury about its chart on inflation which we had judged to give a misleading impression of the scale of the deceleration. In this case, HM Treasury responded positively and promptly. Another example of our public interventions is a blog that we published in response to the poor design of a question in the weights and measures consultation from the Department for Business, Energy and Industrial Strategy.

It can be difficult for statisticians to influence how statistics are used once they have been published, with social media a factor in some cases. Statisticians should rise to this challenge by engaging widely with people who use statistics, including media outlets, ensuring a clear understanding of the statistics, to minimise the risk of potential misuse.

Producers primarily present statistics to external users through statistical bulletins. The quality of these publications varies across government departments and there is an increasing view that they are often too lengthy and wordy. The presentation and the usability of publications has a significant impact on the ability of users to easily draw reliable conclusions as well as the risk of misuse. Several statistical bulletins such as the ONS's Consumer Price Inflation release were highlighted to us as strong examples of clearly drawing out key messages. Producers are exploring alternative ways to communicate information away from the traditional statistical bulletin. For example, the Northern Ireland Department for Communities created the Northern Ireland Local Labour Market Insight dashboard to bring together labour market related indicators from different data sources in an interactive and visual way.

Increasingly government departments and producers are engaging with users via other methods such as podcasts, blogs and social media. For example the Office of Rail and Road produces The Rail and Road Pod and engages with the public through question and answer sessions on Twitter when statistics are released. The ONS also produces a monthly podcast called Statistically Speaking. Many producers have dedicated statistics Twitter accounts such as Welsh Government's Statistics for Wales

Twitter account. While there can be a reluctance from some government departments to provide greater public platforms to statisticians, we consider that these can be a key component to supporting appropriate use of statistics when done in an official capacity.

Another important aspect of communicating statistics is conveying the uncertainty around estimates. Communicating uncertainty is essential in improving the interpretation of the statistics and clarifying what the statistics can and cannot be used for. We have found that the communication of uncertainty is inconsistent across different types of statistical outputs, with statistical bulletins and methodological documents generally better than data tables, data dashboards, downloadable datasets and infographics.

When producers are exploring new ways to communicate statistics, they should ensure that key methodological and contextual information is clearly provided. Research from the Winton Centre and the Economic Statistics Centre of Excellence (ESCoE) found that communicating uncertainty does not reduce trust in the statistical estimates or the producer of the statistics. We recognise that communicating uncertainty is not always an easy task for producers and we plan to produce more guidance and support in addition to the resources and tools already available for producers.

In February 2023, we published research on the factors that are important for effective communication of statistics accompanied by a think piece on statistical literacy. We consider that statistical literacy should not be viewed as a deficit that needs to be fixed, but that producers of statistics should focus on how best to publish and communicate statistics in a way that can be understood by audiences with varying skill levels and abilities. ESCoE's ONS-funded research programme into the communication and value of economic statistics demonstrates how producers are investing in developing communication methods.

Why is this important and what is the impact?

- When a government body fails to comply with the principles of intelligent transparency, which include making data available, there is a double impact: it can undermine public confidence in both the statistics and the government department. In addition, a lack of transparency can increase the risk of misinterpretation of statistics and data.

- Statistics must be communicated clearly to all users including the public. If statistics are presented in an unclear way or if relevant contextual information, such as around uncertainty, is not provided then this will increase the risk that the statistics are misinterpreted and misused by others.

What do we want to see from the statistical system and what are we doing to support this?

- Everyone across government and in public bodies has a role in ensuring that the principles of intelligent transparency are fully embedded in their work.

- In September 2022 we published a blog and FAQs on intelligent transparency to complement our existing guidance. We recognise that more work needs to be

done to raise awareness of these principles beyond the statistical profession and this remains a high priority for us.

- Producers should continue to explore the most effective ways to communicate statistics to users. This includes the presentation of the statistics, for example through the use of bulletins or alternative methods, and the communication of complex concepts such as uncertainty and how they engage with intermediaries such as media outlets.

- Building on the foundations laid by the Data Science Campus to increase focus on data literacy across Government, initiatives such as the data literacy network and Data Masterclass for Senior Leaders will help to upskill and build capability across the public sector.

- We have published research on statistical literacy and our recommendations on how producers should focus on how best to publish and communicate statistics that can be understood by audiences with varying skill levels and abilities.

- Championing the effective communication of statistics to help support society's key information needs is a priority area for us this year. We are developing a wider programme of work focused on our role in supporting the communication of statistics and are keen to work with organisations and government departments who have an interest in this area.

Annex - Our approach

This is our fourth annual State of the Statistical System report. This report is strongly informed by our regulatory work across the previous financial year including evidence from our assessments, compliance checks, systemic reviews, and casework. We also collated insights from other OSR work such as analytical leadership, our external publications, and our Regulation Committee. This annex outlines some of key sources that we have used to produce this report, including OSR publications, and publications from other organisations.

The views of those across the statistical system as well as those who sit outside of it are an important source of information for this report. Through our regulatory work we engage with a wide range of producers and users on an on-going basis and these interactions provide valuable insights and examples that feed into our evidence gathering. Once we identified our key themes and findings, we discussed these with other government departments and organisations in order to supplement our research.

We would like to thank everyone for their contributions to this report and look forward to continuing our engagement, through our regulatory work, with a range of stakeholders in the coming year.

OSR publications

- 2021/22 State of the Statistical System report
- Annual review of UK Statistics Authority Casework 2021/22
- Approaches to presenting uncertainty in the statistical system
- Lessons learned for health and social care statistics from the COVID-19 pandemic: 2022 update
- Office for Statistics Regulation Annual Report 2021/22
- Statistical Literacy – it's all in the communication
- Statistical Literacy: Research
- A UK-wide public dialogue exploring what the public perceive as 'public good' use of data for research and statistics
- OSR correspondence

External sources

- RSS - The RSS outlines its plans on education and statistical literacy
- RSS - Statistics priorities for the UK in 2023
- RSS - Communicating mathematics for the public - event report
- RSS - Do we need more public statistics? An RSS roundtable
- RSS - RSS President writes to National Statistician on cost of living crisis
- 2022: The Institute for Government's Year in Review | Institute for Government
- Better use of data is needed for better energy support policies | Institute for Government
- Transforming for a digital future: 2022 to 2025 roadmap for digital and data - GOV.UK (www.gov.uk)
- Full Fact Report 2023 - Full Fact