

THE QUALITY OF LIVE SUBTITLING BBC RESPONSE

Introduction

The BBC welcomes the opportunity to respond to Ofcom's consultation on the quality of live subtitling.

This is an important subject for the BBC as a broadcaster funded by, and established to serve, all licence fee payers. That means producing public service content that appeals to the breadth of the UK public, and distributing programmes and services in a way which makes them accessible to the maximum number of licence fee payers.

This commitment underpins our services to the Deaf community. In content, it is reflected by a long and well known history in creating programmes that champion Deaf culture and provide a platform for an honest discussion about issues of concern to the Deaf community. The BBC has done this since it broadcast the first programme for deaf and hard of hearing audiences in 1952 with *For Deaf Children* and most notably with *See Hear*, widely recognised as of real importance to the Deaf community since it became the first TV series made for, and by, the Deaf community in 1979. Alongside specialist programmes, the BBC also provides regular timeslots for live signed news content and daily Sign Zones (recently moved into daytime slots) offering signed content across a breadth of genres.

Throughout its history, the BBC has pioneered technological innovation. From early experiments with closed subtitling and audio description to the breakthrough technology of the K-LIVE re-speaking live subtitling system, the BBC's R&D teams have lead the field in finding ways to make the BBC's content more accessible to audiences with special needs. The development of K-LIVE was essential in helping the BBC meet its commitment to subtitling 100% of programmes on its main TV channels, a target met continuously since April 2008. In more recent years, the BBC has also led the way in making subtitles available to audiences for programmes delivered 'on demand' through the BBC iPlayer. Out of the 650+ devices on which the BBC iPlayer is now available, they all carry BSL interpreted content and over 90% of these devices support subtitles. Audio description is available online and will be rolled out across more platforms over the next couple of years.

This commitment remains ahead of most other broadcasters. In 2012, ITV 1's provision was 96.9%, ITV 2 93.9%, CITV 81.4%, Channel 5 90.4%, Sky One 74.9% and Sky News 72.2%.¹ Channel 4 also provided 100% subtitling across its channels but delivering 100% across the BBC's output presents a far greater challenge. This is because the BBC not only delivers a huge total volume of live programming requiring the production of over 20,000 hours a year of live subtitling, but because much of this live content is delivered in simulcasts on BBC One and Two across the corporation's Nations and Regions output. Delivering subtitling on 18 live streams for each major Regional News programme on BBC One is a huge operational and technical challenge, far greater than that faced by single stream networks such as Channel 4 and Sky.

As the BBC closed the final percentage points to meet its 100% target, it accepted the challenge of subtitling those programmes which are the hardest to deliver, whether for operational or technical

¹ <http://stakeholders.ofcom.org.uk/market-data-research/market-data/tv-sector-data/tv-access-services-reports/2012-report>

reasons. Once the target was met, audiences understandably shifted their focus to demanding greater accuracy but in doing so, it is often forgotten quite how far this service has come in such a relatively short time.

Because of how the BBC is funded and its public interest mission, it is right that it should be ambitious in ensuring the breadth of its content is universally accessible and creates a shared experience. The depth of BBC provision in content and access services for the Deaf community, alongside the greater demographic balance towards the elderly in the hard of hearing (a cohort that consumes the BBC relatively more than other age groups) means that the consumption of BBC content and services by the Deaf community is greater than for other broadcasters. This exposure to BBC content is reinforced by the long history of strong ties between the Deaf community and the BBC as a platform for Deaf culture. As a result BBC content is more scrutinised than any other, and is – rightly – subject to higher expectations.

