

Terms of reference and conduct of the inquiry

Terms of reference

1. On 30 September 2013, the OFT sent the following terms of reference to the CC:
 1. In exercise of its duty under section 33(1) of the Enterprise Act 2002 ('the Act') to make a reference to the Competition Commission (the 'CC') in relation to an anticipated merger the Office of Fair Trading (the 'OFT') believes that it is or may be the case that –
 - (a) a relevant merger situation has been created in that:
 - i. arrangements are in progress or in contemplation which, if carried into effect, will result in enterprises carried on by or under the control of Creative Broadcast Services Holdings (2) Limited ceasing to be distinct from enterprises carried on by or under the control of Telefonaktiebolaget LM Ericsson (PUBL); and
 - ii. as a result, the condition specified in section 23(1) of the Act is satisfied, in that the value of the turnover in the United Kingdom of Creative Broadcast Services Holdings (2) Limited exceeds £70 million.
 - (b) the creation of that situation may be expected to result in a substantial lessening of competition within any market or markets in the UK for goods or services, including the supply of linear playout services.
 2. Therefore, in exercise of its duty under section 33(1) of the Act, the OFT hereby refers to the CC, for investigation and report within a period ending on 16 March 2014, the following questions in accordance with section 36(1) of the Act:

- (a) Whether arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation; and
- (b) if so, whether the creation of that situation may be expected to result in a substantial lessening of competition within any market or markets in the UK for goods or services.

(signed) Clive Maxwell
Office of Fair Trading
30 September 2013

Interim measures

- 2. On 12 December 2013, we accepted [interim undertakings](#) from the parties and published these on the CC website shortly thereafter.

Conduct of the inquiry

- 3. We published [biographies](#) of the members of the Inquiry Group conducting the inquiry. The [administrative timetable](#) for the inquiry was published on the CC website on 18 October 2013, and updated on 24 January.
- 4. We received written evidence from Technicolor and RBM. A non-sensitive version of the [parties' joint main submission](#) can be found on the CC website.
- 5. On 1 November 2013, members of the Inquiry Group, accompanied by staff, visited Technicolor's UK playout facilities at Chiswick Park and RBM's playout facilities at BBC Broadcast Centre in West London to see the operation of the two businesses.
- 6. We received written evidence from the BBC, Deluxe, and one other company.

7. We invited a wide range of interested parties to comment on the acquisition. These included customers of the main parties, competitors and potential competitors. Evidence was obtained through oral hearings with third parties, through telephone contacts and through further written submissions. All [summaries of hearings](#) can be found on our website.
8. An [issues statement](#) was published on our website on 6 November 2013, setting out the areas of concern on which the inquiry would focus.
9. We held separate hearings with Technicolor and RBM on 13 December 2013.
10. In the course of our inquiry, we sent to Technicolor and RBM and other parties some working papers and extracts from those papers for comment, and to check for accuracy and confidentiality.
11. On 19 February, the inquiry group published a [notice of extension](#) to extend the statutory deadline to 11 May 2014.
12. A non-confidential version of the provisional findings report has been placed on the CC website.
13. We would like to thank all those who have assisted in our inquiry so far.

Industry background

Introduction

1. The parties are both active in the broadcast services industry, which encompasses a number of discrete and overlapping products and services that are purchased by broadcasters to facilitate transmission of programming in an appropriate format and quality.

2. This appendix sets out:
 - (a) the nature of services that the parties and their competitors may provide to broadcasters;
 - (b) a discussion of linear playout including:
 - (i) the use of outsourced linear playout providers by large broadcasters;
 - (ii) the nature and content of contracts between providers of playout services and broadcasters; and
 - (iii) the service quality that playout providers must achieve;
 - (c) relevant aspects of regulation that broadcasters must comply with; and
 - (d) an overview of significant participants in the outsourced linear playout market and the overlap in service provision between the two parties.

The broadcasting services industry

Broadcasting services

3. A number of services are required before television programmes can be transmitted and ultimately viewed by audiences.

4. All of the services are required to allow transmission of programming in the correct format or to comply with regulatory requirements. These can be grouped into five broad categories of service:¹

(a) Content provision. Content provision is principally the responsibility of broadcasters and includes all material that is broadcast and includes programmes, adverts and 'idents'.² Content may be pre-recorded or may be broadcast live. Content may be commissioned from third parties or produced in-house. Content provision by companies providing broadcast services will typically be focused on producing channel idents and trailers.³

(b) Media logistics. Content may be supplied to broadcasters in a variety of digital and analogue formats. In order for it to be broadcast, this content needs to be captured and stored in an appropriate format to be played out.⁴ This includes a process of quality control to ensure that the source material and stored material is of appropriate quality (including both picture and audio quality and that the picture and audio are synchronized). Depending on the arrangement made, the content may be stored on the broadcaster's or the third party provider's system.

(c) Access and metadata:

(i) Access services relate to the provision of subtitling and on-screen signing for those with hearing impairments and audio description for those with visual impairments. Access service requirements differ according to the broadcast licence of each channel (these are discussed further in paragraph 25) and may need to be provided live for unscripted live television programmes such as the news. To provide subtitles, a provider will employ staff to transcribe live or pre-recorded dialogue (if no script is available) and in the case of recorded programmes synchronize it with the audio track to ensure that subtitles

¹ These categories are those used by the OFT in its decision document.

² 'Idents' are short clips played between programmes to identify the broadcasting channel.

³ Some companies active in broadcasting services such as Portland TV will also produce adverts or offer studio and production facilities for producing programmes.

⁴ This process includes 'ingestion' where content is loaded onto the library system and encoded (converted from an analogue source to digital) or transcoded (converted from one digital format to another).

appear at the correct time.⁵ In the case of audio description the provider will employ a narrator to describe the visual content without overlapping dialogue. For on-screen signing, a signer will be filmed signing the dialogue and will be superimposed on the picture.

(ii) Metadata refers to information about the content of a programme. The level of detail included in metadata will vary; in the first instance metadata allows the broadcaster or playout provider to identify specific content on an electronic media library system to facilitate playout. Metadata is also used to generate programme information for the electronic programme guide that will be displayed on televisions and will be provided to publishers of television listings.⁶ Metadata services providers may be required to generate this data through summarizing content, or may attach existing information to content, or produce databases to exploit the metadata attached to a media library, or extract metadata in an appropriate format for third parties.⁷

(d) Playout services. We discuss playout in paragraphs 5 to 7 below.

(e) Distribution. Once playout has been performed, the output of the playout process needs to be distributed to the various providers of transmission (terrestrial antenna transmission, satellite, fibre-optic cable and Internet television) through the use of a high-speed data connection to the transmitter's hub.

Linear and non-linear playout services

5. Playout is the provision of programming in a format ready for transmission and viewing by a viewer. The provision of playout for the purposes of scheduled

⁵ Providers need to ensure that subtitles appear for an appropriate duration and without disrupting too much of the picture. In addition, for live subtitling a provider will need to ensure accuracy and this may require a balance between verbatim transcription and paraphrasing.

⁶ For example, this information might include a description of the content of the programme.

⁷ Such parties might be television listings magazines. Different platforms (Freeview, Sky, Virgin Media) may include additional information in their EPG, such as the series and episode number of a scheduled programme. This information can drive features such as 'series link' which allows a viewer to record all episodes of the same series, or may allow a recommendations engine to suggest programmes a viewer might wish to watch based on viewing habits.

broadcast television is referred to as 'linear playout' and for the purposes of 'on-demand' viewing online as 'non-linear playout'.

Linear playout

6. Linear playout is a process whereby content is compiled and prepared for subsequent transmission to the audience in strict compliance with the broadcaster's programme schedule. In addition to the actual programme content (live and/or pre-recorded) linear playout must take account of advertising and sponsorship breaks, trailers, inserts and other announcements in the programme schedule when required.

Non-linear playout

7. Recent technological developments and increased consumer demand for on-demand programmes/films and video content via different devices including desktop/laptop computers, mobile telephones and tablets has resulted in the need for playout services that are referred to as 'non-linear'. On-demand playout (known as video-on-demand) on certain platforms (such as iPlayer) may involve preparing and delivering content that has been compiled for linear playout. Current examples of non-linear playout are Filmflex, Netflix and BBC iPlayer.

Linear playout

Development of the outsourced linear playout market

8. The use of third party playout providers in the UK by broadcasters with more complex needs (ie BBC, ITV and Channel 4) as a result of outsourcing an in-house facility began in 2002 when the BBC incorporated BBC Broadcast Ltd as a separate subsidiary for its playout services. In 2005, after an internal review of commercial

businesses⁸ the BBC sold the business to Macquarie Capital Alliance Group and Macquarie Bank Limited.

9. ITV and Channel 4 outsourced their playout facilities in 2007 and 2008 respectively.⁹ Other broadcasters with simple requirements had used third party playout providers prior to 2005.
10. BSkyB (Sky) has retained its playout provision in-house and provides playout facilities for a number of broadcasters that retail on its satellite platform. Other smaller broadcasters may use an independent third party provider, Sky or provide playout in-house.
11. The Discovery network is an example of a broadcaster which had outsourced its facilities and then returned them in-house, which it did in 2010.
12. Figure 1 shows the providers of linear playout services for a number of larger broadcasters over the period 2005 to 2013.

⁸ The review concluded that 'that, whilst the services provided by BBC Broadcast are vital to the BBC, they did not necessarily need to remain owned by the BBC' www.bbc.co.uk/pressoffice/pressreleases/stories/2005/07_july/22/broadcast.shtml.

⁹ Channel 5 has outsourced its playout since its launch but retendered its playout in 2011 to have a single playout provider for all channels.

FIGURE 1

Playout arrangements of broadcasters, 2005 to 2013

	2005	2006	2007	2008	2009	2010	2011	2012	2013
BBC	RBM								
ITV	In-house		Technicolor						
Channel 4	In-house				RBM				
Channel 5	RBM (Channel 5) & Encompass (Digital channels)						Encompass		
Sky	In-house								
Turner	In-house								Arqiva
BT Sport	/								RBM
British Eurosport	NTL	Arqiva						Arqiva	
ESPN	RBM				Arqiva				
MTV Europe	In-house				In-house				
Disney	Technicolor							Encompass	
Discovery	Ascent (Encompass)		Encompass			In-house			

Source: Figure 1.1 of [parties' initial submission](#), amended.

13. As the industry has developed, we understand that the prices paid by broadcasters for linear playout have fallen in part as a result of technological development and changing delivery models.¹⁰

Contracts

14. Contracts for linear playout tend to be agreed for between three and 12 years, though there may be break clauses for certain events over the length of the contract. Where a playout provider provides more than one service to a single customer, there may be a Master Services Agreement that covers all services, or they may be contracted separately.
15. Contracts include the pricing structure (typically a monthly service fee) either for combined services or on a service-line-by-service-line basis. For certain services, there may be a minimum volume of services that are contracted to be provided.

¹⁰ [Parties' response to issues statement, parties' initial submission to the CC, summary of hearing with Turner, summary of hearing with Encompass.](#)

Contracts will also include references to KPIs which need to be met to avoid triggering a financial penalty repayment or 'credit' under the contract.

16. Contracts will include provisions for transitional arrangements should the contract not be renewed. Such transitional periods may last several months and in some cases over a year. Contracts may include specific requirements over which personnel employed by the incumbent playout provider are required to transfer to the replacement provider in addition to which employees are subject to the provisions of TUPE regulations (see paragraph 19). In some circumstances, facilities may also transfer between providers.¹¹
17. At the initiation of a contract, there may be some capital investment required to establish a playout suite with appropriate equipment and software. The terms of the contract will set out whether the costs of this will be met by either the customer or the playout provider.
18. As part of the tendering and contract negotiation, a playout provider may need to establish new facilities or acquire new equipment, if the existing playout suite is not transferred from the previous provider or is out of date. The broadcaster may require the playout provider to use specific aspects of infrastructure (be it hardware or software). The playout provider must either build its own playout suite, or use a 'systems integrator'.
19. We understand that under the Transfer of Undertakings (Protection of Employment) (TUPE) regulations, if a broadcaster changes its playout provider,¹² staff which work

¹¹ Examples include Disney and Discovery.

¹² This is a 'service provision change' under TUPE.

primarily¹³ on that broadcaster's playout will automatically have their employment contracts transferred to the new provider.¹⁴ We understand that this means where a broadcaster's playout has a dedicated team, the team would transfer to the new playout provider. However, we do not think that TUPE would apply to staff which are not largely dedicated to a single customer, such as where a pool of staff perform playout for a large number of smaller broadcasters, bid teams and management. However, in some circumstances suppliers may separately negotiate the transfer of staff outside of TUPE.

Service quality

20. Linear playout providers are required to achieve high levels of service quality. This level of service quality is referred to as 'four-nines', ie 99.99 per cent¹⁵ reliability, though contractual requirements differ across broadcasters. Service levels refer to the percentage of time that playout services are available without interruption of audio or visual signal.¹⁶ Table 1 displays the services levels of various broadcasters which have outsourced their playout. Service levels range between 99.90 and 100 per cent.

¹³ Regulation 3(3)(a)(i) states that the transfer will occur where there is an organised grouping of employees situated in Great Britain which has as its principal purpose the carrying out of the activities concerned on behalf of the client.

¹⁴ Regulations 4(7), 4(8) and 4(10) of TUPE give mechanisms for employees to object to the transfer of their employment contracts.

¹⁵ This is the percentage of the time the stated quality requirements must be met each month or over the course of a year.

¹⁶ The definition of signal loss varies within each contract, but it generally means any loss of signal which could have an appreciable effect on the viewer.

TABLE 1 Comparison of playout service levels

Service level availability %	Broadcaster (all channels unless otherwise stated)	Maximum error: minutes per year
100	[REDACTED]	(0)
99.999	[REDACTED]	6
	[REDACTED]	[REDACTED]
99.997	[REDACTED]	16
99.995	[REDACTED]	26
99.99	[REDACTED]	53
		42
	[REDACTED]	(42)
	[REDACTED]	(51)
99.98	[REDACTED]	105
99.97	[REDACTED]	158
99.95	[REDACTED]	263
99.90	[REDACTED]	526

Source: Based on Table 3.1 of [parties' initial submission](#).

