

Implementing Standardised Systems, Processes, Tools and Methods with the ONS Design Charter

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1. Background to the ONS Design Authority

The UK Office for National Statistics (ONS) is required to deliver statistical products that meet the need of users. It must do this efficiently, while delivering quality, good practice, and comprehensive statistics. These are requirements of the Statistics and Registration Service Act and the Code of Practice for Official Statistics which govern how ONS works.

The ONS Design Authority was formed in April 2009, following an internal governance review. It was set up to provide single responsibility for decisions relating to standard processes, tools and methods. This should allow ONS to maximise its strategic gains from statistical investments, assisting it to realise its strategic goals of:

- standardised processes, systems and tools;
- streamlined survey design and integrated sources; and
- establishing statistical standards and best practice.

The ONS Design Authority replaced several IT committees, and takes on added functionality. It is responsible for the Architectural Reviews of new system solutions, as well as assessing and approving new software requests. The Architectural Review Process is already well established in the ONS. However, there is currently no formal process for endorsing methodological change, or reviewing business process. The Design Authority's aim is to build upon the more mature Architectural Review Process, and develop a similar review approach for methods and business processes in ONS.

Even with a clear Architectural Review process, standardisation of systems in the ONS has proved difficult in the past. The ONS's Statistical Modernisation Programme was an attempt to standardise systems, starting in 2003. See Penneck (2009) for details of what went well, and what went wrong. The Design Authority aims to build upon the successes of the Statistical Modernisation Programme, and set out 'how we do things' in ONS. It will be the responsibility of the business areas to define what they need to deliver, and therefore to lead the development of systems, with the ONS Design Authority ensuring that corporate infrastructure is used appropriately.

A key role of the Design Authority is to define a Design Charter, which sets out the strategic principles for systems, processes, tools and methods. Using the ONS Design Charter, the Design Authority can assess new project proposals, and advise how far they contribute to the strategic direction of the Office. This framework should ensure that investment in new systems or methodological work fits the overall strategic model, with common business processes.

By implementing the Design Charter, and establishing a process to review change and developments in ONS, we should be able to move away from the current 'stovepipe' approach which focuses on individual

applications, and instead maximise the benefits of any development work across the Office. Penneck (2011) presents some gains from exploiting two ONS products: CORD (Central ONS Repository for Data) – a time series compilation system; and CASPA (Common Architecture for Statistical Processing and Analysis).

2. The ONS Design Charter

To ensure that there is a coordinated approach to investment in ONS systems, there needs to be a vision as to where we are heading, and principles to ensure that there is a standard way of going forward. A high level view of our strategic model is being developed to provide this, based on the Generic Statistical Business Process Model (GSBPM). The ONS Design Charter is about how we do things; it sets out the strategic principles for systems, processes, tools and methods.

The ONS Design Charter will provide a vision for how systems should be developed. It will support the ONS vision, drive statistical developments, provide a framework for business developments, and drive the IT strategy. The benefit to the Office should be more coherence and integration of systems, better fit with the strategic model, and minimised costs.

The ONS Design Charter is structured around a set of 12 principles, described in more detail in section 2.1. These are organised around the four fundamental drivers:

- strategic architecture
- harmonization
- integration
- secure control

There are then eight principles generally related to the implementation of statistical systems.

The ONS Design Charter has been widely debated within the Design Authority and refined through several workshops, involving staff from across the Office. This ensured that the ONS Design Charter reflects business priorities, and will be understood when implemented. These explicit principles will support the new IT strategy (“Red to Green”), see Field (2009). Together the IT strategy and the ONS Design Charter provide clear direction for the ONS infrastructure.

2.1 Design Charter Principles

The Design Authority will support solutions that:

1. comply with the ONS strategic architecture: methods, tools and technology

All new solutions must consider how they fit into our long-term, strategic business, methodology, and IT plans. Our approach is to use common definitions and statistical methods, and a standardised tool set. This does not mean “one-size fits all”, but does mean that we will have a reduced number of approaches to create a “standard model”, and a reduced tool set.

This approach will maximise the lifetime of the solution, and therefore the return on our investment, whilst helping to minimize the cost of re-work, enhancement and integration resulting from short-term thinking.

2. promote harmonisation and limit divergence

Applying common standards, methods, classifications and technology will help us to deliver efficient, quality, comprehensive statistics that meet the needs of users.

3. integrate and share data and processes

Solutions will be designed, acquired, developed or enhanced such that data and processes can be shared

and integrated across ONS (and partners). Wherever possible we will integrate existing surveys before creating new surveys, and exploit all accessible administrative data to minimise proportionate respondent burden and resource costs.

