

Monitoring Review

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Issuing ONS Market Sensitive Statistics at 09:30

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Summary and conclusions

Summary

1. For technical reasons, the Office for National Statistics has sometimes been unable to issue statistical releases, and related statistical tables, at exactly 09:30 on the day of release¹ as required by the *Code of Practice for Official Statistics*². People with pre-release access, and journalists involved in 'lock-in' arrangements³, may nonetheless be able to communicate and use the statistics at exactly 09:30, breaching the Code requirement for equality of access.
2. There is a consequent risk of failing to meet the Code of Practice requirement for 'equality of access', with some individuals and organisations in a position to make decisions based on the statistics ahead of others. This could be of particular concern when the statistics are deemed to be market sensitive. ONS produces the majority of such statistics, including consumer price indices, estimates of GDP, retail sales and statistics on the labour market.
3. The high priority ONS currently gives to issuing the most high profile and market sensitive statistics in an orderly manner at 09:30 means that, in practice, access is not completely equal. People waiting for the ONS website to load are likely to wait longer than those using specialist trading platforms linked to news analytics, since the latter can be transmitted almost instantaneously following the 'lock-in'. Other users receive the figures through the broadcast or social media, or from news websites that receive a feed from the lock-in: they will be unaffected by delays on the ONS website, but will receive information fractionally later than subscribers using specialist platforms. The scale of delays attributable to the performance of the website has been diminishing over time and in most cases there will be little objection to a slight delay. However, it remains a possibility that some users could be put at a disadvantage by the lack of complete equality of access and that this would represent a substantive breach of the Code of Practice.
4. From what we have been able to establish, ONS does not seem to have had any complaints about unequal access (as opposed to publishing delays) from bodies trading in the markets. Such bodies may in practice simply accept that some of them will have better hardware, software, trading strategies and algorithmic design skills.

Conclusions

5. Issuing statistics at a standard time is right in principle because it promotes the statistical service's reputation for impartiality and consistency, and gives users the chance to understand and engage the producer body during normal working hours - but the exact choice of time is fairly arbitrary. The time of 09:30 was adopted in the Code of Practice for Official Statistics as a reasonable time of day but it has little or no intrinsic merit over other times in the working-day.

¹ See report for May 2012 to March 2013 and earlier reports at <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/breach-reports/index.html>

² <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

³ This refers to the situation where a selected group of media reporters are 'locked in' a secure briefing room and provided with the statistics in advance of the release time of 09:30 so that they can absorb and understand the significance of the statistics. They are not allowed to transmit information before 09:30.

6. An argument can be made for some degree of flexibility if this would help to avoid delays due to pressure on the website, and hence promote equality of access in practice. For example, the key figures and text from a statistical release might be issued at 09:30, the full text at 10.00 and the more detailed tables at 10.30 or as soon as possible thereafter. Whilst this would be, strictly speaking, a contravention of the Code of Practice as currently drafted, it would be possible for the Statistics Authority to issue an explanatory note to the effect that under some circumstances, priority should be given to the requirement for equality of access and, in that case, a staggered release starting at 09:30 would be acceptable as long as it had been pre-announced.
7. At the level of principle, the aim should be to take all reasonable steps to achieve equality of access, and within that, to release official statistics in an orderly way starting with key figures and supporting text at 09:30 on the day of release. Any later staggered release times should be pre-announced and met as closely as possible.
8. Such an approach would have implications for the structure of statistical releases and for the lock-in arrangements. Only those statistics being released at 09:30 could be provided in the lock-in and the lock-in might need to continue until those statistics appear on the website. That would be a significant change of practice and is something about which ONS would need to consult both the users who attend lock-in briefings and those that do not. A consequence of releasing only key figures at 09:30 would be that extra care would need to be taken in the presentation to ensure that the key figures on their own would not be seen as misleading when, later in the day, set in the context of the full statistical release.
9. ONS may also wish to consider whether some of the other issues raised in this report require further investigation. For example, the identification of sets of statistics as market sensitive is not necessarily clear-cut. Whilst the sets (or parts of the sets) of statistics currently so identified undoubtedly have the potential to influence markets at the time of their release, there may be others that will do so, possible only for a limited period of time. For example, the markets may become sensitive to changes in some tax statistics for a period. ONS may need to keep the list under review and establish a process for agreeing with those bodies that have a regulatory interest – such as the Bank of England and the Financial Conduct Authority – when to add and remove sets of statistics from the list.
10. ONS might also find it helpful to compare experience and practice with the US Department of Labor and review the current lock-in arrangements in the light of recent US findings and recommendations. This would allow ONS to benchmark its arrangements to prevent premature disclosure and ensure equality of access with another highly developed statistical agency.
11. We have identified some further steps ONS could take to safeguard its position and to improve its compliance with the Code of Practice. It might wish to:
 - review whether all the statistics on the current list are properly regarded as market sensitive, and whether there are any market sensitive statistics not on the current list.
 - ensure that users are aware which statistics are always available through the media at 09:30, so that they can exercise an informed choice about how they wish to access these statistics. This information would include an up to date list of statistics deemed to

be market sensitive, a description of the lock-in process and a list of agencies that have been accredited to attend, together with a copy of their signed undertaking.