The BBC's commitment to subtitling quality

In seeking to meet and build upon these expectations, the BBC has performance measurements in place with its access services provider, Red Bee Media (RBM). Whilst the accuracy of live subtitling currently averages 98%, we are not complacent and continue to seek to improve upon this. For example, we anticipate that the introduction of *Subito*, RBM's new live production tool, will be an important step and also believe that new contractual arrangements with RBM, effective from January 2014, will also drive up overall quality. However, while accuracy has steadily improved over the years, the BBC also feels that it is important to manage audience expectations and it believes Ofcom has a role to play here. As Ofcom's consultation document clearly shows, producing and delivering live subtitling is an extremely complex operation and due to the limitations of existing technology, it can never be 100% accurate.

Key performance indicators require RBM to report each month on their delivery against subtitle availability and accuracy. A service credit regime is also in place to incentivise the supplier to meet their targets. The new contract includes additional KPIs, and existing targets for availability and accuracy have been increased, alongside a tougher service credit regime.

Performance management of the subtitling team is very important. Subtitlers must consistently achieve 97% live accuracy before they are allowed on air. The output of all subtitlers is measured four times a month by peers and line managers. This involves conducting textual reviews of 15-minute sections from a variety of live programmes. As well as accuracy, they check for completeness of the subtitles against the expected word-count. Subtitlers also have monthly catch-ups with their line managers at which statistics about their accuracy are discussed and targets reviewed. Remedial training is given, if required, and they have well-established performance management procedures for anyone who may not be responding to the remedial training. All staff are incentivised financially to become ever more accurate and productive.

Further developments in technology should present new opportunities to deliver higher quality subtitling in future. In this context, RBM's new live production tool *Subito* sees re-speakers moving from *ViaVoice* speech to text software to *Dragon Naturally Speaking* and their stenographers from *Steno32* to *CaseCatalyst*. Both of these applications are fully integrated into *Subito*. Additionally, RBM have been working with their development partner to minimise the text-to-air release rate of

subtitles whilst maximising the benefits of Dragon's inbuilt contextual awareness and these two things, combined with greater re-use of existing Newsroom text, will deliver significant improvements in live subtitling quality. Within the BBC, TV Operations is also working with BBC Journalism to improve the delivery of News scripts, running orders and video packages to the Red Bee subtitling team.

Alongside RBM's monitoring of its own output, the BBC has since July 2008 run its own programme of spot checks on a selection of live and pre-prepared subtitle files each month. For all programmes selected, forensic analysis is carried out to assess the accuracy of the files as delivered to audiences. Subtitles are assessed against the broadcast media and the resulting reports are shared with RBM management, who in turn distribute them within their teams.

In addition, the BBC is actively supporting RBM in its work with the EU Bridge project. One of the aims of this project is to explore to what extent automatic speech recognition might be used to assist the subtitling process in future. The BBC has agreed to provide access to the audio and subtitle files of some weather and travel bulletins to assist RBM and its academic and technology partners within the project in exploring the possibilities here. The BBC hopes this project will lead to greater efficiency and enhanced quality on screen through, for example, automated wordlist generation.

Our expectation then is that technological developments such as those referenced above should continue to be the key route to enhancing live subtitling quality. The BBC's own measurements framework provides sufficient information in planning its own subtitling provision and identifying where issues need to be addressed as a broadcaster. It is not clear that another measurements framework, as outlined in the consultation response, would add to this existing framework, given the limitations of any proposed methodology in being able to provide reliable data for a comparative purpose. This then raises questions of whether the proposed additional framework is a cost-effective approach.

The aims and approach of improving subtitling quality

Exploration of how subtitling quality can be improved is a welcome aim. However, in answering the questions of the consultation, some important limitations in the proposed measurements framework emerge. Key considerations of the proposed approach would include:

- Ensuring a consistent methodology across all broadcasters, suppliers and output
- It would be necessary for Ofcom, not individual broadcasters, to undertake the analysis under an agreed methodology and with due transparency, with broadcasters having a right to reply and provide feedback on the methodology prior to publication. This would be necessary to provide assurance to charities, the community and broadcasters that the measurements are all being undertaken objectively by a disinterested party.
- A prior assessment of whether the sampling creates a 'luck of the draw' scenario – this creates direct challenges to the proposed approach's capability of delivering meaningful comparisons when broadcasters have commitments of varying complexity. This would require consideration of how an objective approach to selection of samples within a set framework that is consistent for all broadcasters may be achieved. One means may be samples of regular opening news bulletins across broadcasters across a set time period. The opportunity for selectivity should be minimised to promote greater fairness.
- An estimation of the costs of all proposals that emerge, and an objective assessment and validation that these are proportionate.

