**Harmonising Standard Questions, Classifications and Concepts at the ONS**

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**Abstract**

The Harmonisation Team at the ONS has been working on harmonising survey questions, concepts and definitions to ensure that the quality of official statistics meets user requirements and supports comparability both within the UK and internationally.

The UK principles reflect the principles of international standards, but where necessary these are adapted to reflect the UK context. This ensures that UK results can be shown in forms consistent with international standards for international comparability. The UK contributes to the formulation of new and updated international standards while continuing to ensure developments are consistent within the UK context.

The ONS’ harmonisation vision is that all inputs, processing and outputs for the Census and surveys and all data from administrative records will be harmonised, so that users can compare data from different sources with confidence and can merge and match data more easily.

The paper sets out what the ONS has achieved to date with harmonisation, including the development of a harmonised question library, and what remains to be done. It also outlines the benefits of harmonising and details the issues and challenges faced when attempting to harmonise.

1. **Introduction**

The Harmonisation Team at the ONS sits within the Research, Development and Infrastructure Division, alongside the Classifications Team, and in the same line management as the Quality Centre. Harmonisation is very much seen as a quality-related activity within the ONS[[[1]](#footnote-1)].

The team have been defining harmonised questions since 2006 and have developed a harmonisation strategy to pull together the various activities which are covered in this paper. Much of this work on harmonisation relates to gaining stakeholder buy-in, and a vision has been developed to guide the work.

1. **ONS Quality Goals and Harmonisation**

The ONS has three quality goals[[2]](#footnote-2):

*2.1 To use Quality Management to encourage and promote a culture of continuous improvement through self-assessment and quality reviews*

The Harmonisation Team has contributed to this goal by providing input to the mandatory self-assessment tool for all output areas.

*2.2 To produce relevant outputs with up-to-date metadata*

Harmonisation contributes to making outputs relevant by harmonising the inputs and classifications so that data from different sources can be compared more easily. Aspects of metadata are contained in the Variable and Question Bank[[[3]](#footnote-3)] developed by the Harmonisation Team in partnership with the UK Data Service (see section 10). The team has also proposed questions on conformance to harmonisation to be included in the Quality and Methodology Information (QMI) Report which accompanies all regular ONS outputs[[[4]](#footnote-4)].

2.*3 To produce standardised outputs*

Harmonisation contributes to this goal by consulting on and agreeing harmonised questions, definitions and classifications for use in UK statistics.

1. **The Harmonisation Vision**

All inputs, processing and outputs for the Census and surveys and all data from administrative records will be harmonised, so that users can compare data from different sources with confidence and can merge and match data more easily, taking account of international implications.

The goal of the harmonisation strategy is that all users of official statistics should seek to use harmonised questions, concepts, definitions and outputs when designing and implementing surveys. User needs are met by engaging effectively with the users of official statistics and highlighting the benefits of harmonisation to promote trust in official statistics and to maximise the value for the public. There is also a role for harmonisation in ensuring that the quality of official statistics meets user requirements and supports comparability both within the UK and internationally by adopting harmonised principles. The UK principles reflect the principles of any international standards, but where necessary these are adapted to reflect the UK context. This ensures that UK results can be shown in forms consistent with international standards to further the cause of international comparability. Additionally, the UK contributes to the formulation of new and updated international standards while continuing to ensure developments are consistent within the UK context.

1. **The Harmonisation Strategy**

The harmonisation strategy covers five key areas which will help to deliver the harmonisation vision; the role of harmonisation, the work priorities, the communication strategy, stakeholder engagement and research projects.

*4.1 Role of Harmonisation*

Formally the steer that has been given for the approach to harmonisation is to ‘encourage’ rather than ‘enforce’ it. This has led to a disparity between output areas which have engaged with and adopted harmonisation, and those that have failedto do so. The effectiveness of this approach is under review and the proposal is to change to an approach of ‘harmonisation by default’ although it will be some time before this can be achieved. It is also under review to make compliance with harmonisation a requirement of the UK Statistics Authority assessment process[[[5]](#footnote-5)].