Note: Maximum error expressed in minutes is based on a 24-hour per day schedule. Figures in parentheses are pro-rated based on hours broadcast per year. Service levels are those included in RBM or Technicolor contracts or where a third provider is in place, the most recent tender document.

21. Some broadcasters ([REDACTED]) have different service levels at different points in their schedule. [REDACTED] service requirement in peak hours equates to less than [REDACTED] seconds of disrupted playout per hour and for [REDACTED] less than [REDACTED] seconds per hour.

22. Table 2 shows the extent of financial penalties or 'service credits' incurred by the parties. [REDACTED] However, the service level requirements, the scale of financial penalties associated with breach of these service levels and the complexity of playout, may affect the level of resource a playout provider devotes to each contract and thus the financial cost of penalties may not reflect the costs incurred to avoid those penalties.

TABLE 2 Service credits incurred by Technicolor and RBM

Party	Customer	Revenue generated (£)	Service credits (£)	Credits as % of revenue
RBM	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Technicolor	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: Ericsson response to issues statement.

Notes: Technicolor figures for 2012, RBM for year ending 30 June 2013.

23. Peak-hours performance is particularly important (and more so for commercial broadcasters) because of the number of viewers affected by any disruption and the financial value of advertising.^{17,18} The failure to play out adverts at the correct point in the schedule, or the failure to play out adverts in their entirety could lead to loss of revenue for broadcasters.¹⁹
24. There may also be subsequent impacts on the reputation of broadcasters when negotiating or bidding for the broadcasting rights if there have been playout errors, especially on high-profile events.²⁰

Regulation

25. There is no direct regulation of linear playout services. Broadcasters are issued licences by Ofcom and are required to comply with relevant regulation such as the Broadcasting Code.²¹ A significant aspect of the code is the nature and suitability of programmes for broadcast, including the age-appropriateness of content pre-

¹⁷ For example a 30-second advert on Channel 5 in the evening costs approximately £17,000 but during the day costs eight times less at £2,000. <http://about.channel5.com/faqs/how-to-advertise>.

¹⁸ Because the demographic composition of audiences of different programmes varies, advertisers may wish to advertise in specific slots where their advert will have the greatest reach to a target audience. As a result, certain advertising slots will be priced to reflect this, and this further contributes to the importance of a well-managed playout service. Channel 5 gives some examples of the differential cost of advertising to specific groups of views. For example, a broad group such as All Adults could be bought at an average cost of around £6 per thousand viewers whilst a more tightly-defined target, such as Men aged 16–34, will cost closer to £50 per thousand viewers. <http://about.channel5.com/faqs/how-to-advertise>.

¹⁹ One example was in May 2010 when a 3-minute long Nike advert was cut short by 6 seconds. www.theguardian.com/media/2010/may/24/itv-nike-world-cup-ad.

²⁰ [REDACTED]

²¹ Compliance with the code is intended to ensure compliance with the requirements of the Communications Act 2003, the Broadcasting Act 1996 and EC Directive 2010/13/EU ('The Audiovisual Media Services Directive').

watershed. In addition, broadcasters are required to provide television access services (subtitles, audio description and signing) on a certain proportion of their programmes.²² Broadcasters may outsource part of their compliance function to a third party provider. There is no requirement for this to be performed by the playout provider, though there may be operational benefits. Playout providers will be responsible for monitoring compliance with regulations on the number of minutes per hour that broadcasters can show adverts.

The parties

Telefonaktiebolaget LM Ericsson

26. Telefonaktiebolaget LM Ericsson (PUBL) (herein Ericsson) is a large Swedish technology company with a strong focus on telecommunications. It has annual global revenue of over £20 billion²³ and UK turnover in excess of £[X]. The turnover of its UK broadcast services division (referred to here as Technicolor) was some £[X]. It is headquartered in Stockholm and it is listed in both Stockholm and New York.²⁴

Acquisition of Technicolor

27. In July 2012 Ericsson announced the acquisition of Technicolor SA's broadcasting services division for a payment of €19 million with an additional payment to be made based on a revenue share agreement calculated on 2015 revenues. This transaction included the acquisition of trading companies in France, the Netherlands and the UK and operations in Singapore and Denver, Colorado, USA.²⁵

28. In 2011, the three UK legal entities (acquired from Technicolor) which comprised Ericsson's Broadcast Services division had combined revenues of £34 million and

²² Sixty-six channels and their timeshift variants are required to provide subtitles for at least 10 per cent of programmes, increasing over ten years to 80 per cent.

²³ In 2012 reported revenue was SEK 228 billion.

²⁴ NASDAQ OMX Stockholm and NASDAQ New York.

²⁵ The UK entities were Technicolor Network Services UK Ltd, Technicolor Broadcast Services UK Ltd and Technicolor Distribution services Ltd which were subsequently renamed Ericsson BS UK Ltd, Ericsson TBS UK Ltd and Ericsson TDS UK Ltd respectively.

generated operating losses of some £12 million (of which £7 million related to asset impairment as the result of a contract termination); in 2012 revenues [~~£~~] to [~~£~~] with operating [~~£~~].²⁶

29. Ericsson's purchase of the three UK subsidiaries of Technicolor was reported in the financial statements of Ericsson's UK holding company at £503,000²⁷ (noting that consideration of €19 million was paid for Technicolor's Broadcast Services businesses in the UK, France and Netherlands) with £141 million of Technicolor intra-group debt novated to Technicolor's UK holding company prior to purchase.

Creative

30. Creative Broadcasting Services trades under the name Red Bee Media (RBM). As previously noted, RBM was formerly called BBC Broadcast Limited and was created by the BBC in 2002. In 2005, BBC Broadcast Limited was sold to Creative Broadcast Services Limited (CBS), a company set up specifically for the purchase. It is owned by Macquarie managed funds, with some minority equity investment by Macquarie.²⁸ Figure 2 shows the legal ownership of RBM prior to the proposed transaction.

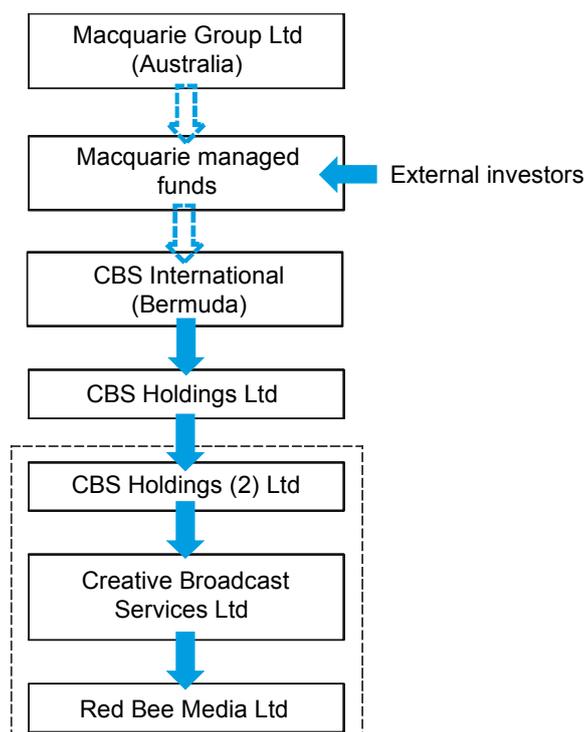
²⁶ 2011 financial statements and draft 2012 financial statements of Technicolor Network Services UK Ltd, Technicolor Broadcast Services UK Ltd and Technicolor Distribution services Ltd.

²⁷ 2012 financial statements of Ericsson (Holdings) Ltd, note 6.

²⁸ This acquisition was considered by the OFT and was not referred to the CC. Case Me/1962/05 Completed Acquisition by Creative Broadcast Services Limited of BBC Broadcast Limited (2005).

FIGURE 2

Simplified legal structure of ownership of Creative and RBM



Source: CC analysis of the financial statements of group companies.

Note: CBS is used in the diagram as shorthand for Creative Broadcast Services. Intermediate holding companies are not shown. The subsidiaries of Red Bee Media Ltd are not shown. The companies surrounded by the dashed line are those which are proposed to be acquired.

31. For the financial year ended 30 June 2012, RBM reported turnover of £144.4 million, of which £128.6 million was generated in the UK.

32. RBM has operations in the UK, France, Germany, Spain and Australia, and in FY 2012 employed around 1,500 staff. RBM's main linear playout services customers are the BBC, Channel 4 and UKTV. The BBC [✂] contracts will come up for renewal in 2017 and Channel 4's contract in [✂]. RBM also provides linear playout services for Public Broadcasting Service,²⁹ JSTV,³⁰ Box TV³¹ and BT Sport.

²⁹ Public Broadcasting Service, a US network.

³⁰ Japan Satellite TV.

³¹ A network of music channels including 4Music and The Box.

Tenders and market testing

Introduction

1. This appendix lists and discusses in detail all the tenders and other similar exercises such as benchmarking exercises and other market tests for linear playout services in the UK that we are aware have taken place since 2004. In particular we focus on the rationale behind these events, which suppliers participated in the tenders, and what led them to be invited to participate, reach a shortlist and/or win any tenders.
2. We discuss each of the main broadcasters in a separate section, covering all of their UK tenders and market tests, and situations where they had the option to test the market but decided not to, over the past ten years. In our analysis we included a tender for disaster recovery (DR) services, as we believe this can be a service similar to linear playout and thereby the tender might be informative as to how the various suppliers are perceived in the market.
3. When discussing each of these events, we aim to cover the following elements, depending on data availability:
 - (a) reason for the procedure;
 - (b) parties invited;
 - (c) reasons for moving suppliers to the shortlist;
 - (d) reasons for selecting the winner; and
 - (e) discussion of whether in-sourcing was considered.
4. Table 1 lists the UK tenders and related events for linear playout services that we are aware of. They are listed in reverse chronological order. Rows in italics are not full tenders for playout of UK channels, but are included for completeness.

TABLE 1 Overview of UK tenders and related events for linear playout services

Broadcaster	Tender date	Value (£ million)	Previous supplier	Invited suppliers	Shortlisted suppliers	Winner	Contract period
Disney (EMEA playout)	2013	[REDACTED]	<ul style="list-style-type: none"> Encompass for UK Others for other part of EMEA (unknown) 	18 companies including: [REDACTED]	[REDACTED]	Ongoing	
[REDACTED] CSC	[REDACTED] 2013	[REDACTED] [REDACTED]	[REDACTED] Technicolor	[REDACTED] Technicolor; WRN Broadcast; Arqiva; Encompass; ABS	[REDACTED] Straight to preferred bidder	[REDACTED] WRN Broadcast	[REDACTED] 2013–2018
Channel 5 (DR)	2013	[REDACTED]	RBM	Encompass; RBM; Arqiva; Deluxe; WRN Broadcast; Technicolor; Globecast	Encompass; RBM; Arqiva	RBM	[REDACTED]
BBC (RFI)	2012	n/a	[REDACTED]	[REDACTED]	[REDACTED]		
BT Sport	2012	[REDACTED]	New	[REDACTED]	[REDACTED]	RBM	[REDACTED]
Turner	2012	[REDACTED]	In-house	[REDACTED]	[REDACTED]	Arqiva	[REDACTED]
ITV Choice	2012	[REDACTED]	New	GlobeCast; WRN Broadcast; Arqiva; Encompass; Technicolor; Deluxe; ABS	Globecast; Arqiva; WRN Broadcast	GlobeCast	2012–[REDACTED]
Disney (UK playout)	2011	[REDACTED]	Technicolor	[REDACTED]	Unknown	Encompass	2012–[REDACTED]
British Eurosport	2011	[REDACTED]	Arqiva	Technicolor; Arqiva; Encompass	Arqiva; [REDACTED]	Arqiva	2012–2018
BBC Worldwide (Africa, HD and Nordic Channels)	2011	[REDACTED]	RBM	[REDACTED]	[REDACTED]	RBM	[REDACTED]
JSTV	2011	[REDACTED]	Trifield Productions	[REDACTED]	[REDACTED]	RBM	[REDACTED]
GBF Media†	2011	[REDACTED]	New	[REDACTED]	[REDACTED]	GlobeCast	[REDACTED]
Public Broadcasting Service	2011	[REDACTED]	New	[REDACTED]	[REDACTED]	RBM	[REDACTED]
Channel 5	2010	[REDACTED]	RBM (HD, 5*, 5USA); Encompass (Channel 5)	RBM; Encompass For benchmarking quotes from: [REDACTED]; In-house [REDACTED]	RBM; Encompass	Encompass	2010–2016
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BBC Global News Ltd	2010	[REDACTED]	RBM	RBM	RBM	RBM	2010–2017
Discovery	2010	[REDACTED]	Encompass	RBM; Technicolor; Encompass; In-house	Unknown	In-house	
Box TV	2010	[REDACTED]	In-house	[REDACTED]	[REDACTED]	RBM	[REDACTED]
BBC Worldwide (Poland)	2010	[REDACTED]	Technicolor	[REDACTED]	[REDACTED]	GlobeCast	[REDACTED]
Top Up TV	2010	[REDACTED]	New	[REDACTED]	[REDACTED]	WRN Broadcast	[REDACTED]
Renault TV	2010	[REDACTED]	Unknown	[REDACTED]	[REDACTED]	Vision 247	Unknown
MTV Europe (Viacom)	2009	[REDACTED]	In-house	[REDACTED]	[REDACTED]	In-house	
Channel 4	2008	[REDACTED]	In-house	Arqiva; Encompass; RBM; Technicolor	Encompass; RBM	RBM	2008–[REDACTED]
NBCU	2008	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Technicolor	2008–[REDACTED]
ESPN	2008	[REDACTED]	RBM (Classic channels); Setanta (EMEA)	Encompass; Arqiva; RBM; Technicolor	Encompass; Arqiva	Arqiva	2009–[REDACTED]
ITV	2006	[REDACTED]	In-house	Arqiva; Encompass; RBM; Technicolor; BT Broadcast	RBM; Technicolor	Technicolor	2007–[REDACTED]
5*/5USA	2006	[REDACTED]	New	Unknown	Unknown	RBM	2006–2011
ESPN	2005	[REDACTED]	Globecast	[REDACTED]	[REDACTED]	RBM	2005–2011
Discovery	2005	[REDACTED]	Encompass	BBC Broadcast (now RBM); Encompass; Globecast; NTL	BBC Broadcast (now RBM); Encompass	Encompass	[REDACTED]

Source: Parties' initial submission, Annex 12, and other submissions by the parties, competitors and broadcasters.