4. ensure secure control of data and systems

Data protection, storage and access to data must be controlled in accordance with ONS security policies.

5. are re-usable

Where possible, we will re-use existing solutions, or solution components, before investing in a new solution. Where a new solution is required, the potential for re-use of that solution should be considered. In the event that re-use is foreseeable, re-usability should take priority over the “buy or build” question. Where no re-use can be foreseen, we will “buy before build”.

6. are flexible and capable of longer term use

The choice of tools must balance functional requirements with non-functional requirements. All solutions must be fit for purpose, but should also be readily adaptable to changing requirements, have wider application, and be scalable.

7. use technologies and methods which follow open standards

Priority will be given to industry proven, mainstream technologies, and peer reviewed methods adhering to industry standards, and open architecture.

8. use the ONSide methodology

All major solutions should make appropriate and proportionate use of the ONSide (ONS Integrated Delivery Environment) methodology. ONSide is a framework of tools, techniques, templates and a language that helps us operate in a consistent and repeatable way, enabling us to make progress quicker by exploiting good practice. The corporate project management method in use in ONS is Prince 2, and the corporate management method is Managing Successful Programmes.

9. are underpinned by re-designed business processes

There is limited value in applying new technology to old, inefficient processes. New solutions will be implemented after business processes have been analysed, simplified or otherwise redesigned as appropriate. This will ensure that work processes, activities, and associated business rules will be refreshed, well understood, and documented.

10. recognise the diversity of staff and users

Solutions must fit the standards that are required to meet the diversity of staff and users, and adhere to ONS's Equality and Diversity Policy.

11. are of a manageable size

Solutions must be of a scale and timeframe which can be readily supported by ONS project management capabilities and able to deliver outputs which can be regularly quality assured. Larger scale solutions should be broken down into manageable components.

12. reflect lifetime cost of ownership

The process needs to accommodate total lifetime costs and risks (i.e. up-front and ongoing support, training, disaster recovery and retirement costs). Consideration of all costs associated with a solution over its entire life span will result in significantly more cost effective solution choices.

3. Implementation of the Design Charter

While the ONS Design Charter provides the plan of how things are done, the implementation will be overseen through the Design Authority. A draft high level process, to review business process changes and new systems, tools, or methods against the ONS Design Charter principles has been defined by the Design Authority and internal Business Analysts. The process needs to cover anything that can introduce change into ONS, from those initiated by the individual staff member, up to large projects and programmes of work.

Figure 1 defines the overarching roadmap that takes an initial proposal for change through the high level steps, to gain approval from the Design Authority, and eventual implementation. There are three main quality gates shown horizontally through the diagram. These are the Design Authority; the ‘Front Door’ – this covers the creation of business cases for any change, which is supported by the Finance Directorate, and also the Information Management Directorate (IMD) process which looks at customer engagement, feasibility, and IMD resources; and Investment Planning and Portfolio Management. The vertical swim lanes represent the resources that may be involved in managing those quality gates.