There are a number of conflicting priorities within the ONS and across the UK Government Statistical Service (GSS). Senior management and other stakeholders need to be educated and persuaded about the role and benefits of harmonisation as it is not always at the top of their agenda. The reporting structure, membership level and roles of the groups that the governing body for harmonisation, the National Statistics Harmonisation Group (NSHG), reports into are also being reviewed to ensure that the harmonisation strategy receives the correct level of support.

Although harmonisation is not the same as standardisation (see section 8), the team is contributing to standardisation initiatives such as the ESSnet project on Standardisation[[[6]](#footnote-6)].

*4.2 Work Priorities*

Our work priorities are as follows:

* Harmonising business data and administrative data (high)
* Communicating and engaging with stakeholders (high)
* Harmonising social data (medium)

*4.3 Communication Strategy*

There remains a lack of awareness in some output areas within the ONS of the purpose and benefits of harmonisation. The strategy aims to target and engage with those output areas that are not yet harmonised to explain the benefits of harmonisation, the issues caused by non-harmonisation, and how the Harmonisation Team can help them to harmonise. This will be achieved through a targeted communication plan and with case studies. Visibility of the Harmonisation Team within the ONS and across the GSS will be increased to promote the harmonisation vision and the long-term benefits. This will be achieved by taking advantage of opportunities to meet with and present to stakeholders. The team will also hold regular workshops with new and existing stakeholders, review and improve written publicity material, and explore new ways of communicating with stakeholders.

*4.4 Stakeholder Engagement*

There are many stakeholders, some more engaged with harmonisation than others. A detailed stakeholder analysis is being undertaken to identify stakeholders of harmonisation, what their priority is in relation to the work plan and how well they have been engaged with so far. The membership of groups such as the NSHG and the topic groups (see section 9) will also be reviewed to ensure the right people are involved at the right time. A closer relationship will be developed with the ONS Social Survey Division (SSD), a key stakeholder, to learn from them how well harmonisation has worked.

*4.5 Research Projects*

The team will work with the UK Administrative Data Research Network (ADRN)[[[7]](#footnote-7)] to gain access to data needed to carry out empirical research to demonstrate how data quality improves as a result of harmonisation. Case studies will be developed to show examples of where output areas have successfully harmonised, highlighting the benefits and issues encountered. Further research will be undertaken to compare similar questions across different surveys to identify duplicate non-harmonised definitions, and those surveys which are not adopting harmonisation can be targeted directly.

1. **Harmonisation Planning and Process**

(a) Planning Stage (b) Process Stage

The flow diagrams above illustrate (a) the planning of new and revised harmonisation principles and (b) the process for developing and agreeing these principles.

The work of the Harmonisation Team is governed by the NSHG which is in turn governed by the GSS Statistical Policies and Standards Committee (SPSC). The GSS SPSC is populated by several Heads of Profession (HoPs) from various UK Government departments.

1. **Benefits of Harmonisation**

The harmonisation strategy will bring many benefits to both producers and users of statistics.

The benefits to producers of statistics include:

* Compliance with the UK Statistics and Registration Service Act 2007[[[8]](#footnote-8)] – Point 9 states that the Statistics Board is to ‘develop and maintain definitions, methodologies, classifications and standards for official statistics, and promote their use in relation to official statistics’.
* Compliance with the requirements of the UK Statistics Authority Code of Practice for Official Statistics[[[9]](#footnote-9)] - Principle 4, Practice 6 requires producers of official statistics to ‘Promote comparability within the UK and internationally’. Harmonisation also helps to meet the requirements of the EU, Eurostat and UN by facilitating international comparisons.
* Better comparability for cross-survey analysis and integration by making statistics comparable across time and across different sources, thereby creating an environment in which multiple data sources can be integrated.
* Improved data quality by reducing potential misunderstanding or confusion caused by the use of different questions and/or outputs sourced from the same topic area.
* Increased cost savings and efficiencies by avoiding "reinventing the wheel" by utilising pre-existing harmonised principles, thereby potentially providing more outputs with the saved investment, and avoiding spending resource on harmonising after producing outputs.
* Improved knowledge management by reducing vulnerability to staff turnover because all staff are following the same principles and good practice so they can easily move around organisations and take their knowledge with them.