†We note this is a UK agent acting on behalf of unnamed French entrant.

‡[REDACTED]

The BBC

5. In November 2012 the BBC issued a Request for Information (RFI) to nine suppliers: [REDACTED]. The BBC said the RFI had a number of objectives. First, it wanted to share its strategic direction and high-level requirements with suppliers and get their feedback. Second, it wanted to gain an understanding of suppliers' capability and maturity (across Technology, Support and Operations). Third, it wanted to gain insight and expertise from the market and use that information to inform the sourcing and procurement strategy, and inform project planning. The BBC said that the RFI phase would play no part in the BBC's eventual selection of a playout provider, which would only occur at the end of a formal procurement process. It also said that it expected to score its actual procurement against different criteria.¹
6. All suppliers responded and a panel of five BBC technologists and operational managers read and appraised the RFI responses. Its evaluation is presented in Table 2. [REDACTED]

TABLE 2 **BBC's summary of Principles Playout RFI responses**

[REDACTED]

Source: [REDACTED]

7. The BBC explained that it separated out the ability to provide playout, as this concerned the simplest type of operations. It believed that many suppliers had the ability to do such playout, but what the BBC needed was capability to deliver the most complex playout operations. [REDACTED]²

¹ The BBC told us that when the RFI was issued in Autumn 2012, there was a strong likelihood that the scope of its playout procurement would be widened to include Central Circuits & Apparatus (CCA) and Centralised Coding Mux (CCM) activities up and down-stream of linear TV playout. Consequently, the Playout RFI responses were assessed against the Technology division's prevalent principles at the time. It subsequently decided that its playout procurement will not include CCA or CCM services.

² The BBC further explained that future market direction was about the suppliers' perspective/assessment on where future developments lay, and how quickly the industry might move towards that. It is not included in the total score as the criterion is not about its current capability.

8. In June 2013 the BBC extended its contract with RBM for the provision of Payout and Media Services, Metadata and Interactive Services to 31 March 2017. It said that the prime reason for this was to align the contract with other relevant and related contracts in order to drive future value and choice. Further it wanted to make sure that the new tender, and possible handover if a new bidder won it, would be conducted at a suitable time. [REDACTED] The BBC did not do any sort of benchmarking when it extended its contract with RBM.
9. The BBC most recently held a market sounding with seven suppliers in autumn 2013, ahead of its forthcoming Payout procurement. [REDACTED] However, the BBC did not evaluate the submissions. It said that market soundings were not part of any formal evaluation, which would only begin when it issued the *OJEU* notice and bidders submitted their responses to the BBC's Pre-Qualification Questionnaire (PQQ). Therefore the BBC's actual tender would take a different format.
10. The BBC issued its *OJEU* notice on 23 January 2014.³ We understood the BBC had told payout providers that it had committed to outsourcing.

ITV

11. ITV outsourced its linear payout provision to Technicolor in 2007. ITV said that the reason for outsourcing was primarily because a significant investment was required in infrastructure, equipment and technology. Additionally ITV felt that third party suppliers could potentially deliver payout to the same standards while making economies of scale savings, and avoiding the need for one-off capital investment.
12. ITV conducted a full assessment including a Request for Proposal (RFP) for which it invited a range of potential providers. ITV said that these providers included RBM,

³ <http://ted.europa.eu/udl?uri=TED:NOTICE:28028-2014:TEXT:EN:HTML&tabId=1>.

Technicolor, Encompass (then Ascent Media), Arqiva and BT Broadcast. ITV told us that RBM and Technicolor were shortlisted based on having a better understanding of ITV's broadcasting business than the others. RBM's proposal was originally considered to be better than Technicolor's, and less risky. However, the crucial factor was that Technicolor offered to acquire ITV's in-house playout operation and to run it for ITV while Technicolor prepared for the transition to its own facility, which increased confidence in the transition. [✂]

13. In 2012 ITV tendered the playout and distribution for its international channel, ITV Choice, which has no live content or regionalization. ITV invited Globecast, WRN Broadcast, Arqiva, ABS, Technicolor, Deluxe and Encompass. ITV shortlisted Globecast, Arqiva and WRN Broadcast, and Globecast won the tender. ITV said that Technicolor was not shortlisted as it did not provide distribution services post-playout and would have had to partner with another supplier to deliver that part of the contract.
14. In June 2012 ITV issued an informal benchmarking request for high-level pricing of playout services. RBM was not considered as there was uncertainty around its ownership and financial stability at the time, and ITV did not want to distract it from dealing with difficulties in the digital services it was providing. Globecast, Arqiva and Encompass were invited to respond. [✂], in its hearing Encompass said that it would be interested and able to provide playout for ITV.

Channel 4

15. RBM began supplying Channel 4's playout in 2008 following an extensive tendering exercise. Prior to that Channel 4 had supplied its own playout. The decision to outsource was driven by Channel 4's desire to streamline internal resources through

a reduction in headcount and costs, and the possibility to use the accommodation for other purposes.

16. Channel 4 said the tender process started with meetings with potential suppliers, which led to the issuing of an RFP document in late May 2008. The following bidders were invited to submit proposals against a base specification issued by Channel 4: Encompass, Technicolor, RBM, and Arqiva. [REDACTED]
17. Channel 4 had an internal team evaluate the proposals to ensure compliance with the requirements as set out in the RFP and to rank them technically and operationally. Then a series of meetings were arranged with each bidder, allowing them to present their proposals and field questions. Finally Channel 4 gave them an opportunity to refine their proposal and costing.
18. Channel 4 said that all bidders submitted generally credible technical and operational proposals, [REDACTED].
19. Channel 4 shortlisted Encompass and RBM, with Technicolor rated third. It based the decision on technical competency, reputation, existing clients, and reliability of services. It considered that the RBM and Encompass bids were of a similarly high standard and technical merit and that either provider could offer a credible service.
20. Channel 4 said that ultimately [REDACTED] had a slight edge due to the scale and depth of its resource base, its reputation in the market, its potential for staff development and its ability to invest in research and development, although there was little to choose between them. It also thought that RBM would be a good employer for the staff that it was transferring (and had factored in pensions, healthcare etc).

Channel 5

21. At the launch of 5USA (then called Five US) and 5* (then called Five Life) in 2006, Channel 5 contracted RBM to provide playout services, ingest, media management and library services, monitoring and service management, continuity services, and equipment accommodation. Channel 5's understanding is that at the time it was not happy with the performance of Encompass's predecessor, Ascent, which was handling linear playout for its main channel, so was keen to find an alternative supplier for its new channels. It believed a tender was organized, which RBM won, but it was not in possession of any documentation to back up this recollection.
22. In 2010 Channel 5 moved playout services for the channels 5HD, 5* and 5USA from RBM to Encompass. This occurred after Northern & Shell Media bought Channel 5 Broadcasting Ltd from RTL Group in July 2010. Northern & Shell set out to make a number of wide-ranging changes to the Channel 5 business such as reducing the overhead costs of running the business and rationalizing all contracts with existing suppliers.
23. Part of the transition was sorting out existing contracts for playout, provision of access services and related services. To that end, [REDACTED].
24. Channel 5 further sought an indicative bid for the cost of providing the required services from [REDACTED], and investigated the likely costs of Channel 5 providing its own playout. However, [REDACTED] was not asked formally to tender for the contract nor did Channel 5 intend to self-provide. Channel 5 said that the purpose of seeking these quotes was to provide benchmarks against which to judge the formal bids from RBM and Encompass.

25. Channel 5 decided to award the continuing contract to Encompass [REDACTED]. As a result of this process, the overall annual cost to Channel 5 for playout, access services and RBM compensation went down from around [REDACTED]. The new Encompass contract was extended to May 2016.
26. One reason for awarding the combined contract to Encompass was [REDACTED].
27. In 2013 Channel 5 officially tendered its contract for the provision of DR services. The companies that were invited and responded were: Encompass, RBM, Arqiva, Deluxe, WRN Broadcast, and Technicolor. Globecast was invited but decided not to bid.
28. Channel 5 said that all companies provided written proposals. Encompass also provided a detailed presentation of its bid, because it involved a significant change to the existing operation and the requirements as laid out in the RFP. The elements evaluated by Channel 5 were Technology (Automation, Servers, Media Asset Management), Price, Relationship, Location, Flexibility, and History.
29. Channel 5 shortlisted Encompass, Arqiva and RBM, and awarded the contract to RBM. Key factors in its final decision were price, the supplier's ability to provide the service and ease of migration. Channel 5 further said that negotiation took place after identifying the shortlist and the winner of the tender.
30. Channel 5 said that during the tender procedure it had quite a good understanding of the costs of providing the DR service in-house. It had internal estimates of the capital and operational expenditure required to build and run a DR system, and in the end agreed on an outsourced contract below this figure.

BT Sport

31. For the tender of the linear playout contracts for BT Sport 1 and 2, BT invited [REDACTED], and all responded. BT said that the bidders invited to the ITT process were those suppliers known in the UK market for their experience in linear playout of UK channels and, in particular, sport channels with dynamic ad breaks. [REDACTED]

32. [REDACTED]

33. [REDACTED]

34. [REDACTED]

35. [REDACTED] We understand that the value of the contract for the first year is [REDACTED].

UKTV

36. UKTV told us that in 2010 it planned to undertake a market test for the linear playout services it procured. [REDACTED]

37. [REDACTED]

38. Before UKTV put a test to the market, [REDACTED].

Disney

39. Disney tendered the playout services for its UK-based channels (including the UK, Scandinavian and Middle East channels) in 2011/12. It invited [REDACTED] to tender. [REDACTED]

40. Disney further has a tender ongoing currently, [REDACTED].

41. Disney invited 18 companies to its ongoing tender of which 16 responded, including [REDACTED].

42. Disney has never self-supplied linear playout services and [REDACTED].

NBC Universal

43. Technicolor took on the NBCU contract in 2008. The contract runs until [REDACTED] and the UK revenue from the contract is currently approximately [REDACTED].

44. [REDACTED]

45. [REDACTED]

British Eurosport

46. In 2010-11 British Eurosport held discussions with Arqiva over renewal of its contract for the playout of two channels, and also decided to contact other suppliers. It held follow-up discussions with Technicolor and Arqiva. The incumbent, Arqiva, won the contract which was worth around [REDACTED]. The final decision for selecting Arqiva was a combination of location and accessibility of its site, and a financially more attractive solution overall (taking into account costs involved with transition and new implementation in case of Technicolor). We understand Arqiva originally became the incumbent as it was previously the broadcast unit of NTL, which sponsored the entry into the market of British Eurosport by means of a joint venture and handled its linear playout.

BBC Global News Ltd

47. BBC Global News Ltd (GNL)⁴ said that it had not performed any market sounding or formal tender exercise for linear playout during the last ten years. Prior to 2005, its playout of the BBC World News channel was provided by BBC Broadcast Ltd (which was also a wholly-owned subsidiary of the BBC). Both prior to and since the sale of BBC Broadcast Ltd, which was then renamed RBM, the playout of the BBC World News channel has been provided by RBM.
48. In 2010 GNL entered into a new five-year contract with RBM. It did not formally tender its playout or do any other market testing exercise for the contract, [redacted]. GNL considered that, due to the BBC public service contract continuing during this period and the synergies existing between the BBC World News channel and the BBC's other channels, the costs and barriers to change its playout supplier in 2010 were too high and that negotiating an improved contract with RBM was more cost-effective to GNL.
49. The linear playout contract for the BBC World News channel has since been extended for a further two years with RBM to 2017 with improved terms for GNL for the extended period. Whilst GNL is not under an obligation to tender out the linear playout for its channel, it is GNL's intention to hold a tender for its playout beyond 2017.

ESPN

50. In 2005 RBM won the linear playout contract for ESPN's Classic Sports channels (ESPN pan-European Classic Sports, ESPN French Classic Sports, ESPN Italian Classic Sports). Prior to RBM, [another playout provider] handled the playout. We do

⁴ GNL does not play out its channel in the UK and is therefore outside our defined market. Its tenders have primarily been contested by UK-based playout providers and therefore we have included it here, for consideration to the extent that these tenders have relevance to our inquiry.

not know how or why ESPN selected RBM as the playout provider for these channels.

51. In 2007 ESPN acquired the North American Sports Network (NASN) channel from Setanta and rebranded it as ESPN America. ESPN said that prior to the acquisition, Setanta provided the playout for that channel in-house. It continued to provide the playout for that channel as an external supplier, from acquisition of the NASN channel until 2009.
52. In May 2009 ESPN expanded its broadcast operations with the acquisition of major sports rights and the launch of its channels ESPN and ESPN HD. It decided to move its production staff from the Republic of Ireland to the UK and therefore moved the playout facility to London. As part of the reorganization, ESPN tendered the playout services for the channels to be operated from the UK. As it has closed its operations in the UK, it no longer has information around the tender procedure. The parties think that [redacted] were invited, and that [redacted] and [redacted] were shortlisted.⁵ Arqiva won the contract which we understand to have had an initial value of around £[redacted].
53. ESPN said it never gave serious consideration to self-supplying.

MTV Europe

54. MTV Europe (Viacom) has always supplied linear playout for its channels in-house. However, the parties said that in 2009 it organized a tender for the linear playout of [redacted].

⁵ See the [parties' initial submission](#), Table 5.1.

55. [REDACTED] MTV decided to keep its linear playout services in-house.⁶

Discovery

56. Discovery Communications currently provides playout services in-house for the 82 channels it plays out in the UK for its EMEA business. However, before that Encompass's UK predecessor Ascent Media provided its linear playout.