- consider whether to tighten the accreditation criteria for lock-ins, to ensure that those accredited are primarily in the business of publishing and communicating the data to a general audience as opposed to paying subscribers.
 - consider whether the amount of material released via the lock-in process should be reduced (although this might require a re-design of some releases, and might increase the load when more detailed data are published to the website).
 - investigate the feasibility of prolonging the lock-in until publication on the website is confirmed.
 - develop better contacts with financial institutions and others in the market, in order to improve understanding of how the statistics are used. The media organisations involved in ONS lock-ins might also be approached for their feedback on the process and for a broad perspective on their customers' needs.
12. Finally, we note that responsibility for monitoring the release of statistics at 09:30 and for devising remedial action when targets are not met is quite widely dispersed. ONS might wish to consider whether it could consolidate responsibilities and whether someone with sufficient seniority should be given overall responsibility for driving efforts to improve compliance with the principle of equal access.

The report

13. The remainder of this report is structured as follows:
- introduction to the issues
 - market sensitive outputs in ONS
 - publishing delays and solutions
 - lock-in arrangements
 - practice elsewhere
 - discussion.
14. The report draws on the following sources:
- meetings (telephone and face to face) with ONS staff involved in communications, publishing, information assurance, internal audit, IT and statistical production. We talked to the ONS statisticians responsible for producing GDP, retail sales and labour market statistics. The staff concerned also have experience in other market sensitive areas (trade, inflation indices, index of services, construction).
 - documents or other information provided by ONS as a follow up to these meetings
 - observation of an ONS lock-in briefing (for *UK Trade and Index of Production*)
 - breach reports⁴ and assessment reports⁵

⁴ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/breach-reports/index.html>

- web searches – to understand high frequency trading and news analytics; and to find out about release practices in overseas statistical institutes (publishing times and any special arrangements in respect of market sensitive statistics)
- subsequent email contact with overseas statistical institutes.

Introduction to the issues

15. The *Code of Practice for Official Statistics*⁶ states that statistical releases should be issued at the standard time of 09:30 on a weekday. ONS is often unable to publish all the elements of its market sensitive releases (including related tables and datasets) at exactly this time, although key figures and statistical bulletins are generally available on the website within one minute. People with pre-release access, and journalists involved in 'lock-in' briefings⁷, are able to communicate the statistics at 09:30. The main concern is that this could lead to inequality of access, with some individuals and organisations in a position to base decisions on the statistics before they are available to those who depend on the website. Even fractions of a second can be beneficial to some types of trader.
16. The relevant requirements of the Code are as follows:
 - **Protocol 2 preamble:** Statistical reports should be released into the public domain in an orderly manner that promotes public confidence and gives equal access to all, subject to relevant legislation
 - **Protocol 2.1:** Release statistical reports as soon as they are judged ready, so that there is no opportunity, or perception of opportunity, for the release to be withheld or delayed
 - **Protocol 2.4:** Issue statistical releases at the standard time of 9.30am on a weekday, to maintain consistency and to permit time for users to understand and respond to the information during normal working hours
 - **Protocol 2.8:** Ensure that no indication of the substance of a statistical report is made public, or given to the media or any other party not recorded as eligible for access before publication
 - **Principle 2.1:** Publish statistical reports in an orderly manner, in accordance with Protocol 2
 - **Principle 2.3:** Make official statistics equally available to all, subject to statutory provisions for pre-release access.
17. A major contributory factor to delays is that ONS's current web hosting environment does not meet the more stringent security standards that are judged to be necessary for market sensitive statistics. While other statistics can be uploaded to a holding area and revealed at 09:30, this is not considered to be a safe option for market sensitive content. However,

⁵ <http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/index.html>

⁶ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

⁷ This refers to the situation where a selected group of media reporters are locked in a secure briefing room and provided with the statistics in advance of the release time of 09:30 so that they can absorb and understand the significance of the statistics. They are not allowed to transmit information before 09:30

there is also a problem with human error, in part because of difficulties experienced by some business areas in using the content management system.

18. Any delays are regarded as a breach of Protocol 2.4 of the Code (publish at the standard time of 9.30) but Principle 2.3 (make official statistics equally available to all) is not breached if all users are affected to the same extent.
19. The statistics are often of keen interest to the financial markets and the news media. Some traders have access to computer software that can process news (including the information in ONS releases) and execute buying or selling decisions in fractions of a second. Such traders often pay a fee to an agency for an ultra fast news analytics service. Timeliness is also critical for some journalists, albeit with delays measured on a more human scale.
20. There will be many other institutional investors, financial advisers and journalists specialising in analysis and comment for whom a short delay may be unwelcome and inconvenient but not critical.
21. ONS holds a number of lock-in briefings for accredited news agencies. These agencies are able to transmit the figures they have been given in the briefing at precisely 09:30, often before the statistics finish loading on the website. This process is consistent with Protocol 2.4 (publish at 09:30) but could breach Principle 2.3 (equality of access) if the statistics are not available to all users at the same time.
22. Late release of data on the website can cause annoyance to users and reputational damage to ONS. Complaints about unequal access to data appear to be rare, but ONS still needs to take all reasonable steps to minimise non-compliance with either aspect of the Code of Practice.
23. Protocol 2.8 of the Code requires producers of official statistics to 'Ensure that no indication of the substance of a statistical report is made public, or given to the media or any other party.....before publication'. Internationally, some countries rely on web publication in order to ensure equal access at a standard time. Others have adopted lock-in arrangements along similar lines to ONS.
24. The US Department of Labor recently reviewed its lock-in arrangements, partly because of concerns about equality of access and partly because of concerns that, despite all existing precautions, participants might find a way of transmitting information to high frequency traders before the release time. As a result, that department has implemented a number of changes in policy and practice, some of which may be relevant to ONS.
25. ONS has taken a number of steps to fine-tune hardware and software, and to improve the training of staff and the procedures they use. Publication delays are reducing, but it seems unlikely that the web publishing process will ever be as reliably fast as the lock-in process unless the lock-in is prolonged until web publication has occurred.