The benefits to users of statistics include:

* Increased understanding – if harmonised principles are used, then no matter what data users access, the questions and definitions they are using will be consistent and familiar.
* Improved ease of use and comparability – for data users who require multiple datasets, having multiple concepts with multiple meanings could not only be arduous and time consuming to handle, but increase the possibility of mistakes or make results incomparable. Harmonised principles allow comparability between multiple datasets.
1. **Issues and Considerations**

Although the strategy will bring many benefits, there are also considerations that need to be understood in order to move the harmonisation agenda forward. These include:

* The ‘encouragement’ of uptake of harmonised principles across the GSS and from the UK Statistics Authority - harmonisation is currently not enforced but rather encouraged.
* Conflicting work priorities within ONS, and across UK Government Departments, the GSS and Devolved Administrations making it difficult to find resource to implement harmonisation.
* Resource (people/time/finance) constraints and resistance to change to implement harmonisation – harmonisation tends to be viewed as a burden rather than a facilitator and it is difficult to gain buy-in.
* Difficulties in achieving harmonisation across the UK, across Europe, and across other bodies (eg other National Statistical Institutes) due to differing statutory requirements.
* Lack of understanding of the bigger picture - harmonisation is not at the top of peoples’ agendas as they tend to work in silos.
* Difficulties (e.g. legal gateways) in obtaining data needed to carry out empirical research to demonstrate how quality improves as a result of harmonisation.
* Inadequate evidence of where harmonisation has worked and what areas have harmonised successfully, which would give confidence and reason for others to harmonise.
* Confusion between the terms ‘harmonisation’ and ‘standardisation’ – the differences are explained in the next section.

Considerations for tackling these issues will be added to the implementation plan for harmonisation.

1. **Harmonisation versus Standardisation**

There is a subtle, but important difference between harmonisation and standardisation; harmonisation is about consistency, while standardisation is about conformity.

Harmonisation seeks to bring together various types, levels and sources of data in such a way that they can be made compatible and comparable. One size does not always fit all, so when you harmonise you focus on common goals and outcomes, finding the best trade-off between too many and too few principles for a process. Harmonisation is about finding pragmatic ways of reaching a desired level of comparability between statistics which have been collected for different purposes under different collection regimes using different standards and methodologies. This means avoiding the need to convert all the data to a single standard, which can be impractical, but rather finding ways to make it usable, at least at some higher level of aggregation or generalisation.

Standardisation, on the other hand, sets uniformed norms and standard processes, for example using a standardised methodology or a standardised disclosure control process. Standard Occupation and Standard Industry Classifications (SOC and SIC) are standard because they are definite; there is one code for each industry and occupation type, and everybody must use the same set of codes.

Harmonisation differs from standardisation in that it does not impose a single methodology or norm, but rather seeks to integrate or make "an agreeable effect" from information gathered from different sources.

1. **Harmonisation Progress To Date**

The Harmonisation Team coordinates topic groups to share information, discuss issues, and develop harmonised principles. These topic groups include a wide variety of stakeholders and are led by topic experts across UK Government departments within the GSS. Substantial progress has been made on harmonising social topics, notably:

Benefits and Tax Credits; Consumer Durables; Country of Birth, Migration and Citizenship; Crime and Anti-Social Behaviour; Demographic Information; Economic Activity; Education; Ethnicity, Identity, Language and Religion – including Sexual Identity; Health, Disability and Carers; Housing and Tenure; Income; Pensions; Social Capital; and Personal Well-Being.