57. Discovery said it tendered its playout once about nine years ago. It invited BBC Broadcast (now RBM), Ascent Media, Globecast and NTL. BBC Broadcast and Ascent Media were moved to the shortlist, and the contract was awarded to Ascent Media (now Encompass). It no longer has information detailing the reasons for its decisions.

58. Following new channel launches and acquisitions, Discovery decided that it made financial sense to bring its linear playout needs back in-house (we understand that this was not related to a failure on Ascent/Encompass's part). It therefore exercised a break option in its contract with Ascent/Encompass, paid the associated penalties, and moved its playout requirements in-house. Ownership of the facility at Chiswick Park transferred to Discovery in 2010, and relevant Ascent/Encompass staff moved across to Discovery as a result of TUPE.

59. Discovery said that it did not hold a tender prior to deciding to in-source its linear playout. However, the parties said that [REDACTED], and provided a digital version of the RFP document. They believed that Discovery invited [REDACTED] for this tender, and estimated that the value of the contract was around £[REDACTED] a year.⁷

⁶ See the [parties' initial submission](#), Table 5.1.

⁷ See the [parties' initial submission](#), Annex 12.

Turner Broadcasting System Europe Limited

60. Turner Broadcasting System Europe Limited (TBSE) is a division of the Time Warner Group and broadcasts multiple television networks across Europe, the Middle East and Africa. Playout of the Turner-branded channels such as Cartoon Network, Boomerang, TNT and Turner Classic Movies (TCM) used to be organized in-house with assistance from its various regional offices, but Turner wanted to review this position and in 2012 issued an RFP.
61. For the UK cluster (16 channels), Turner had pre-qualification discussions with [REDACTED]. Turner said the remaining four providers all submitted proposals.⁸
62. Arqiva won the tender [REDACTED].
63. [REDACTED]⁹

BBC Worldwide

64. In 2010 BBC Worldwide¹⁰ tendered its playout for Poland, which covered four multi-genre channels with occasional live programming and some late delivery of content. The channel was previously supplied by Technicolor. [REDACTED]¹¹ Globecast ended up winning the tender, and it believed that this was in part due to its greater flexibility and more competitive pricing.
65. In 2011 BBC Worldwide tendered the playout of eight other multi-genre channels (four African channels, three Nordic channels and one HD channel), that also feature occasional live programming and some late delivery of content. Following an RFP

⁸ [Turner hearing summary](#), paragraphs 7 & 8.

⁹ *ibid*, paragraph 12.

¹⁰ BBC Worldwide does not play out its channels in the UK and is therefore outside our defined market. Its tenders have primarily been contested by UK-based playout providers and therefore we have included it here, for consideration to the extent that these tenders have relevance to our inquiry.

¹¹ [Parties' initial submission](#), Table 5.1.

review (see paragraph 66) the contract was awarded to the incumbent, RBM.

Globecast thought that this was primarily the result of RBM entering the tender quite aggressively in terms of price.

66. [REDACTED]

67. In 2013 BBC Worldwide further organized tenders for the playout of BBC Worldwide Americas, and BBC Worldwide Australia & New Zealand.

CSC Media Group

68. CSC said that its linear playout requirements had always been fulfilled by an external provider. It said that this was BT Media Hive from 2002 until 2006, when BT Media Hive was bought by Technicolor. Technicolor then handled CSC's linear playout until 2013, when it put the playout services out to tender.¹²

69. CSC said that it invited five well-known UK providers ([REDACTED]) to the tender. [REDACTED] CSC planned the tender as a two-stage process, whereby it would first send out an RFP to all bidders, and then would continue with the two best. However, [REDACTED], and therefore added an additional stage in order to ensure the best quality bids were submitted.¹³

70. [REDACTED]¹⁴

71. CSC said that WRN Broadcast showed itself to be forward thinking and to have an understanding of CSC's requirements. WRN Broadcast's offer did not bundle playout with distribution services, but its expertise in distribution was a benefit. Even though

¹² [CSC hearing summary](#), paragraph 4.

¹³ *ibid*, paragraphs 5 & 6.

¹⁴ *ibid*, paragraph 7.

[REDACTED], CSC said that if [REDACTED] had shown a proper understanding of its requirements, [REDACTED].¹⁵

72. The value of the contract CSC agreed with WRN Broadcast was between £[REDACTED] million and £[REDACTED] million, and runs for five years until 2018. CSC indicated that it was confident WRN Broadcast had the necessary capability. [REDACTED]¹⁶

Box TV

73. Box TV is a broadcaster of music channels such as 4Music, heat, The Box, Smash Hits, Kiss, Kerrang! and Magic. It is 50 per cent owned by Channel 4. In 2010 Box TV started a tender process and invited RBM, Technicolor, Arqiva, Encompass and Globecast. Parallel to that Box TV and Channel 4 also started discussing with RBM the option of tendering for the work as part of the Channel 4 contract.
74. Box TV explained that Channel 4 already provided a significant number of services on behalf of Box TV, and that therefore it was logical and cost-effective also to share some of Channel 4's outsourced technical services provided by RBM, such as media processing, data storage and media workflows. Box TV further noted that it also shared programming between its services and those of Channel 4.
75. Box TV said that once outline costs were received from the bidders, it decided together with Channel 4 to stop the tender process and move forward with RBM, with a focus on developing the design and negotiating costs. In 2011 an additional playout contract for Box TV was awarded to RBM, as part of its contract with Channel 4. The contract was worth £[REDACTED] million a year.¹⁷

¹⁵ *ibid*, paragraphs 8 & 9.

¹⁶ *ibid*, paragraph 10.

¹⁷ [Parties' initial submission, Annex 12.](#)

Smaller broadcasters

76. The overview in Table 1 also contains details on tenders of several smaller broadcasters. The contract value for these broadcasters is smaller than £1 million a year, the playout requirements are straightforward, and several of them broadcast international channels only. These broadcasters are GBF Media, JSTV, Public Broadcasting Service, Renault TV and Top Up TV. We received the presented information in Table 1 from the parties¹⁸ and did not investigate these tenders in more detail.

¹⁸ *ibid.*

Requirements and complexity of customers

1. We considered whether some customers had more complex requirements than others, and whether this might make them more difficult to serve and thus potentially exclude or disadvantage some suppliers. In this appendix we first report the views of broadcasters and playout providers (paragraphs 2 to 25). Next, we assess the ways in which customers' requirements differed (paragraphs 26 to 30). We then consider what implications this has for the complexity of playout, first at an operational level (ie what a playout provider has to do on a day-to-day basis, discussed in paragraphs 31 to 60), and then with regards to design, implementation and ongoing support (ie what would be required when tendering for a contract and then setting up operations having won a contract, discussed in paragraphs 61 to 73). Finally, we give our conclusions on complexity (paragraphs 74 to 93).

Views of broadcasters and playout providers on complexity

2. The parties said that the requirement at the heart of all linear playout contracts was the same, ie the compilation and preparation of broadcaster's content precisely in accordance with the set programme schedule for subsequent transmission.¹ They said that there was no substantial variation in customer requirements from a demand-side perspective.² They said that in dealing with reactivity and intervention, the resources involved were common to all contracts.³ However, they did acknowledge that some contracts might be more complex than others, particularly if they required the building of a bespoke playout suite;⁴ but they said that the BBC and ITV channels were not in a category of their own.

¹ [Initial submission](#), paragraph 3.6.

² [Response to issues statement](#), paragraph 5.24.

³ [Initial submission](#), paragraph 3.23.

⁴ *ibid*, paragraph 3.38.

3. We asked broadcasters and other playout providers for their view of the relative complexity of broadcasters' playout requirements (noting that these providers had not actually played out any of the BBC, ITV or Channel 4, but based on their experience of the industry and participation in the recent BBC RFI) and the role of that complexity in the award of linear playout contracts.

Views of broadcasters

4. The BBC said that [REDACTED]^{5,6} The BBC further clarified that its main concern when switching provider would not be [REDACTED].⁷
5. The BBC considered that a prospective rival supplier to its incumbent could demonstrate that it had the relevant knowledge and understanding by recruiting technical staff from a playout provider dealing with similar complexity. However, it thought that a rival might need to recruit several such people to achieve this demonstrable understanding.⁸
6. ITV argued that it had very complex playout requirements for its main channel, similar to those for BBC One and BBC Two (and in some cases more complex requirements). It attributed its complexity to its high levels of live programming, often of uncertain durations, which ITV argued became complex when interacting with regionality and advertising. It said that the interaction with advertising was the key distinction between ITV and the BBC.
7. ITV said that most playout providers used similar and generic hardware and software components, such as the technology for video servers. It noted that the software was then typically significantly tailored towards a customer's playout environment and

⁵ Hearing with the BBC.

⁶ BBC's response to the CC's customer questionnaire.

⁷ Hearing with the BBC.

⁸ [BBC hearing summary](#), paragraph 30.

specific requirements.⁹ It further thought that the architecture and design might be something more experienced providers were more comfortable with. It said that only Technicolor and RBM had experience in putting together an infrastructure for regional playout, even though it noted that there were different ways to do this and that the BBC's infrastructure was different from ITV's.¹⁰

8. ITV explained that it looked for more than just a technical level of expertise in the playout provider's staff. This included regulatory understanding, editorial judgement such as a feel for taste and decency, and an understanding of the ITV brand. ITV believed that [REDACTED] had the necessary judgement and expertise [REDACTED], and that the people with these skills were more important than those who designed the technical solution.¹¹

9. ITV said that when it held the tender for the outsourcing of its playout operations, Technicolor did not have an existing operation up to the level it was looking for. However, Technicolor's tender response team included people who did understand ITV's operations, and as a result the quality of Technicolor's response met all the RFP criteria. ITV understood that these people were permanent staff at Technicolor and not hired just for the RFP.¹² However, ITV also noted that Technicolor's ultimate success was related to its offer to take over ITV's in-house operation during the transition to Technicolor's own facility, [REDACTED].

10. Channel 4 said that its playout requirements were relatively complex. It said that [REDACTED], Channel 4 covered a lot of commercial regions, and had a lot of dynamic schedule changes, opt-out regions, and very last-minute complex live events. In Channel 4's opinion, it was more complex than Channel 5 but less complex than ITV. [REDACTED]

⁹ [Summary of hearing with ITV](#), paragraph 47.

¹⁰ *ibid*, paragraph 48.

¹¹ [Summary of hearing with ITV](#), paragraphs 8 & 9.

¹² *ibid*, paragraph 29.

11. Channel 4 said that the staff which moved to a new provider were generally operational staff, and that one of the reasons it would invite and select a supplier was for its technical expertise (ie non-operational staff who would not TUPE). It explained that this expertise revolved around designing, installing and getting reliable systems. When outsourcing its playout, integration of all its scheduling and media management systems was a key element.
12. Channel 4 said that it had a very complex and tight integration between its linear and non-linear playout, [REDACTED]. Even though it did TUPE over some of its project teams, it expected to rely on the technical team that its new service provider would be likely to share across its clients.
13. Channel 5 said that its playout requirements were not as complex as those of the BBC or ITV, which, under their respective Ofcom licences, had to meet specified regional programming remits. Channel 5 did not have any regional programming and its playout requirements for regional commercials were not as complex as, for example, Eurosport's requirements for live sports broadcasts.¹³
14. BT said that the reactive nature of its content, with a high volume of live sports events that could overrun, underrun or be cancelled, was the main cause of complexity in its playout requirements. It said that [REDACTED]. It thought its programming requirements were broadly similar to [REDACTED] but more complex than [REDACTED] and other mixed-genre channels due to the unpredictable nature of covering live sporting events. It thought that live programming on the PSB channels was generally more predictable, with some exceptions.¹⁴

¹³ Summary of hearing with Channel 5, paragraph 1.

¹⁴ Summary of hearing with BT, paragraph 3.

Views of playout providers

15. Encompass, which counted Channel 5 as its most complex customer, said that ITV was the most complex channel, and that it was in many respects similar to Channel 5, though it had several micro and macro regions for commercials and programming which made it more complex. Encompass said that it would need to increase the scale of its operations to be able to deliver playout for ITV. It would need to deal with the live source switching particularly around the regional news, but the rest of the change was just adjusting to a larger-scale operation.¹⁵

16. Encompass said that it considered the BBC to be similar in complexity to ITV. It said that the BBC was more complex in respect of the network to nations to regions inter-activity, and the nations could be opted out from the network for long and different periods of time running their own live schedules, but less complex in that the BBC did not have the commercial advertising aspects.¹⁶

17. Encompass said that Channel 4 appeared to be less complex than the BBC or ITV with a much lower regional commitment. It said that Channel 4 appeared to be similar in complexity to Channel 5, and BT Sport and Eurosport were less complex still, although the challenge for them was getting live content to air and having the necessary back-up plans to deal with over- and underruns in programmes. The live content on sports channels did not have to interact as much with scheduled pre-recorded material so it was less complex. Encompass also said that the sports playout model was largely about provisioning the live content feeds from studios/providers and putting in place contingency plans. It said that operationally live sport was quite simple, though it presented very high risks.¹⁷

¹⁵ [Summary of hearing with Encompass](#), paragraph 41.

¹⁶ *ibid*, paragraphs 43–45.

¹⁷ *ibid*, paragraphs 44–46.

18. Encompass said that having the right technology designed up-front was important. It bid on the combination of the technological and operational solution.¹⁸
19. Arqiva said that the market for the provision of linear playout services effectively comprised four segments where, in each, customers had quite different requirements and price sensitivity, and a different range of providers had the ability to be credible bidders. It characterized these as:
- (a) [X]: schedules prone to interruption, degree of regionality, live broadcasts, extensive use of specialist graphics and access services;
 - (b) [X]: channels that had a specific need for a dedicated transmission environment, usually requiring a high level of intervention; typically live sports or news channels;
 - (c) [X]: mainly fixed schedule, limited use of specialist graphics or access services; and
 - (d) [X]: fixed schedule, low brand value, stripped-back service.
20. Arqiva also mentioned the mixed-genre element as a differentiator between the BBC and sports channels, noting that for sports channels instructions to playout providers were usually clear but that the BBC channels were managed by multiple internal teams, each having their own priorities, so it was possible to have a programme junction where a programme was possibly about to overrun and it was actually a junction between two different controllers, either or both of whom may not be the 'channel' controller, who might have different views about how the schedule should change. It also highlighted the coordination element for the BBC's nations and regions.