- In addition to understanding proportionality, the approach should be properly informed by professional, independent and representative market research using qualitative and/or quantitative research methodologies
- Ensuring that the range of metrics recognise that there are often trade-offs between the different areas such as speed and latency
- Whether the approach would tangibly add to the existing performance measurements framework undertaken by broadcasters if the additional framework set out in the consultation framework cannot provide a reliable basis for comparative purposes.

The clear limitations of the proposed approach in identifying and helping to address subtitling users' concerns as outlined later in this response indicates the benefit of potentially a broader strategy than the proposed measurements framework. As a package, we would suggest that this may include:

- Professional standard qualitative and quantitative research commissioned by Ofcom as part of the review, in line with the standard of Ofcom's output in other policy areas. This is discussed in more detail later in this response.
- Following the Parentport model, the creation by Ofcom of an easily accessible one-stop-shop hub for complaints and information to provide an enhanced feedback mechanism. This would include advice and guidance on useful details to include in complaints to the relevant party to make sure that they can be properly investigated, as well as a revised list of devices that are compatible with the access services of the most popular on-demand and linear content providers to inform consumers. It would include broadcasters, set-top box manufacturers, and potentially other parties involved in accessibility for content valued by audiences. Given that some of the issues identified by Ofcom, such as speed, also relate to set top box manufacturers, then enhanced complaints mechanism should be more effective at helping address this area than the proposed approach in the consultation document
- A basis of strengthened direct dialogue between broadcasters, charities and their memberships.

These initiatives may provide a more effective basis for identifying and addressing the concerns of the Deaf community.

In particular, the consultation document highlights the lack of professional standard qualitative or quantitative research on the viewing experiences of subtitling users. As a methodology, the *SurveyMonkey* report cited and used in the consultation document² is not a sufficient basis for an empirical understanding of the Deaf and hard-of-hearing attitudes on this area. 580 self-selected respondents, with questions written by a lobbying organisation, with no weighting either by demographic or viewing habits, cannot be considered to be representative of the total hard of hearing and Deaf community of an estimated 10 million in the UK.

The survey does not meet the professional standards in methodology that in other areas Ofcom usually commissions by market research organisations, and should not be used as an evidence base.

As part of this review then, it would be a valuable contribution for professional standard qualitative and / or quantitative research to be undertaken that can accurately gauge the priorities of the Deaf and hard-of-hearing community, and test the degree to which access services distort the community's concerns compared to the wider UK public's concerns about their TV experience (such as repeats or a perceived 'lack of variety'). This should be an important part of Ofcom's work

²Referenced report here:

<http://www.actiononhearingloss.org.uk/~media/Documents/Policy%20research%20and%20influencing/Research/Getting%20the%20full%20picture/A0609GettingthefullpictureRev4.ashx>

in this area. This should be undertaken prior to consideration of changes to the present regulatory framework.

It also emerges from the consultation that enhanced feedback mechanisms may in addition be desirable. For example, on subtitling speed, our own spot checks over the past year have not observed any live subtitles produced at speeds above 170 wpm – not absolute proof that it never happens (as with any proposed approach with a limited sample), but indicative that it is very rare. If the issue is viewers experiencing subtitles appearing/disappearing on screen too rapidly, then it is more likely to be a temporary technical failure in one part of the production process or the manifestation of a set-top box problem.