Market sensitive outputs in ONS

26. There are several reasons why ONS statistics may have a relatively large impact on the markets:
- the relatively large size of the UK economy
 - the importance of London as a financial centre
 - the continued existence of Sterling as a currency, separate from the Euro
 - the concentration of the most relevant and timely statistics in ONS as opposed to other economic departments.
27. The release time of 09:30 is well established across all National Statistics and predates the current Code of Practice. It is an hour and a half after the opening of the London Stock Exchange and too late for breakfast news programmes. But it avoids any suggestion that release times can be fixed for political advantage, and also allows users to understand and respond to the information, and to put any queries to the statisticians concerned, within normal working hours (as is required by the Code of Practice).
28. Each of the ONS statisticians we spoke to had inherited long-standing market sensitive outputs and did not know the background to the original decision to treat that output as market sensitive. No one was aware of any written criteria, referring instead to the need for a judgement based on experience of what appears to move markets.
29. At the moment we are only aware of two sets of market sensitive official statistics for the UK that are published outside ONS. Both of these are produced by HM Treasury (*Public Sector Finances*, which is a joint release with ONS, and *UK Holdings of International Reserves*). The *Pre-release Access to Official Statistics Order*⁸ states that anyone receiving pre-release access to market sensitive statistics must sign a written undertaking, so other producers of official statistics should have a record of which, if any, statistics are deemed to be market sensitive (unless there is no pre release access). Although the exact provisions in the devolved orders vary, they also require slightly different handling for market sensitive statistics, so the devolved administrations should also know of any market sensitive statistics that have been identified as such. However, the precise range of statistics that should be treated as market sensitive is not critical to the conclusions of this report.
30. A list of ONS market sensitive releases is appended to its statement of compliance⁹ with the pre-release access order of 2008, but is out of date (there have since been two additions and a change of name). ONS provided us with a list which updates the one on its website¹⁰. As the table shows, not all market sensitive statistics are covered by lock-in arrangements.

⁸ <http://www.legislation.gov.uk/uksi/2008/2998/contents/made>

⁹ <http://www.ons.gov.uk/ons/guide-method/the-national-statistics-standard/code-of-practice/statement-of-compliance/index.html>

¹⁰ In addition, three products - UK Economic Accounts, Economic Review and GDP and the Labour Market - are published via the market sensitive route as they refer to market sensitive releases published on the same day

Name of bulletin	On the 2008 MS list?	Press lock-in arrangement?
Average Weekly Earnings (monthly)	Yes – as part of Labour Market	Yes
Balance of Payments (quarterly)	Yes	No
Business Investment (quarterly)	No	No
Consumer Price Indices (monthly)	Yes	Yes
GDP Preliminary Estimate (quarterly)	Yes	Yes
GDP Second Estimate (quarterly)	Listed as Output, Income and Expenditure	Yes
Index of Production (monthly)	Yes	Yes
Index of Services (monthly)	Yes	Yes
Labour Market Statistics (monthly)	Yes	Yes
Output in the Construction industry (monthly)	Yes	No
Producer Price Index (monthly)	Yes	Yes
Public Sector Employment (quarterly)	No	Covered at Labour Market lock-in
Public Sector Finances (monthly)	Yes	Yes
Quarterly National Accounts	Yes	Yes
Regional Labour Market Statistics (monthly)	Not listed separately	No
Retail Sales (monthly)	Yes	Yes
UK Trade (monthly)	Yes	Yes
UK Trade in Goods (quarterly)	Yes	No

31. Expectations about the content of statistical releases are often factored in by the market before the release takes place, so it is the (relatively uncommon) cases of unexpected figures that trigger the most movement. However, even when markets move immediately after the publication of a set of statistics, it is difficult to be certain about cause and effect. ONS statisticians sometimes check whether newspaper coverage attributes market movement to a statistical release, but this information is not routinely collated.
32. ONS told us that the foreign exchange markets often move fastest in response to economic releases. Automated trading through the use of algorithms may be involved and movement can happen within seconds. The algorithms themselves are commercial secrets, so we cannot be sure which parts of a release (headline figures or text, commentary, time series or other datasets) have the most impact. Over a longer time scale (minutes, hours) the retail sales release seems to have a regular and discernible effect. This may be because the level of detail published about specific retail sectors provides the market with information that can be used to fine-tune trading positions.