¹⁸ *ibid*, paragraph 24.

21. Arqiva said that playout of ITV was slightly less complex than for the BBC, because ITV had regional opts but did not have the complexity of nations which opted away from the network to a greater extent and might not all return together. However, ITV did have more regions, more sub-regions and regional advertising. In Arqiva's view, the number of regions added to the upfront design complexity and therefore one needed to have a very good knowledge of the customer's workflow in the first instance and the capability to do that design work in order to win it, and then to operate it.
22. Arqiva said that Channel 5 was less complex than Channel 4. It believed that Channel 5's requirements were closest to the type of services that it was able to provide for broadcasters with bespoke requirements. It believed that Channel 5 had much less regionality and the type of regionality it did have could be delivered with what it called 'slave channels', which were effectively channels that were run off the back of the main channel in an analogous way to the 'pubs and clubs' variant of a sports channel. It said that Channel 4's complexity was greater than Channel 5's and Arqiva currently did not provide that level of complexity for any customer. It understood that Channel 4 and ITV's regional advertising was far more complicated than Channel 5's in terms of where the regional advertisements were sourced from.
23. Arqiva said that playout of Channel 5 would still be a step up from the live sports channels that it played out because it would be an order of magnitude step change in the number of viewers, so mistakes were more costly reputationally.
24. Arqiva said that when preparing for a tender it would have to [REDACTED].
25. [REDACTED]

Characteristics of broadcasters

26. In this section, we assess the ways in which customers' requirements differed. To analyse the characteristics that may be relevant, we identified a list of customer requirements which had been put to us as potentially related to complexity, and asked major UK broadcasters to indicate to what extent these requirements apply to each of their channels. Based on their responses we compiled Table 1 below, which shows the requirements of major broadcasters. For each broadcaster, we included the channel with the most complex requirements.¹⁹
27. For requirements with a sliding scale we highlighted the cells with the highest values green (unless values were very similar). For requirements that were either present or not, the higher complexity is highlighted green and the other answer is highlighted red. The values for channels which are played out by the parties are in bold type.

¹⁹ We show two channels for BT Sport and NBCU, since each has two playout providers who must both handle channels with similar complexity. Some other broadcasters, such as ITV, also use more than one playout provider—in ITV's case, for timeshift channels and for its international channel—but we understood that the channels played out by these secondary providers did not have any significant complexity, and so we did not include them in this table.

TABLE 1 Broadcasters' requirements

Feature	Measure/specific question	BBC	ITV	Channel 4	Channel 5	BT	BT	UK TV	Sky	Disney	Discovery	NBCU	NBCU
Channels	Channel	BBC 1	ITV	Channel 4	Channel 5	BT Sport 1	ESPN	Dave	Sky Sports	Disney Junior	Discovery	Universal UK	[X]
	Playout provider	Network: RBM Nations: In-house	Technicolor	RBM	Encompass	RBM	Arqiva	RBM	In-house	Encompass	In-house	Technicolor	In-house
	HD version?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Timeshift version?	N	Y	Y	Y	N	N	Y	N	Y	Y	Y	N
	Hours of content per week	168	168	168	168	168	168	147	168	126		168	168
Live programming	Hours of <i>live</i> content per week	[X]	56	15	42	[X]	[X]	0	75	0	0	[X]	[X]
Regional programming	Number of regions, if any, used for content (ie not advertising)	[X]	18	1	1	1	1	1	1	1	1	[X]	[X]
	Hours of regional content per week	[X]	Approx 70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	[X]	[X]
	Hours of <i>live</i> regional content per week	[X]	Approx 60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	[X]	[X]
	Number of times per week channel requires switching between regional and national or vice versa	[X]	32 times	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	[X]	[X]
	Number of regions used for advertising	N/A	18	[X]	5	1	1	2	2	1	n/a	[X]	[X]
	Proportion of advertising that is regional (%)	N/A	100*	[X]†	11	N/A	N/A	100	100	N/A	N/A	[X]	[X]
Needing to adapt to unforeseen circumstances	Requirements for late scheduling changes to content?	Y	Y	Y	Y	Y	Y	Y	Y	N	Occasionally	[X]	[X]
	Playout required that can handle live 'news flashes'?	Y	Y	Y	Y	Y	Y	N	Y	N	N	[X]	[X]
	Playout required that can handle live handovers and content sharing between channels?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	[X]	[X]
Advertising	Requirements for last minute sales of and/or changes to advertising slots?	N/A	Y	Y	Y	Y	Y	Y	Y	Y	N	[X]	[X]
	Requirement for late changes in the length of a commercial break?	N/A	Y	Y	Y	Y	Y	Y	Y	N	N	[X]	[X]
	Dynamic advertising such as 'bet in play' adverts during sporting events?	N/A	Y	Y	Y	Y	Y	N	Y	N	N	[X]	[X]
Mixed-genre channels	Does it combine live events that may overrun with schedule programming that is hard to rearrange?	Y	Y	Y	Y	Y	Y	N	Y	N	N	[X]	[X]
Service availability	Service availability requirements during peak TX hours (%)	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]‡	[X]	[X]	[X]	[X]
Dedicated playout suites vs multi-channel playout	Dedicated playout suite used?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Occasionally	[X]	[X]
	Could requirements be met with a	N	N	Y	N	[X]	[X]	Y	N	Y	Y	[X]	[X]

Feature	Measure/specific question	BBC	ITV	Channel 4	Channel 5	BT	BT	UK TV	Sky	Disney	Discovery	NBCU	NBCU
Channels	Channel	BBC 1	ITV	Channel 4	Channel 5	BT Sport 1	ESPN	Dave	Sky Sports	Disney Junior	Discovery	Universal UK	[X]
	Playout provider	Network: RBM Nations: In-house	Technicolor	RBM	Encompass	RBM	Arqiva	RBM	In-house	Encompass	In-house	Technicolor	In-house
	multichannel playout service?												
Multilingual requirements	How many languages broadcast in	1	1	1	1	1	1	1	1	1	30	[X]	[X]§
Specialist graphics	Specialist graphics required? Please include examples	Y Clarity	Y Secondary events, live ads	Y Complex graphics with animation	N	Y Score tickers	Score tickers	Y pointers & overlay graphics	Y	Y Animated logo	N	[X]	[X]
Access services	Live subtitling?	Y	Y	Y	Y	Y	Y	N	Y	N	N	[X]	[X]
	Audio description?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	[X]	[X]
Audience share	<i>Typical</i> weekly audience share (from the last 12 months) AVERAGE share (%)	20.8	16.1	6.1	4.5	0.2	0.0	1.3	1.1	0.6	0.4	[X]	[X]
	<i>Maximum</i> weekly audience share (from the last 12 months) PEAK (%)	80.7	19.2	11.7	5.2	0.8	0.2	1.6	2.1	0.7	0.8	[X]	[X]

Source: Broadcaster responses to the CC's customer questionnaire.

*ITV's advertising breaks are sold, scheduled and played out at the regional level. The same advertiser may buy a spot at the same time across all the regions but the spots are played out at the regional level. The exception to the rule is live commercials, which are broadcast either as a network spot or split by transmission centre.

†This is the percentage of revenue derived from non-national commercials in one or more regions.

‡We consider the service availability question less relevant for broadcasters that supply their own playout.

§Playout needs to provide subtitles in ten languages.

28. Based on Table 1, we observed the following ways in which requirements varied across broadcasters:
- (a) *Advertising.* The BBC did not carry advertising. All other major broadcasters did. We noted that for ITV, Channel 4 and Channel 5, advertising was their main source of revenue, whereas many other commercial broadcasters also received income from pay-TV retailers.
 - (b) *Regional programming.* Only the BBC and ITV carried regional programming, and only on the channels BBC One (18 regions), BBC Two (4 regions) and ITV1²⁰ (18 regions).²¹
 - (c) *Live content.* Many smaller broadcasters, and smaller channels of large broadcasters, had minimal or no live content. Channels with significant amounts of live content included BBC One, ITV1, Channel 4, Channel 5 and several dedicated sports channels (including Sky Sports 1–4, BT Sport 1&2, ESPN and British Eurosport). All broadcasters which had some live content told us that it might overrun with scheduled programming that was hard to rearrange.
 - (d) *Regional advertising and other channel variants.* ITV, Channel 4, Channel 5, UKTV and Sky all had different versions of their channels based on advertising requirements.²² Sky told us that this did not cause complexity during normal programming, since it was handled automatically by scheduling software, but added to complexity when the schedule had to be updated manually or at short notice (eg when live events caused unpredictability in the schedule).
 - (e) *Unforeseen events.* All the PSBs, all live sports channels, and some multichannel broadcasters (eg UKTV and [X]) told us that they required playout that could handle some kind of late scheduling or advertising changes and/or live news flashes. This source of complexity would require intervention on relevant occasions but not constant monitoring of playout (so long as the playout provider

²⁰ We refer to ITV's main channel as ITV1 to distinguish it from the broadcaster as a whole. ITV1 HD has only four regions.

²¹ For Channel 4, the functionality exists but is not currently used.

²² For example, Sky produces different versions of some channels for 'pubs and clubs' than for non-commercial subscribers.

was in a position to receive and implement instructions from the broadcaster at short notice). Depending on the division of roles between broadcaster and playout provider (ie who makes decisions on changes to the schedule and who checks whether subsequent content and advertisements are suitable) and the arrangements to be followed in an emergency situation if the broadcaster cannot be contacted, it may also require the playout provider to have a good understanding of the broadcaster's values (see paragraphs 53-60).

- (f) *Specialist graphics*. Requirements for specialist graphics varied. We understand that the main requirement is for equipment to be capable of integrating graphics, but some types of specialist graphics may require careful monitoring (eg real time 'bet in play' advertisements, where the information is delivered very close to broadcast).
- (g) *Live subtitling*. The PSBs and sports channels all required live subtitling. They, along with some multichannel broadcasters, also required an audio description facility. We understand that this is a fairly standard requirement catered for by modern equipment, and not a cause of significant complexity in design or operation.
- (h) *Multilingual requirements*. None of the PSBs or sports channels had multilingual requirements. This was a common feature of multinational multichannel broadcasters which were choosing to play out channels for overseas broadcast from the UK, but we did not see it in combination with other complex requirements such as live programming.
- (i) *HD or timeshift variants*. Most broadcasters had such variants. We understand that this does not generally create significant complexity (although it may require extra personnel if the HD and SD variants are played out separately, as with [⌘], rather than one being converted from the other; this is a matter of system design, and most modern systems use the latter method).

29. Taken together, the above factors suggest that the only unique feature of the BBC and ITV is their regional programming.²³ Their main channels also have by far the largest audience shares in the UK, suggesting that they are in many ways the highest-profile channels and, in the case of ITV, likely to have the highest value of advertising. This does not necessarily affect requirements but is likely to have implications for risk, for both broadcaster and playout provider. We also note that apart from regional programming and high audience shares, there are no features that are exclusive to customers of RBM and Technicolor. All others are provided by Encompass and/or Arqiva for at least one of their customers.
30. Next, we consider some of these factors in more detail both on their own and in combination with other factors. We discuss their implications for operational complexity first (paragraphs 31 to 60) and complexity of design, implementation and ongoing support for the playout solutions after that (paragraphs 61 to 70).

Operational complexity

31. In this section, we look in more detail at the factors that most affect the complexity of broadcasters' day-to-day playout requirements, and evidence relating to them. We did not look in detail at factors that were common to all or almost all broadcasters, such as advertising²⁴ or the possibility of late delivery of content or advertisements.²⁵
32. We consider in turn: live content; regional content and advertising; the importance of the number of interventions; playout staffing requirements; and how the burden of a channel's complexity is shared between the playout provider and the broadcaster.

²³ We understand that Channel 4's playout is set up to allow for regional programming, but it does not currently use it.

²⁴ To the extent that playing out advertising is more complex within reactive live programming than pre-recorded programming, we take this into account as part of the complexity of the reactive live programming.

²⁵ This appears to be a possibility for almost all broadcasters, although we note that some broadcasters may deliver late more often than others—for example, in the parties' intervention data (discussed below), [X] delivered content late more often than other broadcasters, and this might be viewed as a source of greater complexity for that broadcaster. As with reactive live content, we considered that the ability to deal with regular late delivery was a source of complexity, but we did not think that the frequency of late delivery from a broadcaster was determinative of its operational complexity.

Live content

33. Live content was the most frequently mentioned source of operational complexity in playout. We considered three issues around live content:²⁶
- whether carrying live content affected complexity;
 - whether different types of live content affected complexity; and
 - whether the amount of live content affected complexity.
34. We understand that live content can be a significant source of complexity, but not all live content is equally complex. A scheduled live programme with known duration and, where relevant, advertising breaks does not cause much complexity (eg a scheduled news programme). However, live content which requires action from the playout provider, often referred to as reactive live content, seemed to us an important source of complexity. The need to play out programmes of uncertain duration and insert advertising breaks on an ad hoc basis (eg during live sport) requires constant monitoring and an experienced operator.²⁷ Further, an event that may significantly over- or underrun has the potential to cause consequential changes to the rest of the schedule.
35. Some broadcasters also required the ability to interrupt programming to report important news. In practice this was the case primarily but not uniquely for the PSBs and dedicated news channels.²⁸ We understand that decisions to do so are taken by the broadcaster and then implemented by the playout provider. For example, the BBC plans scenarios (eg alternative schedules) for events with a known risk, but may also have to deal with unexpected events (eg the death of a major public figure). This

²⁶ In the following section, we also consider whether live content interacted with other requirements (such as regional content) to produce greater complexity.

²⁷ One example that more than one playout provider has mentioned as being especially difficult is taking an overseas sports feed and having to switch to advertisements when the overseas broadcaster does, with very little warning.