In order to enhance the present complaints framework, it may then be useful to adopt a similar approach to ‘Parentport’, an initiative that has notable success as a one-stop-shop for complaints by parents about a range of media concerns. There may be merit in adopting this model for the disabilities community, with guidance on where to go with complaints for broadcasters, set-top box manufacturers and other services; advice on useful information to include in complaints (in the case of broadcasters, this would include details such as the receiver type and make, the digital platform used, and obviously the programme, channel (HD or SD stream?) and the region they are watching in; and a periodically revised list of devices that are compatible with the accessibility provisions of popular services.

The BBC greatly values its relationship with the disability charities and regularly meets with them for round table sessions. We would be happy to discuss with charities the possibility for strengthening this engagement and formalising meetings with BBC managers on a periodic footing, alongside other initiatives to help boost dialogue and shared understanding.

In considering the questions below, the proposals as set out in the consultation should be considered with reference to the principles for good regulation as identified by the Better Regulation Taskforce³. For example, when monitoring of subtitling quality beyond that already undertaken by broadcasters is considered, clear issues on proportionality emerge in attempting to develop a methodology that provides meaningful comparisons. On accountability and targeting, the package of measures that this response suggests above – a one-stop-shop for complaints and guidance that includes both broadcasters and set-top box manufacturers, alongside professional research into the views of the audience and strengthened dialogue with charities – seems more effective. Analysis of the proposals also indicate significant challenges in ensuring consistency and transparency, only partly addressed if Ofcom were to lead on the application of an additional measurements framework.

Questions for consultation

Q1. Do consultees agree with the proposal to require broadcasters to measure and report every six months on the average speed of live subtitling in a variety of programmes, based on a sample of segments selected by Ofcom?

It would be helpful if a greater level of clarity could be established on the issue identified: whether it is subtitlers producing subtitles at more than 200/wpm, or viewers experiencing subtitles appearing/disappearing on screen too rapidly. If it is the latter, then it is considerably more likely to be a temporary technical fault in the production chain or the manifestation of set-top box problems (e.g boxes buffering subtitles, then releasing them rapidly).

³ [Principles for Good Regulation](#), Better Regulation Taskforce

Certainly in practice, it is a very difficult feat for a subtitler to subtitle faster than 200 words per minute. Over the last twelve months of spot checks by the BBC, we have not observed any live subtitles produced at speeds above 170 wpm. Complaints regarding speed are also very rare. Of course, this does not suggest it never happens, but it does suggest it may not be simply an issue within the AS supplier or broadcaster's control. We would agree with Ofcom's consultation where it states that 'at a rate of more than 180 wpm, deaf, hard of hearing and hearing impaired readers found it difficult'.

Given the apparent rarity of subtitling speeds exceeding 170 wpm, and that this also concerns set-top box manufacturers and not just broadcasters, then there may be a more effective approach than a sample based measurements framework given existing practice on this area. For example, this could be an area where a one-stop-shop for complaints and feedback would be more effective for identifying the source of the issue for users as and when concerns arise.

There is also a question of priority relative to the other metrics discussed in the consultation document. The speed of subtitling has to be balanced against the speed of dialogue in the programme and the degree to which the subtitler is having to edit dialogue to deliver acceptable subtitle speeds. The more editing required, the longer the delay due to 'thinking and processing time.' Ofcom's explanation of the subtitling process within its consultation paper is especially clear in explaining the multiple activities subtitlers have to carry out when producing live subtitles.

Notwithstanding the significant questions about the justification and focus of the proposed measurements framework, there are also several methodological challenges which might make such a regime difficult to implement. These include:

- Determining a sufficient sample size would be a challenge to ensure a meaningful measurement and avoid random outcomes. If a measurements approach were to be adopted, then a sample size that would give a proper understanding of the scale of an issue with subtitling speed would need to be of such a size that it would be at disproportionate cost, particularly in the absence of professional research on the scale of concern about this issue. This would be against the principles of good regulation as identified by the Better Regulation Taskforce, and highlights a broader concern across the proposed framework.
- Ofcom, as an objective body that can apply an agreed and consistent methodology, would have to undertake the measurements activity and provide confidence that the same standards of measurement are being used across all broadcast output.