Publishing delays and solutions

33. Each ONS release is built around a number of components: the bulletin itself, associated items such as charts, summaries or datasets, and a landing page. The number of such components varies (the labour market release can have over 90) and some will take longer to appear on the website than others. We understand that the number of individual items published each year is much larger than anticipated when the system was designed.
34. ONS uploads non market sensitive statistics from its Tridion content management system to a holding area (hosted under contract by Landmark) at 08:10 am on the day of release. These statistics are then revealed automatically at 09:30 and we have been told that this process works smoothly. Market sensitive statistics, in contrast, are published direct to the ONS website through the content management system, without waiting in the Landmark holding area. They start uploading four seconds before 09:30. Delays can be encountered with bulky releases or if there are multiple releases and a lengthy queue. The front end load (that is, users attempting to access the website) can also affect publishing performance.
35. The following targets were agreed in July 2011:
 - instantaneous publication of all non market sensitive statistics at 09:30
 - 'key figures' from market sensitive releases to be published at 09:30
 - the bulletins and the 'great bulk' of associated datasets, tables and other component types for market sensitive releases to be published within one minute (that is, by 09.31). The datasets were described as 'clearly important but ... not capable of instant analysis and do not generally feature in immediate commentary or debate'
 - in a 'handful of cases' such as the four days a year when the Quarterly National Accounts and Balance of Payments are published, datasets to be published within two minutes.
36. ONS has been operating to these targets ever since (although it was agreed in November 2012 that it should work with the Monitoring and Assessment Team in order to determine which 'key figures' and which datasets). However, because so little is known about the

workings of news analytics and the content of algorithms, we cannot be certain that none of the more detailed data are being used during the one minute period by those receiving information via a lock-in briefing, and whether this is to the disadvantage of other users who rely on the website. A number of ONS web pages from which datasets can be downloaded carry a warning for users: 'Please note: There may be a slight delay at 09:30 in updating the 'select series from this dataset' section'. There is, however, no mention of the possibility of obtaining information from media sources in the event of delays to the web publication process.

37. Information about publishing times and/or associated breaches of the Code of Practice is logged by three teams in ONS. Each team records a slightly different range of information. For the purposes of this section, we have looked at the documentation maintained by one of the teams in Communication Division, as this is the most comprehensive and records are available from the beginning of 2011. This log currently makes a clear distinction between delays caused by performance issues (that is when the system simply fails to cope with the number, size or complexity of files to be released), delays due to identifiable technical faults, and delays due to human error.
38. It is difficult to make meaningful comparisons over the whole period because more detailed monitoring was put in place after the introduction of the new ONS website in August 2011, and delays of less than 15 minutes do not seem to have been logged before 2012. The distinction between technical and performance issues is less clear in the earlier records, and a comparison between market sensitive statistics and non market sensitive is not straightforward because some products - while not deemed market sensitive in themselves - are placed in the publishing queue with market sensitive products because they are derived from, or contribute to, a market sensitive release.
39. Taking the fairly stringent criterion that all elements of a release should load within a minute, over half the market sensitive releases were delayed in the first four months of 2013, and there seems to be little change in this proportion since 2012. However, the average delay because of performance issues is reducing. Around 25 products were delayed for this reason over the four months, but in every case all items in the release were published by 09.35. Delays due to technical problems or human error, while fewer in number (eight over the same period) ranged in duration from a few minutes to three hours. Human errors can include missing items, editing the content too close to the release time, entering the wrong publication date into the system, and the accidental duplication of content.
40. Although statistical bulletins and headline figures are generally published earlier than reference tables, time series and other datasets, they still take seconds to load when the system is performing well. On the timescales of automated trading, this might represent a significant gap between news agency feeds from the lock-in and publication on the website.
41. ONS breaches are reported on the Authority's website whenever the statistical bulletin is not on the website by 09.31 – this is done for both market sensitive and non-market sensitive releases. Breaches that can be attributed to performance issues are brought together in composite reports. There are currently three of these on the Authority website, covering the period from 1 May 2011¹¹ to 31 March 2013. Breaches that are not attributable to performance issues continue to be reported individually. However, if the bulletin

¹¹ Before this date, ONS was granted an exemption to Protocol 2.4 pending the upgrade of its website

publishes within a minute but there are delays to associated datasets or reference tables (which are quite common occurrences) a breach report is completed for internal purposes only. The number of reports on the Authority's website does not therefore convey the full extent of ONS breaching of Protocol 2.4.