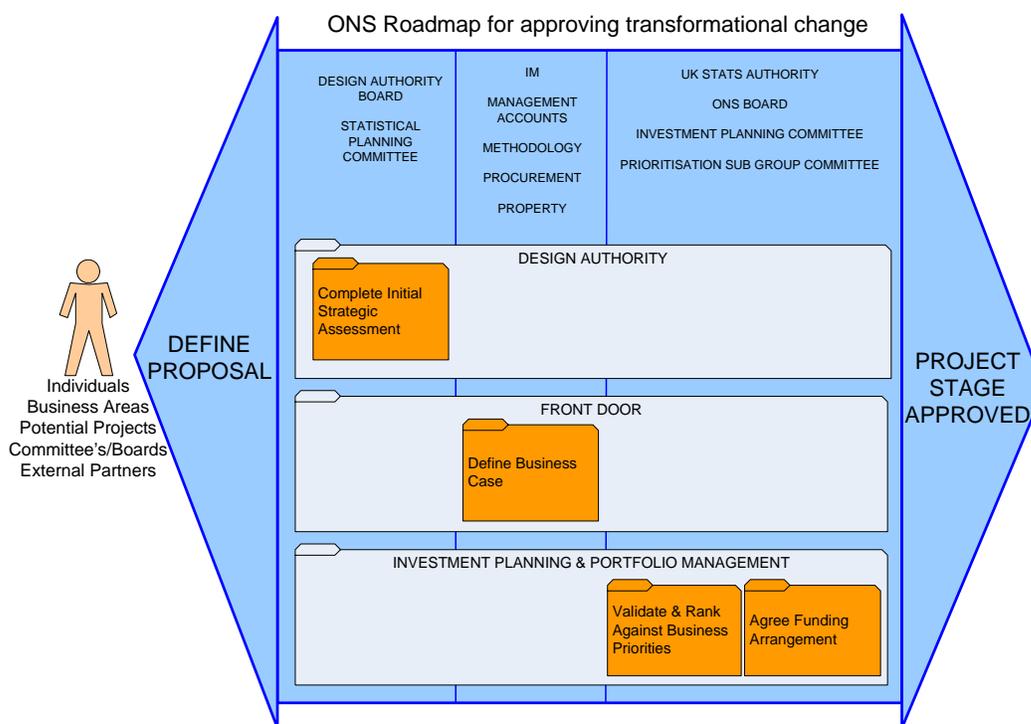


Figure 1: ONS Design Authority Roadmap for approving proposals

This roadmap could be repeated for all four stages within the lifecycle of a proposal:

- initiation – where a proposal has been initiated, but there is little detail;
- elaboration – where additional information has been gathered, a feasibility study could be run, and further assessment of the proposal can be completed;
- design – when the solution is fully understood, and where Design Authority approval can be given, and a business case completed; and
- delivery – the solution can either be delivered in one go, or in manageable components.

The high level process displayed in Figure 2 illustrates the proposed sequence of actions required in approving change. It may take several iterations through this roadmap before approval is gained. However, we need proportionate management of each proposal to avoid delaying deliverable, smaller solutions. In

some cases, particularly when funding is not required, the Investment Planning and Portfolio Management stage may not be needed; following Design Authority approval, a solution can move directly to the design and delivery stages. Most importantly the Design Authority needs to ensure that it is adding value, and not adding a bureaucratic layer to the development and investment governance in ONS.

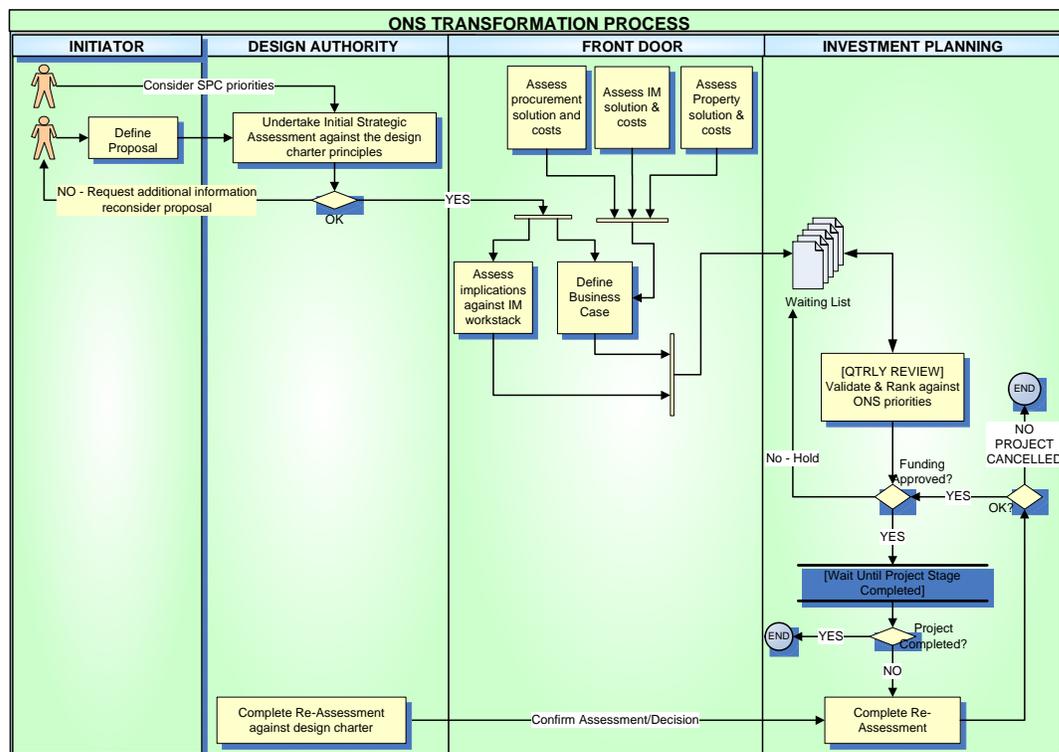


Figure 2: High level process of ONS Design Authority approval

Case studies will be developed to illustrate how the process works and provide guidance to business areas.