With reference to the principles of good regulation, an approach that may provide greater proportionality, accountability, targeting and consistency would be an alternative mechanism that also includes set-top box manufacturers. This would be the one-stop-shop hub for feedback and complaints proposed earlier in this response, and provide a more meaningful way of helping those users with concerns as they arise.

Q2. Do consultees consider that broadcasters should be asked to report separately on different types of live programming? If so, do they agree with the suggestions in paragraph 6.19, or would they suggest different categorisations, and if so, why?

Different genres and types of content can present different challenges to subtitlers. In sport for example, re-speakers undertake specialist training to learn the specific terms and names that relate to that individual sport, whether it is football, darts, curling or gymnastics.

In news, broadcasters with public service obligations in regional programming may present unique challenges to subtitlers for example where contributors have very strong accents , or in programmes which include fast-paced, intense one-on-one interviews (e.g *HardTalk*) or heated debate between multiple participants (as often featured on *Newsnight*). Delivering accurate and well-paced subtitles for these programmes is an especially difficult task.

Within each genre then, subtitlers can face a number of scenarios that present different levels of complexity. In addition to genre, consistency in content format (e.g news bulletins are a different challenge to panel debates) should also be an important consideration.

Suggested comparable samples of genre and content form may be:

- News – network summaries or rolling news should be relatively easy to compare across broadcasters
- Sport – this would require comparisons of the same sport as different sports require very different approaches (e.g football has fast exchanges between 22 players and names; whereas snooker is a slower, one-on-one sport but may involve the use of less familiar technical terms, and motorsport is well known for its fast-paced commentary)
- Entertainment – Saturday night talent programmes may make an effective comparison.

To ensure consistency in content form across all broadcasters involved, it is notable that some of these genres would be easier to assess with a more consistent measurements framework than others. News summaries and opening bulletins can provide a more consistent content form than some sports or entertainment formats. In sport for example, different broadcasters hold rights to provide different sports.

Q3. Do consultees consider that the guidance on subtitling speeds should be reviewed? Do consultees agree that, for the time being, it would not be appropriate to set a maximum target for the speed of live subtitling? If not, please explain why.

We would agree that the present guidance is sufficient. The likelihood of going above 200 wpm is extremely low (even for programmes with very fast speech e.g *Newsnight* or *Question Time* which often have overlapping exchanges). It presents a significant physical challenge for a re-speaker to exceed that speed. Over the past year, the BBC's own spot checks have not registered any live subtitles produced at speeds above 170 wpm.

Q4. Do consultees agree that it would not be appropriate at this stage to set a maximum target for latency? If not, please explain why.

The various causes of latency should be better investigated and understood before one can usefully set a maximum target for latency. The complexity of the broadcast chain and indeed differences in which specific makes of receiver and set top boxes process access services can influence latency as much as other factors which are directly under the AS providers' and broadcasters' control.

Section 5 of Ofcom's consultation document references the observation that broadcasters do not always allocate sufficient bit rate to support the reliable and timely delivery of subtitles. While acknowledging that this is a complex issue, the BBC would like to clarify that it makes every effort to allocate sufficient peak bit rate to ensure there are no delays caused by this issue in the delivery of the BBC's subtitling service. The BBC will continue to ensure that a full understanding of our broadcast chain, composed from our various suppliers, is maintained. Given the complexity of decoding the subtitles by a receiver then further thought should be given as to whether the current

receiver compliance regime adequately ensures that product meets the clear standards set out in the DTG D-Book. Additionally, we know that with Connected TVs, subtitles will be delivered in new formats over IP and similar issues of timing accuracy will need to be addressed. Consideration should therefore be given now to the need for compliance standards and testing to encompass these developments.