42. Several other producers of official statistics have reported failing to meet the 09:30 target time over the last four years, but all these delays have been 15 minutes or longer. This suggests that departments and agencies that do not produce market sensitive releases may not be judging short delays as reportable, or may not be monitoring the situation as closely as ONS, so we conclude that direct comparisons are not possible.
43. In addition to reporting to the Authority, ONS has a page¹² on its own website stating 'This page shows breaches of the Code of Practice for Official Statistics as they occur. If there have been no recent breaches of the code, the table below will appear blank.' The information about late releases is removed after two or three days, so the page is frequently blank.
44. ONS assesses the impact of publication delays by monitoring calls or emails to the business area, media office or customer contact centre, and checking social media. This information is then included in the relevant breach report. We are not sure whether these records are comprehensive, but they do indicate a degree of customer concern or criticism in respect of nearly every market sensitive release at some point over the last couple of years. ONS statisticians told us that delays to GDP prompt a flurry of anxious calls from journalists but that there is usually little reaction from financial institutions. One report does include the following note, however, in respect of a delay in publishing the GDP time series in 2012: 'this dataset is actually far more important [than the bulletin] to analysts in the city'. We were told that delays to retail sales will often prompt a call from a hedge fund manager and sometimes from one or two overseas banks.
45. Although delays in publishing at 09:30 have featured in numerous assessments of ONS statistics, there has been relatively little adverse comment from those users who were contacted during the assessment process. The issue was picked up by two users of labour market statistics, both of whom were journalists working to tight deadlines. One user of GDP and RPI statistics (from another government department) commented very specifically on the fact that news agencies with pre release access have full data available on their websites and through paid subscription services at 09:30, while others 'normally need to wait till after 10:00 before the NS website allows access to the latest data'. This was the only comment alluding to the lock-in arrangement that we received during assessments of ONS market sensitive statistics – although we do not know how many other users are aware of its existence. It is also very likely that financial institutions and small scale private investors are underrepresented on user contact lists. That said, the design, layout and navigability of the ONS website attracted far more widespread criticism during these assessments than publishing delays.
46. Improvements to performance have been incremental, based on numerous measures to fine-tune hardware, software and the publishing process itself, including the avoidance of human error. A review in June 2012 identified a number of risk factors that were impacting

¹² <http://www.ons.gov.uk/ons/about-ons/what-we-do/changes-to-release-dates/breaches-of-the-code-of-practice/index.html>

on quality and timeliness, and two recommendations were graded as ‘imperative’: addressing issues with the preview site so that business areas could check the quality and completeness of releases before they go live; and better segregation of roles so that the same person is not creating and approving content. These recommendations have since been implemented – the issues with the preview site being addressed by the installation of new back office infrastructure at the end of April 2013. Other improvements to the publishing process made since mid 2012 include changes in the way Tridion is used and changes to the Landmark platform.

47. The following additional possibilities have been mentioned in our discussions with ONS staff or in internal ONS papers:

- **extending the four second period**, in order to allow more time for data to load before 09:30 - we were told this option was rejected because of the security risk
- as above but sending **encrypted data** – also rejected because the time required to de-encrypt would result in further delay
- sending market sensitive data to a **secure holding area** and unveiling them at 09:30 as is done for other statistics (sometimes described as ‘secure reveal’). This would require additional security controls on the web-hosting environment. The secure reveal option was **not** recommended on the grounds that it would mean releasing the market sensitive statistics to a non-ONS third party¹³ ahead of publication, and that the costs were very uncertain but could be anywhere between £1m and £6m
- **publishing from preview** – ONS currently publishes from Tridion to preview, and then from Tridion to the live website. A more usual approach would be to publish from the preview website to the live website. The cost of this change was estimated at £100k - £250k for proof of concept and £100k - £400k to implement, and it was agreed to proceed to proof of concept. Testing on statistical bulletins subsequently suggested that the business process changes would be too risky, but testing on datasets is looking more promising and may be a way forward
- **spreading the market sensitive releases** in order to avoid publishing as many as four or five on the same day (as happened, for example, on 21/12/12). We understand this would reduce some of the longer delays, but statisticians are aware of the obligation in the Code of Practice to release statistical reports as soon as they are judged ready (Protocol 2.1) and the current system is also an effective use of their time by allowing them to cover more than one release at the same lock-in.
- other **refinements to the existing system** – for example, upgrading or changing the content management system; modifying the way indexes are creating for searching the website; publishing release items in priority order; and restricting the number or size of files for the 09.31 (as opposed to the 09.32) deadline. The latter two refinements have already been implemented, and a feasibility study for an upgraded or replacement content management system is planned.

¹³ We have been told that some market sensitive labour market data are sent to the University of Durham a week or more before the release date, to allow for updating of the Nomis database. We assume that ONS relies on contractual obligations to enforce security requirements in these circumstances

48. The publishing support team works with business areas to **reduce human error**, which can be responsible for some of the longer delays and resulting reputational damage. The decision in 2011 to devolve responsibility to business areas seems to have contributed to the problems here, since teams that publish less frequently can find it harder to develop sufficient familiarity with the content management system. The timeliness of ONS economic statistical series, while laudable in itself, increases the pressure on these teams with the result that the content of releases is sometimes being checked and corrected beyond the point at which it is safe to do so, given the constraints of the publishing system.
49. The steps being taken therefore include a 're-centralisation' of the publication process, in which responsibility for publishing some statistical content has been returned to the Digital Publishing Division. This applies to all ad hoc, annual and new publications, and to any other publications nominated by business areas. This will help to avoid some of the pitfalls experienced by those business areas that are not frequent users of Tridion. Publications retained by business areas are receiving 'health checks' to establish training needs, with priority being given to market sensitive releases. Implementation of the recommendations described in paragraph 46 is bringing about a clearer segregation between the authoring, quality assurance and approval roles. These steps should help to reduce the number of breaches resulting from late changes and corrections to content.
50. The statisticians we have spoken to are aware of the need to assess the impact of some of these measures on users, who might be more put out by changes to familiar datasets - such as amending the format, timing or parcelling of contents - than by delays in publishing. One option that has been tried is to restrict the publication of labour market spreadsheets to those that are being updated that month, as opposed to re-publishing the complete set. This approach was introduced in February 2013 and we understand that there has been no adverse user reaction, but the measure has not prevented the release from breaching its target publication time.