3.1 Example of Design Authority Review – Editing in business surveys

Several investment proposals have been reviewed to help develop a suitable process and relevant case studies for implementation. One example is the potential use of SELEKT, a generic tool developed by Statistics Sweden to perform selective editing, in ONS business surveys.

The current ONS editing strategy aims to detect and correct all errors using validation gates on each variable with the result that a return could fail one or all variables for manual intervention to take place. This strategy works on the traditional editing principle that the ‘cleaner’ the data, the better the quality of the final outputs. However, the consequence of this approach is that resource can often be wasted on checking information that may not impact the final output. The selective editing approach means that the editing process should be more efficient and effective, since it will only edit the potential errors that have the largest impact on the final outputs.

Selective editing has already been implemented in several ONS business surveys. However, due to its complexity, the Annual Business Survey (ABS - ONS’s Structural Business Survey) presents more of a challenge in the current toolkit. A request was made to the Design Authority to approve the strategic fit of SELEKT within the IT infrastructure and editing process in ONS business surveys.

A sub-committee of the Design Authority, along with representatives from the Methodology Directorate recently reviewed the proposal to use SELEKT in the ABS processing. Each principle was discussed, and a score of 'Pass', 'Partial pass', or 'Fail' assigned, along with a comment where appropriate. The solution as a whole was then considered. The sub-committee agreed that although not all principles were demonstrably met as a 'Pass', the solution was aligned with the Design Charter principles. SELEKT will now move into the High Level Design stage in the ONSide framework, and will be reviewed again by the Design Authority when this phase is completed.

4. The role of the Methodologist

The Design Authority is chaired by the Director of Methodology, and promotes the model of collaborative working between the Information Management Directorate and the Methodology Directorate. Several committee members are methodologists, and this allows the Methodology Directorate to direct and influence the future design and infrastructure of the Office.

The role of methodologists in the Design Authority is to promote best practice, ensuring sound methods are implemented, quality assured, and documented. The Methodology Directorate Strategic Directions (2010-2013) outlines the aim, role, and drivers of the Methodology Directorate in ONS. As part of the Directorate's aim, it states that:

Methodology Directorate will:

1. *take the lead role in supporting the National Statistician on quality and good practice in relation to official statistics.*
2. *provide leadership and support on statistical design, methods, tools and quality across official statistics.*
3. *support development of fit for purpose statistics, for the future as well as for the present.*
4. *lead work in helping the business to reduce costs.*

...

The Methodology Directorate Strategic Direction supports the ONS Design Charter, and recognises that one role of the Methodology Directorate is to 'ensure that Design [Charter] principles are followed and build systems that have a long term value to the office or have a broader statistical validity.' Methodologists therefore play a key role in ensuring ONS statistical methods and systems adhere to the strategic principles of the ONS Design Charter.

The ONS Design Charter and Review Process will give the opportunity for methodological reviews to be formalised and developed as we gain experience of implementing the Design Charter.

5. The next steps

Progress on developing the ONS Design Charter and Review Process has been slower than originally anticipated, but is now ready for a formal launch across the Office. A communication strategy is being developed, which aims to:

- raise awareness of the ONS Design Charter, and how it will help staff;
- promote easy to follow guidance;
- explain how the principles fit in with wider business change processes;
- explain the need to ensure ONS is investing wisely.

There must be continuous improvement, and the ONS Design Charter and supporting guidance will be reviewed in six months, following feedback on implementation. Key performance indicators, such as the number of requests submitted to the Design Authority, and the number of benefits realised from projects will be monitored to help evaluate the achievements, and required improvements, of the ONS Design Charter.

6. Conclusion

The ONS Design Charter has been developed to ensure that ONS maximise its strategic gains from statistical investments. It supports continuous improvement, and enables the Office to achieve its strategic aims; in particular it supports the ONS Value ‘to understand the quality of our statistics’:

‘...Ensuring outputs and developments follow an overall statistical design, with common tools, methods and systems led by a clear view of business process will improve the quality of what we do while minimising costs in the long run. Establishing a climate of continuous quality improvement will also reduce cost and enhance value.’

The ONS Design Charter, and the work of the Design Authority, is starting to have an impact on investment in the Office. However, the principles and review process are not yet fully bedded into the culture of the organisation. The next task for the Design Authority is to ensure that this can be achieved via the communication strategy. The communication strategy and evaluation of the ONS Design Charter will be ongoing, to ensure that the Office continues to focus its resources on changes that best achieve the ONS Vision.

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