²⁸ For example, Technicolor told us that on the day of Nelson Mandela's death, it had to make manual interventions on the three NBCU Africa channels that were broadcast in Africa but played out from the UK.

will usually involve a manual switch to a live news feed and consequential manual edits to the schedule of subsequent programmes.

36. Some parties suggested that dealing with consequential changes was more difficult for a multi-genre channel than for a dedicated sports channel, since the resulting schedule was easier to decide on a sports channel. The main parties said that much of this complexity fell to the broadcaster since playout providers would not take this kind of editorial decision. We discuss this issue in more detail below (paragraphs 53 to 60).
37. The BBC, ITV and Channel 4 all mentioned live handover between channels as a further issue for them, as it applied to a small amount of their programming (eg when a match at Wimbledon moved from BBC One to BBC Two). Again, we consider below where the burden of this falls (paragraphs 53 to 60).
38. The parties submitted that the amount of live content broadcast on the BBC and ITV was comparable to that broadcast by many other channels (including sports channels played out by Arqiva, Channel 5 played out by Encompass, and sports and news channels played out in-house by Sky, CNN and the BBC). They said that the main driver of complexity was the combination of live events and advertising as manifested by the number of manual interventions required (which we discuss below in paragraph 44). We agree that the amount of live content is not determinative of complexity. The need to play out reactive live content is, however, an important distinction between channels (whether it is 10 hours a week or 70 hours) and we saw this as the primary differentiator between broadcasters' needs. We viewed scalability as a second order factor: once a playout provider is able to handle reactive live content for a broadcaster, we thought that handling greater volumes of live content

was relatively straightforward (since we understood that suitable operational staff are broadly available on the open market).

Regional content and advertising

39. The BBC broadcasts national versions of BBC One, BBC One HD and BBC Two in Scotland, Northern Ireland and Wales. These 'nations' can 'opt in' and simply show the 'Network' broadcast prepared by RBM, but they can also 'opt out' and broadcast different content. The BBC also has 15 English regions that have their own news-rooms and can also opt out of network programming, in particular to show regional news. However, these regional opt-outs are confined to consistent time slots, and the regions otherwise follow network. The BBC currently operates its own playout in-house for national and regional variations. The nations and regions execute the switching themselves when they opt out and back in to the network but they do so relying on information and direction from the RBM playout controller.

40. ITV1 has 18 advertising regions and 18 news regions, not all of which correspond, meaning that it has 20 regions in total. Technicolor is responsible for the playout of regional variations, with the exception of two regions, UTV and STV (Northern Ireland and Scotland respectively) which manage their own playout in-house, via a network feed from Technicolor.

41. In our view the regional variants of the BBC and ITV do not involve great operational complexity (for their outsourced playout providers) when all is proceeding according to schedule, with automated software handling the majority of switches between feeds for ITV, and local BBC staff executing opts manually for its channels (although RBM's playout controller plays a role in coordinating the BBC's national and regional

in-house playout activities).²⁹ Furthermore, the parties told us that over two separate two-week samples of interventions data, regional programming did not cause a single intervention (see below).

42. However, it has been put to us that much of the complexity involved in playing out the main BBC or ITV channels lies in the interaction between live/unplanned events and the demands of national and regional broadcasting. In other words, live and unplanned events generate more complex and demanding actions when they have consequences for national and regional playout. We thought that this was likely to be the case, and meant that the overall demands of the BBC and ITV were likely to be more complex than those of any other broadcaster. However, the parties argued that the burden of this complexity fell on the broadcaster rather than the playout provider. We assess this argument below in paragraphs 53 to 60.

43. The parties also argued that regional programming (unique to the BBC and ITV) was no more complex than regional advertising (common to a number of broadcasters, and also comparable to 'pub channel' variants for certain sports channels). However, we understand that ITV's regional content includes live programming which, although intended to be of prescheduled duration, provides for greater potential complexity than pre-recorded advertisements.³⁰

Interventions

44. The parties said that variations in the level of 'complexity' in the provision of linear playout services equated to the necessity and frequency with which a service provider needed to do more than monitor the screens, ie the need to manually intervene in the playout process.

²⁹ The playout controller communicates network plans and changes to the BBC in-house nations and regions playout teams, who rely on this information to guide their own operational and editorial decisions.

³⁰ ITV told us that there were occasions when regional programming could overrun or require interventions, such as during breaking news events or political debates.

45. The parties compiled intervention data for some of the channels they play out. The data contained information about the number of interventions, the number of intervention events, and the type of intervention events that took place over a two-week period in October 2013, and a subsequent two-week period in December 2013. The parties considered that the data showed that payout for ITV and the BBC was not more complex than for some of the other channels they served (such as [redacted]).
46. In particular, the parties found the following:
- (a) [redacted] required the most interventions across both data collection periods, followed by [redacted] and some of [redacted]'s digital channels. After them, [redacted] and [redacted] required significantly fewer interventions, but more than other channels.
 - (b) Customer behaviour can affect the level of interventions, and in particular for the [redacted] channels the number of the intervention events across both data collection periods related to customer behaviour³¹ was substantial.
 - (c) The number of interventions (actions) per 'intervention event' varied, although the number for [redacted] and [redacted] were consistently high across both data collection periods relative to other channels.
 - (d) A substantial number of interventions during the first data study were caused by live content: [redacted] per cent of total interventions on [redacted], [redacted] per cent on [redacted] and [redacted] per cent [redacted]. Live content was the cause of a large number of interventions on [redacted], with [redacted] also having frequent interventions. There were no such interventions for [redacted] and few or none for the PSBs' other channels.
 - (e) No interventions by the parties during either data collection period were the result of regionality; the parties said that challenges posed by regional variations rested largely with the broadcaster.

³¹ These customer-driven intervention events are made up of the following types of events: (a) delivering an incorrect schedule, (b) delivering a programme late, or (c) requesting a late programme change.

47. The parties said that all interventions were equally important as they could have similar negative effects if executed incorrectly. They further said that the nature of any interventions required were the same across all broadcasters, that from an operational perspective all interventions fell into one of two categories, and that neither of these types of intervention was more difficult for playout staff to implement than the other:
- (a) manual editing of the playout schedule, ie typing in a new item/deleting or editing an item; or
 - (b) pushing a button to effect a change.
48. The parties further said that interventions did not vary in complexity depending on the point at which they occurred (ie they did not become more difficult to implement the closer one got to transmission), and that the action required by the playout controller remained exactly the same.
49. We have no reason to believe that the intervention data collected by the parties is not a fair representation of the number of interventions for each of their channels. We further accept that, with any intervention, there is scope for errors, and therefore that the number of interventions is a factor that contributes to the complexity and risk of playout. We consider that the intervention data is consistent with the BBC and particularly ITV being at the complex end of the spectrum (although not necessarily uniquely complex) and live content being an important factor causing complexity.³²
50. However, we are not convinced that there is a simple relationship between the number of interventions and the complexity of a channel, primarily because we believe that these interventions relate to operational complexity, whereas we believe that there are other aspects to complexity, notably in designing, implementing and

³² We note that [redacted] had the highest number of intervention events caused by live content.

supporting a solution to meet the customer’s requirements (which we discuss later in this appendix).

Playout staffing requirements

51. The parties argued that the BBC’s and ITV’s requirements did not necessitate more people and expenditure risk on the part of the playout provider. The parties supplied the number of dedicated staff per channel for selected broadcasters, and noted that these were affected by the scope of contracts (eg Channel 4 employs its own planning staff, whereas RBM provides planning staff for the BBC; and the BBC contract includes dedicated disaster recovery facilities, whereas not all these contracts cover disaster recovery). From more detailed overviews provided by the parties containing the staff dedicated to playout roles, we further calculated the number of playout staff per channel, so that the varying scope of contracts would not be an issue.

TABLE 2 **Dedicated staff for RBM and Technicolor contracts**

<i>Broadcaster</i>	<i>Number of channels</i>	<i>Number of dedicated staff</i>	<i>Average staff per channel</i>	<i>Number of dedicated playout staff</i>	<i>Average playout staff per channel</i>
BBC	[REDACTED]*	[REDACTED]†	[REDACTED]	[REDACTED]†	[REDACTED]
ITV	[REDACTED]‡	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Channel 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Channel 5§	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BT Sport	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
NBCU	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Disney§	[REDACTED]	[REDACTED]¶	[REDACTED]	[REDACTED]	[REDACTED]
UKTV	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CSC§	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: The parties.

*RBM plays out [REDACTED] BBC channels, but only [REDACTED] are 24-hour channels; the other [REDACTED] are equivalent to [REDACTED] channels in terms of the hours of broadcasting

†[REDACTED]

‡[REDACTED]

§Past contracts.

¶[REDACTED]

52. The table indicates that some broadcasters are more demanding than others in terms of total staffing requirements. [REDACTED] is at the top end of the spectrum, both in terms of total staff and playout staff only. In terms of total staff, [REDACTED] set of channels as a whole is not at the very top end of the scale, but it is second to [REDACTED] in terms of dedicated playout staff only. However, we were wary of placing great weight on the detail of this

table, since looking at an average measure for a broadcaster as a whole may obscure the fact that some of its channels are more complex than others. We know that some channels—including BBC One, BBC Two, ITV1, Channel 4, Channel 5, BT Sport 1 and 2—have dedicated playout operators, whereas others can be monitored as part of a suite of channels. Therefore we view staffing levels as consistent with there being a spectrum of complexity, and the BBC and ITV being at the top end of the spectrum but not necessarily uniquely complex.

The burden of complexity

53. Above we found that playout, looked at in broad terms, is complex for the BBC and ITV in particular due to the combination of reactive live content, unplanned events, their mixed-genre character, handovers between channels, and their nations and regions. In this section, we consider to what extent these aspects complicate those broadcasters' in-house operations rather than those of their external playout provider. We further discuss to what extent there are differences between broadcasters in the degree to which they have outsourced operational roles related to playout.

54. We understood that the responsibility for editorial decision-making in general lies with the broadcaster (other than in exceptional circumstances when the broadcaster cannot be contacted). This means that even though the external playout provider might need to make changes to the playout schedule as a result of unplanned events or over- or underruns of live content, it will typically do so based on instructions by the broadcaster itself. This is discussed in more detail in Annex 1 to this appendix.

55. We further noted that there were differences between broadcasters in the degree to which they had outsourced operational roles related to playout (also discussed in Annex 1). [✂]³³
56. Based on the above, we consider that editorial decisions and scheduling issues around live content and unexpected events (including handover between channels) are primarily an issue for the broadcaster. Therefore, the multi-genre nature of PSB channels seemed to us to be primarily an issue for the broadcaster; from a playout provider's perspective, dealing with schedule changes for a mixed-genre channel did not seem more operationally challenging than doing so for a dedicated sports channel.
57. To the extent that it is this editorial decision-making and scheduling that makes regionality complex (eg if the over- or underrunning of live content complicates regional programming), that falls on the broadcaster too. The related operational consequences (eg executing schedule changes across regions for ITV) for playout providers did not seem to us any more operationally complex than those associated with reactive live programming in general (although there may be scale issues in monitoring the large number of ITV regions). We further note that the BBC for the most part was itself responsible for the operational complexities of its regionality. RBM's responsibilities were verbally to communicate upcoming schedule content via talkback to the nations and regions; to provide an automatically generated text-based schedule showing next ten on-air events (Presfax); and manually to update Scriptnet, which provides script information electronically to the nations.³⁴ Although the BBC's nations and regions are dependent on this input from RBM, we did not see any

³³ [✂]

³⁴ Explained in more detail in [Annex 1](#).

evidence to suggest that it was particularly demanding or complex once the system had been put in place. These tasks do not involve interventions.

58. We thought that RBM employees dedicated to the BBC and Technicolor employees dedicated to ITV had to deal with certain operational details that other playout providers did not. In the case of the BBC, that related primarily to coordinating with the nations and regions; in the case of ITV, that related to monitoring and occasionally troubleshooting playout for a large number of regions, and coordinating with STV and UTV.³⁵ However, we would expect these employees to transfer to any new provider under TUPE. The same applies to the roles that might have the relevant knowledge or experience to make the occasional editorial decision (even though we understand this to be highly unusual), as these are dedicated to a broadcaster.
59. Similarly, we noted ITV's view about the importance of understanding UK broadcast regulations and the ITV brand (paragraph 8 above); but broadcast regulations are not unique to ITV,³⁶ and we were not persuaded that a playout provider would be taking decisions relevant to the broadcaster's brand outside extreme circumstances; and again TUPE should mean that the decision would be taken by the same person that would have taken that decision under the previous playout provider.
60. We therefore thought that there were certain operational issues unique to the BBC and to ITV, with a degree of commonality between the two, but that these issues need not be a significant obstacle to another provider taking over the BBC or ITV contract at an operational level, provided that appropriate systems and procedures had been put in place.

³⁵ However, two regional broadcasters, STV and UTV, also depend on the ITV network feed but have regional variations and conduct playout in-house. Therefore ITV's outsourced playout staff have a role in coordinating the playout of STV and UTV, comparable to the role of the RBM Playout Controller in coordinating with the BBC's in-house nations and regions playout staff.

³⁶ Regulations on the volume of advertisements per hour provide for a different limit for the PSBs' main channels than for other broadcasters, but the principle is the same and so we did not view this as an area where experience of a PSB channel should be important.

Complexity of design, implementation and ongoing support for the playout solution

61. The second aspect of complexity of a broadcaster's playout is the design, implementation and ongoing support for a solution that meets the requirements of a broadcaster. We consider that this aspect is relevant at the following stages of interaction between broadcasters and playout providers:
- (a) At the bidding stage:
 - (i) understanding the customer's needs;
 - (ii) designing a technical set-up (selecting off-the-shelf hardware and software and incorporating whatever customization may be required); and
 - (iii) designing systems and procedures to deal with all the issues that may arise during playout.
 - (b) After winning a bid:
 - (i) implementing the technical set-up; and
 - (ii) recruiting and training operational staff, as required, and communicating systems and procedures to them.
 - (c) On an ongoing basis:
 - (i) providing engineering support on an ongoing basis; and
 - (ii) reviewing operational procedures as required.
62. We thought that the more complex a broadcaster's requirements, the more difficult these elements are likely to be. For example, there is a technical dimension that may be more complex for channels with regional content and advertising. Even though hardware and software is available that can deal with this, the parties have experience with the requirements of a customer that has a large number of regions, whereas other suppliers do not. In the following two sections, we discuss the issues in, first, understanding the broadcaster's needs and demonstrating that understanding, and secondly technical capabilities.