Of course, broadcasters and service providers do aim to keep latency to a minimum, but within the production domain this has to be balanced against other metrics such as speed and accuracy. The degree to which that balance is struck is often dependent on the content itself; the complexity of the programme is an important determinant upon the level of latency generated within the production process. Editing and correcting difficult and new words alongside pronunciation and punctuation challenges, can all have an impact.

In practice, the most effective way to meaningfully address this production challenge is to improve the supply of programme data to subtitlers prior to transmission – this includes scripts, running orders, lyrics and so on from the broadcaster to the access service provider. The BBC is working on all these areas and *Subito*, RBM's new live production tool, is designed to maximise the benefits of this where this information is forthcoming.

Q5. Do consultees agree with the proposal to require broadcasters to measure and report every six months on error rates, on the basis of excerpts selected by Ofcom from a range of programmes?

To provide greater assurance about the consistency of approach to measuring error rates etc, we feel it would be appropriate for Ofcom as a disinterested party to report on this using a transparent methodology and giving a right of reply to broadcasters. Within this context, it is also important to note that individual methods for monitoring quality have been agreed by each broadcaster in separate commercial arrangements with their access service suppliers and these cannot be easily unpicked.

There are key challenges in designing a reliable methodology as a basis of comparison. For example, it is an important factor that broadcasters have varying complexity of challenges in delivering subtitles (such as multiple live regional simulcasts). The differing levels of provision also presents disparities between broadcasters that a reliable methodology for comparing accuracy would need to account for. The difficulty of subtitling disproportionately increases as 100% approaches. It presents a challenge of how to achieve a meaningful sample size whilst also accounting for those with a much greater delivery challenge.

The three categories of error – minor, standard and serious – appear on the surface to be a reasonable proposed set of categories. However, a clear definition for each is essential but in practice will be difficult to establish and agree. The definitions and methodology used by Ofcom must be open and transparent, and broadcasters must have a right of reply in authenticating the consistency of approach and selection of samples with reference to an approach agreed as fair.

Other considerations are also important to understanding the complexity of this approach. To measure this area properly, the assessor would need to review subtitling against the actual programme sound and vision, not just a text print out of what the subtitling said. This is a very time consuming process to achieve at a significant scale, and may be of limited public value as a use of resource, given that broadcasters already have individual quality checks and key performance indicators agreed with access services providers – already performing the function for broadcasters seeking to boost quality. Once again, proportionality of the proposed approach without proper analysis of the views of audiences is a key concern.

As referenced earlier, the requirement that broadcasters retain programmes for 90 days is also an important factor, so the timing and frequency of doing these sample checks would have to work within the confines of this existing requirement.

Q6. Do consultees have any views on the advantages and disadvantages of scrolling versus block subtitles for live-subtitled programmes? Taking account of both the advantages and disadvantages, which approach would consultees prefer, and why?

We would welcome feedback from subtitling users on which is the preferred style – and this may be a useful question for professional market research with regular users of subtitles.

It is generally recognised that block subtitles are easier to read. To this end, it is welcome that the new system *Subito*, RBM's live production tool, will deliver prepared block live subtitles for repeated reports within News output.

However, it's important to recognise that live block subtitles involve a compromise on other criteria considered in this consultation. Delivering block subtitles universally would necessarily increase delays for live subtitling. If latency is a significant issue from a professional survey, then there is a question of priority between the two outputs. It should also be noted that it is well understood that reading scrolling subtitles becomes a habit for those who rely on them.

Q7. What are the factors that might facilitate or hinder the insertion of a delay in live transmissions sufficient to improve the quality of subtitling? Ofcom would particularly welcome the views of broadcasters on this question.