Other progress:

* The harmonisation strategy has recently been revised.
* The team is the secretariat for the NSHG which meets quarterly and includes members from various UK Government departments across the GSS and wider.
* Production of a quarterly NSHG Newsletter[[[10]](#footnote-10)] to update stakeholders and interested parties.
* The team regularly presents ‘harmonisation roadshows’ to communicate and promote the benefits of using harmonised principles across the GSS and wider.
* Development and maintenance of a harmonisation page and “community” on StatsUserNet[[[11]](#footnote-11)], an online forum for statistically interested people to exchange information and to communicate with each other.
* Production of an ‘A-Z of harmonised principles’ booklet (also available online)[[[12]](#footnote-12)].
* Recent production of a set of harmonised data markers (i.e. symbols in tables) to be used across the GSS.
1. **The Variable and Question Bank**

The UK Data Service Variable and Question Bank has been developed collaboratively with the UK Data Service at the University of Essex, to promote the visibility and re-use of GSS harmonised questions via a new search tool. The Bank provides access to over 275,000 questions from major UK survey datasets. Attached to these, there are 450,000 variables with full question text and responses. The tool offers intelligent searching facilities which allow users to filter results and run complex queries on the Bank. Each variable record provides a link to more information about the variable and users may select and store variables in their ‘My Variables’ basket and compare them side-by-side. A key and novel feature of the resource is its integration with the GSS harmonised concepts and questions. More than 13,000 variables are flagged as belonging to the GSS harmonised set, allowing the user to quickly see which questions belong to this quality-assured set. Most of the information currently held within the Variable and Question Bank is for social surveys. As the focus moves to harmonising business data, more business surveys will be added to the Bank.

The Variable and Question Bank has brought benefits to survey commissioners and users.

The benefits to survey commissioners include:

* Promotion and re-use of questions and instruments.

The benefits to users include:

* An aid for researchers who already hold their own data - the Bank allows them to compare their data to other data sources.
* An aid for data collectors – the Bank enables reuse of survey questions and variables.
* Innovations – individual questions are mapped to wider instruments; questions are tagged by ownership (survey provider and organisation) and by intent (attitudes, behaviours and knowledge).
* State of the art searching experience.
1. **Forward Work Programme**

Over the next six months, the Harmonisation Team’s work plan includes:

* Development of an implementation plan, supported by a stakeholder analysis and communication plan, in accordance with the revised strategy.
* Presentation of a series of internal and external roadshows to make producers and users of statistics aware of harmonisation and to promote the harmonisation vision.
* Close collaboration with ONS colleagues in business and administrative statistics to harmonise their data.
* Contribution to Phase 2 of the ESSnet project on Standardisation.

Work will continue after that according to plans set out in the strategy and implementation plan.

1. [ ]<http://www.ons.gov.uk/ons/guide-method/harmonisation/harmonisation-index-page/index.html> [↑](#footnote-ref-1)
2. [] <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-strategy/quality-management-strategy.pdf> [↑](#footnote-ref-2)
3. [] <http://discover.ukdataservice.ac.uk/variables> [↑](#footnote-ref-3)
4. [] <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/index.html> [↑](#footnote-ref-4)
5. [] <http://www.statisticsauthority.gov.uk/assessment/assessment/index.html> [↑](#footnote-ref-5)
6. [] <http://www.cros-portal.eu/content/standardisation> [↑](#footnote-ref-6)
7. [] <http://www.esrc.ac.uk/research/major-investments/Big-Data/BDN-phase1.aspx> [↑](#footnote-ref-7)
8. [] <http://www.legislation.gov.uk/ukpga/2007/18/contents> [↑](#footnote-ref-8)
9. [] <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/code-of-practice-for-official-statistics.pdf> [↑](#footnote-ref-9)
10. [] <http://www.ons.gov.uk/ons/guide-method/harmonisation/harmonisation-programme/harmonisation-newsletters/index.html> [↑](#footnote-ref-10)
11. [] <http://www.statsusernet.org.uk/communities/viewcommunities/groupdetails/?CommunityKey=f8761ca8-254a-4a27-acfc-98b2d4e0f4ae> [↑](#footnote-ref-11)
12. [] <http://www.ons.gov.uk/ons/guide-method/harmonisation/harmonisation-programme/a-z-of-harmonised-standards.pdf> [↑](#footnote-ref-12)