Understanding the broadcaster's needs

63. The first major issue in competing for a contract, and a common theme in broadcaster comments (see above), was that understanding the broadcaster's needs was a key part of a playout tender. To the extent that such complexity exists for a broadcaster, and the relevant expertise only rests with staff of providers that currently provide customers with similar requirements, this might limit the set of providers that can credibly bid for that contract.

64. There seem to be broadcaster interfaces that are best understood through direct experience of them (an incumbency advantage that cannot easily be overcome other than through hiring people with direct experience) but might be approximated by experience with a similar organization. For example, there may be elements common to mixed-genre PSB channels that are not found to the same extent in sports channels, so even though the broadcaster makes the decisions about how to deal with changes to the schedule, experience of the chain of communication that delivers those changes is an advantage.

65. We understood that during a tender procedure, playout providers typically need to present their understanding of the customer's requirements and their proposed design for the playout process and related technological aspects, including all the elements listed above. This means that a new provider would need to have people with the relevant expertise and experience either in-house or engaged as consultants, not only when starting to supply a new customer, but also when bidding for the contract.

66. We consider the availability of experienced staff further in our assessment of barriers to entry.³⁷

Technical capabilities

67. The second major issue is more general design and integration skills using commoditized kit, where technical expertise may be either in-house at the bidder or contracted in for the bid.
68. As noted above, we understood that operational staff of playout providers are typically dedicated to a single customer/broadcaster, and would hence transfer over through TUPE arrangements when a broadcaster switches playout provider. However, this is not the case for its design and engineering staff, which might be working on projects for various different customers, and are needed to win a contract as well as to implement it. Therefore if a provider won a contract it would have to either have these people in-house or subcontract this work.
69. The parties said that the underlying hardware, software and processes were broadly common to all channels which then had their own specific guidelines and procedures. This appeared to be a view shared by other playout providers. They further said that none of these elements were unique to the BBC or ITV, and that RBM and Technicolor (and other competitors) outsourced system design and implementation to third party specialists, such as systems integrators, equipment suppliers and other relevant technical consultants.
70. The parties agreed that regionality needed to be considered when it came to the design and implementation of a playout suite for a broadcaster which transmitted regional content (whether advertising and/or programming). This was due to the need

³⁷ Appendix E Barriers to Entry and Expansion.

to install additional monitors and appropriate automation equipment. However, the parties said that this design element was also outsourced to third parties that could easily be engaged as needed.

71. The parties said that as some of the technical expertise related to playout was required only during the bidding and building stages for a contract, they did not retain full capacity in-house. They explained that this would be too costly and noted that technical support from technology providers and systems integrators was readily available. The parties said that they made extensive use of third-party consultants when developing their bids and building the playout suite for a new contract.
72. The parties said that also during the life of a contract, external support was available and used. They said that some equipment suppliers provided extensive support such as on-site technicians. Alternatively third-party support could be brought in during difficult operational periods only, such as system upgrades, and new channel launches.
73. We have been told by third parties that in particular RBM had ‘inherited’ technical specialists in the area of playout, which combined an understanding of the BBC playout process with relevant technical expertise. RBM said that [REDACTED] of its current key technical specialists were new staff not previously employed by the BBC. [REDACTED]. The parties also said that a playout provider might engage an external ‘systems integrator’ for the assembly of a playout suite if necessary, and that they did so routinely.³⁸

³⁸ We discuss this in Appendix E: Barriers to Entry and Expansion. [Parties' initial submission](#), paragraph 3.35.

Our provisional assessment of complexity and its implications

Provisional view on operational complexity

74. We thought that there was a spectrum of operational complexity, with the need to play out reactive live content being the most important distinction between channels at the more complex end of the spectrum and those at the simpler end.³⁹ We did not think that the amount of live content a channel broadcast was determinative of its operational complexity.
75. The view from the majority of parties other than RBM and Technicolor was that the BBC and ITV's core channels had more complex requirements than those of any other broadcaster. This view appears to arise not from any single factor, but rather from the relatively frequent need to make changes to schedules when dealing with a combination of reactive live content, regional variations, the occasional requirements to hand over content between channels, and the multigenre nature of the channel.
76. We agreed that the BBC and ITV had the most complex broadcast operations. However, based on the arguments and evidence before us, we did not see convincing reasons to indicate that the outsourced playout requirements of the BBC and ITV were overall substantially more complex at an *operational level* than those of some other broadcasters; even though their broadcasting was more complex, much of the resulting burden fell on the broadcaster. Therefore the operational aspects of their outsourced playout requirements were not in a class of their own.
77. We found that there were certain operational issues unique to each of the BBC and ITV, with a degree of commonality between the two (such as the role coordinating regional playout), and therefore it was unlikely that playout providers other than the parties would have experience of these issues. However, we thought that the most

³⁹ A view supported by the parties' submissions on the main causes for manual interventions in playout. See paragraph 46

complex aspects would generally be handled by employees that would transfer via TUPE if the contract changed hands. We also thought that, to the extent that playout providers do provide operational roles that have to deal with unique requirements (eg planners in the case of the BBC), the customer could choose to take that role back in-house if it would level the playing field for a tender.

78. We considered how this fitted with the view of the majority of parties we spoke to that these two broadcasters had the most complex playout operations. We thought this was likely to be attributable to three factors. First, many of the parties we spoke to would have had a view of the BBC and ITV's broadcast operations, but not the division of responsibility between them and their playout providers. Secondly, we did see ways in which each of them was unique, and this may have contributed to the shared BBC/ITV view that they had the most complex requirements.⁴⁰ Thirdly, we thought that they would require the most complex set of systems and procedures and that even if the technical requirements were not significantly more demanding, they were slightly different and thus outside the direct experience of other playout providers (as we discuss further below).

79. It was also put to us that the high profile and viewing figures of the BBC and ITV made their playout more complex. We did not think that this affected operational complexity. However, it may have made those broadcasters more risk-averse and so made them more demanding when scrutinizing the proposed solution; and may potentially have affected the systems and procedures they require (eg such broadcasters may be willing to spend more to have more backup and resilience in the system).

⁴⁰ There were functions that were unique to the BBC (coordinating the nations and regions) and arguably ITV (the need to monitor such a large number of regions and deal with any errors affecting them, and coordinating with UTV and STV). We did not see evidence to suggest that these features made playout substantially more difficult, and in any case they were carried out by employees that were likely to TUPE transfer on change of supplier.

80. Some broadcasters other than the BBC and ITV, also exhibit significant elements of operational complexity. First, there are other PSB channels (Channel 4 and Channel 5, and some digital channels of the four PSBs) which display (to varying degrees) some of the characteristics of the BBC and ITV, but with many fewer advertising regions and without regional programming variations to be coordinated.
81. Second, there are dedicated sports channels which have to make a high number of manual interventions to schedule advertisement breaks and depart from the initial schedule when events over- or underrun (although again the editorial aspect of this falls to the broadcaster). We understand that live sports channels have complicated operations on a day-to-day (or hour-to-hour) basis, with many programmes being subject to manual intervention, but they do not have regional content or large numbers of advertising regions.
82. We also considered dedicated news channels. We understood that their complexity was in many ways similar to that of dedicated sports channels, ie handling a large amount of live programming but with clear editorial guidance as to what happens when scheduled items over- or underrun. However, our understanding is that the different elements of news channels are sequenced by a studio director, meaning that the playout function is relatively simple.
83. Apart from the PSBs and dedicated sports or news channels, other broadcasters' operational requirements appeared to be less complex. Although these broadcasters vary in scale, we did not think that their requirements were as challenging, and a playout provider that could supply one broadcaster could probably supply most others in this sector of the market.

Provisional view on complexity of design, implementation and ongoing support

84. We also assessed the implications of broadcasters' requirements for design, implementation and ongoing support. For channels with complex broadcasting issues, the playout provider may have to implement complex changes at short notice and have appropriate processes in place to prevent these changes from causing errors in playout. The consequence of this is that the playout provider must be able to demonstrate that it can design and put in place a system to deal with the broadcaster's complexity. That system would include appropriate choices of hardware and software, points of contact with the broadcaster and an understanding of the delegation of responsibility, and also procedures to be followed—both on an everyday basis and in an emergency if contact with the broadcaster was lost—by sufficiently trained and experienced operational staff.
85. We thought that the design and implementation of a solution for the BBC and ITV was more complex than that for other broadcasters, due to a combination of their regional content and interactions with nations/regions playout, their need to move content between channels, their risk aversion arising from their high profiles, and their greater propensity to change schedules due to breaking news and overrunning events. Not all of these qualities were unique to the BBC and ITV, but all were factors that contributed to their high degree of complexity overall. In each of these aspects, the BBC and ITV had more in common with each other than with other broadcasters.
86. Successful design and implementation has two main elements: people with the requisite skills and experience, and an understanding of the customer's requirements (which may come from past dealings with the customer, experience with customers with similar requirements, hiring staff with such experience, or through the tender process if the customer is motivated to help prospective suppliers get on a level playing field with the incumbent).

87. We consider the availability of staff with appropriate skills and experience in our assessment of barriers to entry.⁴¹

Implications of complexity for tenders

88. Taking all of the above into account, it seems unlikely that any other UK customer could count as a reference customer to demonstrate to the BBC or ITV that a supplier has experience of meeting all of its requirements. In theory, Channel 4 might be the next best UK reference, but its playout is already provided by RBM and its contract will not be available in time for any other supplier to win it before the next BBC or ITV tenders. We thought that the supply of playout to Channel 5 or to sports channels would give a provider credibility in certain areas, but would not in itself be seen as equivalent to the full complexity of serving the BBC or ITV.
89. Therefore any bidder other than RBM or Technicolor would have to find other ways to demonstrate its ability, either by using its overseas experience, if available, or by demonstrating during the tender process a good understanding and ability to meet the customer's needs. Thus the BBC and ITV's current providers would be likely to have some advantage over other providers in competing for either contract, but this advantage could be reduced if competing providers could recruit a small number of staff with appropriate experience. We also note that this could be a considerable challenge if bidding without good knowledge of the customer's requirements, but customers would be incentivized to educate bidders to level the playing field. Both the BBC and ITV envisaged a long tender process.
90. Many employees involved in operational roles would be expected to TUPE over with contracts, and therefore although there may be some issues around handover which create an incumbency advantage (see below), operational staff should not otherwise

⁴¹ Annex E, Barriers to entry and expansion.

be a strong differentiator between suppliers. Similarly, we have been told that hardware and software are easily available and largely 'off the shelf' (with occasional bespoke elements), and so although the appropriate choice of hardware and software will be part of many tender processes (unless specified by the customer), they are not in themselves a source of complexity or an advantage or disadvantage for particular bidders. Therefore the design and implementation of the technical solutions and the procedures to be followed in the event of errors or deviations from the schedule, and the experienced employees who can put them in place, seem to be the primary differentiators between suppliers.

Provisional conclusion on complexity

91. Our overall view on complexity was that the BBC and ITV's operational playout requirements were more complex than those of other broadcasters, but the burden of that complexity was shared between the broadcaster and the playout provider. We thought that, if necessary, more of that burden of planning and decision-making could be shifted to the broadcaster. The remaining operational complexity of BBC One and ITV1 would still be at the highest end of the spectrum, but not by an order of magnitude, and the challenge of meeting it could more easily be addressed by the TUPE transfer of dedicated operational staff.

92. We thought that the greater challenge for rival suppliers at the tender stage would be in gaining and demonstrating an understanding of the BBC and ITV's requirements, and proposing systems that would meet those requirements. Providers could attempt to address this by recruiting appropriate consultants or contractors, if available. However, we thought that the incumbent to a complex customer would have a clear advantage on this front, and experience with a customer with similar requirements would also be a clear benefit.

93. Taking all this into account, we thought that it would be feasible for suppliers with experience of other PSBs and sports channels to provide playout for the BBC and ITV, but we understood why it was a widely held view (including by the BBC and ITV) that it would be a step up for them. We thought that perception was important since it may affect the tender process. However, we also thought that a detailed tender process with motivated participants on both sides may reduce the perceived step up and facilitate the understanding necessary for a credible bid.

Outsourced roles and editorial decision-making

1. We understand that the following roles exist relating to playout. These are referred to by different names by different broadcasters, but for consistency we have used common terminology. Table 1 below lists and describes these roles, and shows for some major broadcasters which roles are outsourced and which are kept in-house.

TABLE 1 Various operational roles outsourced to playout providers

Role	Description	Outsourced			
		BBC*	ITV	Channel 4	BT
<i>Playout Operations Manager</i>	General management of playout team, resource and event planning	[X]	[X]	[X]	[X]
<i>Operations Coordinator</i>	Responsible for the day-to-day organization of staff, supports the playout team during more complex broadcast periods, reports technical issues to engineering team, and ensures that pre-event checks are performed†	[X]	[X]	[X]	[X]
<i>Controller</i>	Ensures that content is played out according to its programme schedule	[X]	[X]	[X]	[X]
<i>Continuity Announcers</i>	Scripts and performs live voiceovers	[X]	[X]	[X]	[X]
<i>Planning/Planners</i>	Responsible for the planning of a client's playout schedule or metadata listings	[X]	[X]	[X]	[X]

Source: Parties' response to the CC's job title clarification questions dated 23 December 2013, paragraph 5.1. See further annex 13a of the parties' initial submission to the CC.

*The entries refer to BBC network playout. Playout in the regions and nations is handled in-house.

†The parties' definition of Playout Operation Coordinators encompasses a number of distinct roles: Playout Editors, Service Delivery Managers, Graphics Managers and Operational Leads.