Lock-in arrangements

51. ONS introduced lock-in briefings in 1994, in order to facilitate the fast and orderly distribution of statistics to as wide an audience as possible. This was before ONS had a website. Statisticians and press office staff provided four broad arguments for the continuation of these briefings:
 - they 'get around' the longstanding web delay issue. Release (in a somewhat restricted sense of the word) is always timely and continues to reach a wide audience. There have been no complaints and no known instances of deliberate cheating
 - they relieve pressure on the website – it was suggested to us that the additional front end load generated by traders with sophisticated software might cause the website to crash
 - journalists who attend lock-ins have a chance to ask questions, seek clarification and check their material before transmitting. The result is more accurate reporting – especially important for complex material and where other news organisations (including the BBC) are relying on the wire services

- it is an orderly process that reduces the burden on business areas and stops them being inundated with queries.
52. The arguments against might be put as follows:
- there is a risk that the security arrangements could be subverted in order to transmit data and influence trading before 09:30, thereby gaining financial advantage – although any agency caught doing this would be banned from future lock-ins and could lose out financially in consequence
 - even if security is not breached, it might be considered unfair if a ‘news’ agency trades directly at 9.30, or it enables clients to trade directly (this process will happen much faster than human customers can read the conventional news feed). Other traders, news agencies and the general public who rely on the ONS website¹⁴ and who do not pay subscription fees to one of the lock-in agencies are likely to experience delays in getting information
 - it may be possible for those attending the lock-in to glean additional information (usually contextual) from the answers to questions. This information may not be available to users accessing the statistics through the website.
53. On the second point, the delays will usually be short and most users may not feel inconvenienced. However, ONS might be challenged over the advantage gained by subscribers to news analytics. As far as other traders are concerned, the admittedly very limited evidence from those who contact the retail sales team suggests that delays to the website measured in minutes rather than seconds are important - from which it might be inferred that they are not too concerned whether high frequency traders have already bought and sold. One regular website user is in the habit of telephoning for a progress report if the delay stretches beyond ten minutes.
54. The lock-in process at ONS is described in an annex to the former National Statistics Protocol on Release Practices¹⁵ which is archived on the ONS website. However, over ten years have elapsed and the details are now out of date. ONS press office provided us with a copy of the agreement that is currently signed by news agencies wishing to attend a lock-in. This makes it clear, among other things, that any computer equipment used in the briefing room must have the prior approval of ONS’s IT security officer and that no additional devices of any kind may be brought into the room. ONS information assurance told us that they will be carrying out regular checks of the room in order to ensure that all the recommendations from a review in 2012 are being carried out.
55. The agencies currently accredited to attend ONS lock-ins are:
- Bloomberg
 - Dow Jones
 - FT.com
 - Market News

¹⁴ Users of ONS social media and viewers of live televised press conferences may experience little or no delay in getting headline figures compared with users of the website, but the information is unlikely to be as instantaneous as that released from the lock in room.

¹⁵ <http://www.ons.gov.uk/ons/guide-method/the-national-statistics-standard/code-of-practice/protocols/index.html>

- Need to Know News
 - Press Association
 - Thomson Reuters
 - World Business Press
56. A search of their respective websites suggests that four of these agencies provide paying subscribers with news analytics services that could be used in conjunction with automated trading. Three of the four also provide a wide range of conventional news that is available to the general public, while the fourth specialises in high-speed algorithmic content, but also provides an audio feed.
57. At the lock-in we observed on 7 February (*UK Trade and Index of Production*) 10 of the 13 people present were working in pairs. All agencies received a large bundle of paper (statistical bulletin plus tables for three economic releases) and two were given the bulletin and/or tables on computer disc¹⁶. This material was distributed after all the computers were disconnected from the outside world using a central control switch. Statisticians then provided a short description of the headline figures for the two market sensitive releases.
58. Many attendees appeared focused on conventional news gathering - for example asking questions in order to establish which particular figures might be a record and in one or two cases phoning through their content when the communications switch was thrown at 09:30. Others worked exclusively on screen (each firm was using its own equipment and software). One left very promptly after the 09:30 signal, but the others stayed on for some time, asking for further clarifications of the data and presumably continuing to transmit conventional copy.
59. The equipment in the lock-in room could have been feeding conventional news, news analytics for high frequency traders, or both. Agencies have to have a bona fide news gathering purpose in order to be accredited but some of the transmissions may go direct to traders. The press office told us that some agencies are only concerned with transmitting headline figures, while others send more detailed data.
60. ONS takes a number of steps to ensure that information is not transmitted before 09:30:
- (i) organisations have to be bona fide news agencies, not simply an agent or a front for HF traders; and they have to sign an undertaking
 - (ii) access can be withdrawn (we understand this has happened on one occasion)
 - (iii) there are controls over what is brought into the room (for example, no mobiles)
 - (iv) there is a master switch that isolates the equipment in the room from communication with the outside world until the BT time signal broadcasts 09:30
 - (v) suspicious trading behaviour is monitored by experts at the Bank of England.
61. The ONS Security Officer is advised by the Bank of England when there has been suspicious trading around the time of a release. An investigation may be triggered by a degree of 'chat' and rumour, accompanied by unusual movements in the foreign exchange

¹⁶ We understand that some attendees at lock-ins have in the past received additional, bespoke data tables, but that current ONS policy is only to supply copies of tables in the release

or interest rate markets ahead of the release. Trading behaviour based on prior knowledge has to be distinguished from the results of deliberate rumour-mongering carried out in an attempt to manipulate the markets (an example of the latter being a rumour about GDP that circulated in January 2013).