For our audiences, live is one of the key expectations and benefits of the TV platform. It creates shared experiences for national moments as they happen, ranging from:

- Sport and the sense of shared experience as a nation that moments of tension and celebration in the Wimbledon final or the Olympics brings, whether you're in the live audience or viewing from the living room
- Special events (such as royal occasions or 'countdown' moments such as New Years' Eve)
- Breaking news that endures in collective memory. It connects the living room as an otherwise atomised physical location into the shared, focal moments for the nation, wherever they're happening.

These are just a few examples of the experiences that carry strong social value for all audiences, and it's therefore our duty as a public service broadcaster to ensure that they are accessible to everyone.

When audiences know that moments captured on television are live, it creates different expectations and presents a different creative proposition with the sense of spontaneity it brings – mistakes could happen, improvisation could be necessary, they can be confident that what they're seeing is as it is happening and without any significant delay or editing. Those surprises, and the reactivity required by the production and on-screen team, is tangibly shared with the audience, creating a distinctive atmosphere, energy, excitement and enthusiasm during key moments such as the live final of *Strictly Come Dancing* or the General Election. It is a core part of what has made television such a powerful and compelling medium, and helped drive an enduring appetite for linear content.

Live TV then is essential to creating a shared experience, but it's also crucial to the BBC that that shared experience is then made universally accessible. That is why we committed to subtitling 100%

of our live output on our main channels and why we continue to seek improvements in accuracy with RBM.

The length of delay that would have to be introduced to deliver what would be a proportionately small improvement in subtitling quality would have to be of a length that would in practice deprive all audiences of a genuine live TV experience. Our view is that a delay created to improve subtitling quality would have to be much greater than 20 seconds. The longer the delay, the greater the potential benefits to accuracy, but only if you add a further subtitler to correct the subtitles generated in the 'first pass'. Consequently, the additional costs and delay required would not be, in our opinion, proportionate to the problem, especially as this would deprive the entire audience of a true 'live' experience.

In order not to mislead the audience, the delayed output would have to be labelled as such, with a clear explanation as to why it is not actually live. A delay would also carry additional practical issues for the universal viewing experience, e.g:

- The importance of television as a live, shared experience is becoming more, not less, important with the growth in digital platforms and social technologies. Surveys now estimate that about 80% of audiences regularly watch second screens via laptops, mobiles and tablets whilst watching television. They may access services such as Twitter and Facebook – key platforms for commenting on powerful moments in sport and news – or content directly related to the event such as live blogs. This trend is likely to increase in line with platform growth forecasts, as well as actively being encouraged to enhance the TV experience with bespoke second screen experiences being developed by broadcasters, and social technology becoming increasingly integrated into the IPTV experience. A delay would damage the potential for these technologies to converge and create a greater shared experience, but by de-synching could also spoil the surprise moments that make currently live television so compelling for all audiences. It would be intolerable if audiences were to be learning of live outcomes from other platforms when they were expecting to see those moments live on television. We would consider this a major risk in the introduction of delays.
- Television is a powerful source of trusted news due to a number of factors, but partly because as a technology it delivers visual accounts of events as they happen and without editing. This is a user expectation and value for all audiences, which once again we agree should be universally accessible. We would be concerned that a delay would damage the strength and value of television as a trusted medium across a range of genres, not just News. For example, competitions (particularly those that involve dial-ins) would be more complicated and become more open to suspicion of fiddling.

Lastly, the introduction of a delay of this nature would add significant technical and operational risk to an already complex playout operation. This would be especially acute at complex schedule points on the BBC's most reactive channels, BBC News and BBC One & Two, with all their National and Regional opt-outs. Processing delays to live output could add disproportionate risk to the secure delivery of programme output **for all audiences** and this is not therefore a practical suggestion in the BBC's view.

In summary, we believe the proposal would lead to a worse overall TV experience for the Deaf community and the wider national audience for editorial and technical reasons, weaken the social value and trust of live broadcast television, and present disproportionate cost both to the universal broadcasting experience, and in terms of the financial logistics, for limited gain.