62. Lock-ins do not of course pose the only risk of premature release of data. Accidental disclosure and deliberate exploitation for financial or political gain are both possibilities, either by those in ONS involved in the production and publication process, or by those granted pre-release access in other departments. These risks and the steps to mitigate them are kept under review by the ONS Audit Committee.
63. A few releases on the ONS list of market sensitive statistics do not have a lock-in (see table on page 7). In such cases there is a risk that someone with legitimate pre release access could comment publicly at 9.30 in the belief that the figures are in the public domain, when in fact publication has been delayed. ONS may wish to review whether it has adequate arrangements in place to prevent this happening.

Practice elsewhere

64. It is common for other countries to publish official statistics at a standard time of day, although the exact time varies - for example, 08.30 (Eastern Standard Time) in Canada and 11.30 (Canberra time) in Australia. There are a range of practices in relation to pre-release access and lock-ins. Norway, for example, has no lock ins or embargoed releases, and pre release access is confined to a couple of Ministries in connection with their work on the public finances. We have been told that there are no problems publishing statistics on time. Denmark has no lock-ins, and only allows volumes of previously published data (such as the Yearbook) to be given to journalists a few days before publication, under embargo.
65. The Federal Statistics Office in Germany 'generally' publishes statistics at 08.00 and publishes a pre-release access list on its website¹⁷. ONS told us that the Federal Statistics Office considered arranging media lock-ins, but decided instead to email selected releases to the media under embargo. In France, key economic indicators are emailed under embargo to news agencies 15 minutes before the scheduled release time, and to print and broadcast journalists at the time of release¹⁸. Some of these indicators (the consumer price index, unemployment statistics and quarterly national accounts) are published as early as 07.30 am.
66. Statistics Estonia had established from a small email survey that media lock-ins are held in Canada, New Zealand and the USA (Agricultural Statistics Board). The publishing manager in New Zealand told us they hold around 100 lock-ins a year, each lasting 45 minutes. Anyone may attend (not just media representatives) and while a number of steps are taken to avoid transmission before the release time, the security arrangements appear to be less stringent than at ONS. Statistics New Zealand also told us they had made a number of improvements to their content management system which mean releases are, on average, available on the website within 1-2 minutes of the embargo being lifted. They feel that both arrangements work well and they rarely receive any negative feedback.

¹⁷ <https://www.destatis.de/EN/PressServices/Press/pr/PreRelease.html>

¹⁸ <http://www.insee.fr/en/publications-et-services/default.asp?page=collections-nationales/diffusion.htm>

67. Web searches identified an article¹⁹ in the New York Times about lock-ins for market sensitive data hosted by the US Department of Labor (which includes the Bureau of Labor Statistics). Like ONS, DOL has gradually increased the security of its arrangements over the years. In 2012 it commissioned a computer security firm to investigate the arrangements, and made significant changes as a result. A redacted version of the ‘CleanSweep’ report and subsequent consultations and policy changes are all available on the DOL website²⁰. Evidence given by a senior DOL adviser to a Congressional Committee describes the concerns about premature release that prompted the review:

“The rapid speed at which markets can integrate information has strengthened the financial incentive to violate the terms of pre-release access for the purpose of providing non-public data to paid subscribers. This reality violates a core principal [sic] of the federal statistical system of releasing data to the general public in a manner that prevents unauthorized dissemination or use. Algorithmic trading introduces new security variables into a lock-up system not originally designed to guard against market-moving disruptions that could be caused by the release of government data to certain traders just seconds before the rest of the general public. A few years ago, a few seconds here or there would not have had much of an impact. Today, fractions of a second can equate to millions or even billions of dollars in market movements.”

(Extract from the statement of Carl Fillichio, US Department of Labor senior advisor for communications and public affairs to the UK House of Representatives Committee on Oversight and Government Reform, June 2012)

68. In his testimony to the same committee, a former Commissioner to the Bureau of Labor Statistics placed more emphasis on concerns about unequal access to statistics. He said it had become increasingly difficult to provide fair and timely access to data through a press lock-up while at the same time maintaining adequate security arrangements. ‘Lock-up participants may now have access to specialised computer equipment and software that links them directly to automated trading models. This effectively allows financial market transactions to be driven from inside lock-ups’. He went on to quote from a specialist magazine article: ‘Key economic indicators are released to financial markets through a small and exclusive group of accredited news agencies...A trading model can now ‘read’ the specially-formatted data and enter into a trading position immediately, before the larger market has had time to read the release on newswires and digest its meaning’. The CleanSweep report similarly suggests that the ‘root cause’ for DOL’s concern was the possible presence of algorithmic traders and/or their agents in the lock up. The section in the report on ‘nightmare consequences’ mentions the possibility of such traders supplanting ‘real’ journalists; ‘accountability [presumably of DOL] in potential widespread financial implications’; and loss of reputation for fairness and accuracy.
69. The main outcomes of the US review were as follows:
- an initial recommendation that news organisations use DOL supplied equipment raised strong objections from media organisations, so it was decided that agencies could use their own equipment provided it is shipped directly from the manufacturer to DOL and is subject to inspection by DOL staff. Various changes have been made to the briefing

¹⁹ http://www.nytimes.com/2012/07/17/business/labor-dept-tightens-security-for-market-sensitive-data.html?_r=0

²⁰ <http://www.dol.gov/dol/media/lockupnotice.htm>

room and the technical facilities have since been reviewed by the computer security firm. Their findings were recently posted on the DOL website in an acceptance testing report.

- news organisations now have to re-apply for accreditation on an annual basis. A policy statement, a list of accredited organisations and a copy of the agreement they have to sign have all been posted on the DOL website. The organisations must be ‘primarily journalistic’ and produce time sensitive summaries and analysis that are likely to contribute significantly to public understanding. DOL’s stated aim is that taken as group (although not necessarily individually) the organisations should produce a variety of products that reach a wide and diverse audience, including both the general public and specialised media.

70. At the Congressional hearing, news agency representatives emphasised that their dedicated equipment, software and communication networks provided not just speed, but better cyber security and reliability than would be the case if all agencies had to rely on facilities provided by DOL. They also suggested that if the data were released on a government website in the first instance, without a lock-in, the combined pressure from the media, individual and institutional investors, and interested members of the public could overstress the website and cause access problems. In response to some direct questions about their revenues from paying subscribers, the associated trading volumes, and the time advantage gained by high frequency computer automated traders, it was stated that ‘much’ of the analysis developed for paying subscribers is simultaneously placed on the agency website, but the subscribers receive data and analysis via dedicated lines with low latency and will therefore gain an advantage of ‘several seconds’.
71. Closer to home, the Bank of England also holds lock-ins for some statistics that it regards as market sensitive. According to its Statistical Code of Practice²¹, the rules of conduct prevent reporting ‘or otherwise making use of’ the information until the official release time (normally 09:30). The Code states that ‘Market sensitive statistics are available on wire services for users requiring assured access at the 9.30 am release time’. The promptness of release on the Bank’s website is monitored and any ‘material delays’ are investigated. ONS has been told that the Bank regards three minutes as a reasonable target.

Discussion

72. This review has illustrated the tensions that can exist between different aspects of the Code of Practice, and the balance that is needed in addressing the following risks:
- unequal access to time sensitive statistics
 - publication delays, causing inconvenience to customers and reputational damage
 - breaches in security leading to manipulation or premature release of data
 - pressures on the website (especially if it were to become the only initial means of dissemination).

²¹ <http://www.bankofengland.co.uk/statistics/Pages/about/code.aspx>

73. In addition to mitigating the reputational damage from publishing delays, lock-ins may help to protect the ONS website from additional front end load which might further impede performance - but this at the cost of an additional risk of premature release. Steps have been taken to manage this latter risk and it may be possible to do more. The recent review of lock-in arrangements at the US Department of Labor was prompted by a concern that despite all existing precautions, participants might find a way of transmitting information to HF traders before the release time. As a result, the accreditation process in DOL is a little tighter than at ONS and it seems likely that their technical precautions are stronger. The practice of releasing more than one set of ONS market sensitive statistics on the same day exacerbates the risk of delays to publication on the website.
74. Even if ONS were able to keep market sensitive statistics in a secure loading area to be revealed at 09:30, the data would still have to pass through several security controls, so truly instantaneous publication may never be achievable. If the website were the only publication vehicle this would not matter, but there could still be fractional differences with release through the lock-in. It might be possible to overcome the argument against sending data to a non-ONS third party ahead of publication because there are precedents for this and the matter would be covered by contractual obligations. But from what we have been told, there is considerable uncertainty around the potential costs of the secure reveal option.
75. From the user perspective, access to time critical statistics is never likely to be completely equal because some people will always be better equipped to extract the information and act on it. High frequency traders are in a race with each other and are likely to pay for the fastest access they can afford. They are more likely to get the statistical data from the news agencies that attend lock-ins, which would make the website immaterial to them. It is not clear whether any users of the statistics regard the current arrangements as detrimental to their interests. ONS does not seem to have had any complaints about unequal access (as opposed to publishing delays) from traders.
76. Although there may seem to be something rather archaic about a system that requires people to attend in person, ONS communications and the statisticians we have spoken to were all very much in favour of the lock-in arrangement because of the perceived advantages.
77. Front end load could also be an issue if news agencies were prevented from transmitting from the lock-in until all items had loaded on the website. In addition to practical considerations (for example, how long journalists might need to be kept in the room if ONS were experiencing technical problems) there must be a question as to whether the agencies would continue to think they had anything to gain from attendance at the lock-in. There can be a gap of several minutes between the times at which the first and last items in a particular release load onto the website: if journalists have to wait until this process is complete, the headline figures will have been in the public domain for some time before they are able to transmit anything.
78. Finally, some of the items on the current list of ONS market sensitive statistics do not have lock-in arrangements and are therefore vulnerable to publication delays. If this is not perceived as a reputational risk, there may be a question as to whether the statistics are really market sensitive.