‡[X]

§[X]

2. We noted that there were differences between broadcasters in the degree to which they had outsourced operational roles related to playout. The roles that some broadcasters had outsourced to their playout provider, but others had not, were regional playout staff, Planners,¹ Continuity Announcers² and Playout Editors.
3. The BBC had outsourced all staff for its network playout, with the exception of some planning roles, such as Programme Schedulers and Media Planners. However, it

¹ This person is responsible for the planning of a client's playout schedule or meta data listings.

² This person scripts and performs live voiceovers.

kept in-house the staff which operate playout for the nations and regions.³ In the regions the BBC has newsrooms that can opt out of the BBC One network schedule, and then are responsible for regional playout. In each of the nations the BBC has one person on duty that acts as both Continuity Announcer and Playout Controller for the national playout. This person provides the continuity announcements over the nation's feed, opts out of and back into the network feed, and has to react when the network schedule changes.⁴

4. The BBC explained that RBM's responsibility with regard to the BBC's regional and national playout was for the Network Playout Controller to communicate schedule changes to the regions/nations via talkback.^{5,6} The BBC further said that the communication between network and the regions/nations was not only one-way communication. It explained that questions were regularly asked to the network playout controller to clarify information, eg schedule changes. Occasionally, nations will request the network to help them by amending the network schedule slightly to allow them to opt in or out more easily.
5. The BBC further said that RBM was contractually obliged to provide data to the nations by way of systems called Presfax and Scriptnet. Presfax is a bespoke system that provided an automatically generated text-based schedule showing the upcoming schedule (next ten on-air events). Any edits made in the schedule were reflected in real time and the nations were reliant on this information being communicated to them by RBM. ScriptNET provided script information electronically to the nations, including late changes, and was updated manually by the RBM continuity announcers.

³ The regions are opted in and out by their Newsroom Directors rather than dedicated playout staff.

⁴ BBC hearing summary, paragraph 10.

⁵ This means that the Network Playout Controller speaks to the regions/nations through a microphone.

⁶ BBC hearing summary, paragraph 10.

6. ITV had outsourced all staff directly involved in playout, but kept all planning roles (including scheduling) and Continuity Announcers in-house. However, two regional broadcasters, STV and UTV, also depend on the ITV network feed but have regional variations and conduct playout in-house. Therefore ITV's outsourced playout staff have a role in coordinating the playout of STV and UTV, comparable to the role of the RBM Playout Controller who coordinates with the BBC's in-house nations and regions playout staff.
7. We further understand that even though the playout editor role (part of the Playout Operations Coordinator team⁷) was outsourced by both the BBC and ITV, this was not the case for other more complex broadcasters such as Channel 4. Channel 4 chose to keep that role in the Playout Operations Coordinator team in-house.
8. [REDACTED]⁸
9. We further understand that the responsibility for editorial decision-making in general lies with the broadcaster. This means that even though the external playout provider might need to make changes to the playout schedule as a result of unplanned events or over- or underruns of live content, it will typically do so based on instructions by the broadcaster itself. The parties said that in the event that the designated person at the broadcaster could not be contacted, there were procedures in place to escalate the query within the broadcaster's management.
10. However, the parties explained that in situations where even after such an escalation no decision had been made by the broadcaster and there were no appropriate guidelines or contingencies in place, which they characterized as an extremely unlikely

⁷ [REDACTED]

⁸ Summary of hearing with the BBC, paragraph 34.

event, the decision fell to the external playout provider. [REDACTED]^{9,10,11} The parties further said that all these roles were dedicated to a contract, and hence would transfer along with it if the broadcaster decided to switch.

11. The BBC said that the Playout Controller¹² and Playout Editor¹³ responsible for network playout would never change the output of a channel from a programming point of view without the authorization of a scheduler or other BBC operative. Only in the case of a major problem was the external playout provider authorized to decide and activate disaster recovery without consultation with the BBC. Otherwise, no changes could be made to the schedule without the authorization of a range of named individuals at the BBC. The BBC further said that some scenarios creating complexity could be predicted (eg a sports match running into a pre-recorded programme or another live event) and RBM's Playout Editors would work with the BBC Programme Schedulers to plan contingency schedules.¹⁴

12. ITV told us that it was important for a playout provider to understand its values so that appropriate editorial decisions could be made where they fell under the playout provider's remit. ITV explained that editorial judgement and ITV values were mostly embedded in the senior Playout Controllers.¹⁵ These people typically had more than ten years in the role and in some cases might have worked for ITV previously.¹⁶

⁹ [REDACTED]

¹⁰ [REDACTED]

¹¹ [REDACTED]

¹² [REDACTED]

¹² The BBC referred to these RBM employees as 'Network Playout Directors'. We have changed this in order to have a consistent naming convention for the various playout roles.

¹³ This is one of the Playout Operations Coordinators.

¹⁴ [Summary of hearing with the BBC](#), paragraph 13.

¹⁵ ITV referred to these Technicolor employees as 'Network Directors'. We have changed this in order to have a consistent naming convention for the various playout roles.

¹⁶ [Summary of ITV hearing](#), paragraph 14.

Barriers to entry and expansion

1. The number of channels being broadcast in the UK and therefore requiring playout has increased markedly over the past 30 years with a particular increase in the past 15 years. This is attributable to two main developments:
 - the launch of satellite television in 1982, which allowed the number of channels being broadcast in the UK to increase from four to around 25 between 1982 and 1998; and
 - the introduction of digital television in 1998, which allowed the number of terrestrial channels to increase from five to around 60 by 2013, including new channels being launched by the traditional terrestrial broadcasters—the BBC, ITV, Channel 4 and Channel 5. The launch of digital satellite broadcasting in 1998 also allowed the number of satellite channels to increase.¹

2. There are now approximately 700 channels being broadcast in the UK. Freesat, the free-to-air satellite system now broadcasts over 100 channels including HD and time-shift variants and there are over 600 channels on Sky.²

3. There has also been growth in the number of broadcasters that have chosen to outsource their linear playout. Channel 5 was the first PSB not to perform playout in-house (outsourcing from its launch in 1997). The BBC was the first PSB to outsource its existing playout function when it sold BBC Broadcast. ITV and Channel 4 outsourced their playout functions in 2007 and 2010 respectively.

¹ At the launch of Sky Digital there were around 140 channels, with many of the channels time-shifted movie channels. <http://news.bbc.co.uk/1/hi/entertainment/183787.stm>.

² Based on Sky and Freesat websites and 'The British film and television industries—decline or opportunity?', House of Lords Communication Committee, 2010.

4. As a result the market for outsourced linear playout has grown and the parties estimate the value of outsourced linear playout now to be [£90 million to £110 million].³ This growth has created the potential for market entry.

5. There appear to be a number of different models that have been used to enter the outsourced linear playout market in recent years:
 - (a) Some linear playout companies were formed when the in-house playout function for a channel was 'spun out' from the broadcaster. For example, the BBC incorporated BBC Broadcast Ltd as a separate subsidiary for its playout services. This was later renamed RBM and sold to Macquarie in 2005.
 - (b) Others have engaged in speculative entry. For example, Globecast entered the playout market in 2006 by building a new playout suite as a response to the needs of one of its customers and after choosing to broaden its portfolio of broadcast services in the past ten years.
 - (c) A number of other companies have entered the market through acquisition. For example, Encompass entered the playout market in the UK through its acquisition of Ascent Media in 2011, which itself acquired the London Playout Centre which had been part of Pearson plc and Thames Television. Similarly, Technicolor first entered the UK linear playout market⁴ as a result of its acquisition of Corinthian in 2004. Corinthian had provided (and following the acquisition Technicolor began to provide) broadcast services to Disney in the UK and a number of other territories.⁵
 - (d) Arqiva as an independent entity entered the market as a result of being spun off from Cable television provider NTL.

³ Parties' response to the issues statement, [Annex 5](#).

⁴ Technicolor began providing linear playout services in 2003 when it was invited by Disney to set up and run the Disney Channel in Japan.

⁵ Ericsson is not aware of when Corinthian first entered the UK linear playout market.

6. We are unaware of any recent examples of providers that have entered the UK market organically and have immediately won contracts at the more complex end of the market. The more common route of organic entry has been by winning less complex contracts.
7. There is limited evidence of expansion by providers into providing playout to the PSB and sports broadcasters that we consider to be complex. This is partly because there are only a limited number of such contracts—and also because most of these complex broadcasters, with the exception of Channel 5, only outsourced their playout requirements in the last five to ten years—with many of these ‘first generation’ contracts for the original outsourcing still running so that there have been few opportunities to tender to provide these services.
8. In assessing whether new entry or expansion might prevent an SLC, we have to consider whether such entry or expansion would be timely, likely and sufficient. We consider that as contracts tend to be between three and 12 years in length, our consideration of entry or expansion is therefore over a period no longer than three years which includes the retendering of at least one of the contracts for broadcasters with the most complex linear playout requirements and would include the retendering of several contracts for the provision of linear playout to broadcasters with less complex requirements.
9. In the section below we set out the requirements for providing playout services and the extent to which any of these requirements could represent a barrier to entry or expansion currently, or in future. We have set out the position of the main parties and third parties in relation to each of these as well as other evidence that we have gathered. The requirements to operate a linear playout business we have identified are:

- (a) premises;
- (b) technology;
- (c) experienced and skilled operational, engineering and management staff;
- (d) access to finance; and
- (e) a credible track record in delivering services of similar complexity.

Views of main parties

10. The parties did not consider that there were any significant barriers to entry or expansion. In particular they told us that:

- (a) neither premises nor technology were barriers to entry;
- (b) obtaining staff with the requisite experience and skills was not a significant barrier to entry because TUPE allowed a playout provider to obtain operational staff with relevant customer experience and any other staff required were available on the market, including consultants available to aid bid teams;
- (c) the costs of tendering were not a significant barrier to entry because: they were a standard cost of doing business, they were commensurate with the size of the contract and were incremental, subject to the stage of the tender process a supplier reached. Further, they also told us that the costs were incurred equally by existing suppliers;
- (d) capital investment was not a barrier to entry, as any investment for a specific contract was incurred only once that contract was secure; and
- (e) reputational barriers to entry were not significant. As the market developed in respect of hardware and software, current experience would become less relevant.

Our analysis

Premises

11. A provider needs premises with a suitable data connection, climate control (for cooling hardware), storage facilities and an uninterruptable power supply to provide playout services. To some extent the requirements of a provider will depend on the number of channels it plays out and their complexity. Customers with a large number of channels or with more complex requirements may request premises with a dedicated playout suite for their channels, as is the case for the BBC, ITV and Channel 4. Customers with less complex requirements may be willing to have their playout performed in a shared facility serviced by a pool of staff, for example [REDACTED].

12. Arqiva noted that the need for an appropriately located and fibre-connected building with resilient power and air conditioning was a barrier to entry and that for a complex or PSB broadcaster, a successful bidder would need to have available significant real estate as it would require dedicated infrastructure and operations. Arqiva said that most providers did not have the necessary real estate easily available to them.

13. [REDACTED]⁶

14. It may not be necessary to have put in place the appropriate site to win a tender exercise providing that the provider is readily able to establish the appropriate site by the time that the contract commences.

15. In our view locating and fitting out suitable premises is not a significant barrier to either entry or expansion in this market because whilst such premises need appropriate infrastructure such as data connections, we do not believe that there is a

⁶ [REDACTED]

shortage of potential premises which could be appropriately fitted out, and client-specific requirements will need to be considered only after the award of a contract.

Technology

16. A supplier will need to have in place the appropriate hardware and software in order to provide playout services. We have been told that this technology is readily available and largely 'off the shelf' (with occasional bespoke elements being added). The sophistication of the technology and the extent to which bespoke additions may be necessary will depend on the complexity of the customers. For example, for less complex customers a less expensive, 'channel in a box'⁷ solution may be appropriate.⁸

17. A broadcaster's perception of the maturity and suitability of new technology solutions may potentially affect a supplier's credibility as a bidder: for example, where a supplier proposes a playout solution which uses new technology which the purchaser considers to be untested. Both the BBC and ITV expressed some doubt on the suitability of newer technologies for their playout in the near future, whilst Channel 4 was more willing to consider such solutions. The BBC said that technology was evolving at a rapid pace though it had doubts about when the most innovative solutions would be sufficiently developed and tested for its requirements.⁹ ITV said that reliable lower-cost types of technology from the cloud were still a couple of years away, and even then ITV said that it could not see itself adopting that technology for the foreseeable future.¹⁰ Channel 4 told us that if it were implementing a new playout service today, it would not build the architecture it currently used and would look at

⁷ A channel in a box, such as Snell's ICE or Miranda's ITX is a single, typically rack-mounted, integrated piece of hardware (with software) which can perform multiple tasks such as storage, simulcasting SD and HD variants, producing on-screen graphics and encoding subtitles which otherwise would require a separate server or processing device for each task (though may be augmented with stand-alone servers).

⁸ The parties noted that less complex broadcasters could use a 'channel in a box' solution in-house and there was nothing to prevent an external provider using such a solution. For example, [§<]. Channel 4 has also stated it might consider the use of channel in a box ([Channel 4 hearing summary](#), paragraph 11).

⁹ [BBC hearing summary](#), paragraph 28.

¹⁰ [ITV hearing summary](#), paragraph 44.

alternative technologies. 'Channel in a Box' was a possible alternative, though it could not manage the complexity of the graphics Channel 4 currently used.¹¹

18. Channel 5 said that due to changing technology, companies such as Deluxe, Leap Cloud and Media Cloud would have a larger profile in playout services in the future.¹² Further, BSkyB said that technological advances spread between manufacturers quickly,¹³ and that playout hardware was not difficult to procure as there were a number of suppliers. It said that its playout hardware was not customized as it was cheaper to buy ready to use. It used some ready-to-use software and some that was bespoke and unique to Sky.¹⁴
19. A provider would not need to have hardware and software in place until the contract had been won. This was because most broadcasters would expect a technology refresh at the beginning of a new contract.¹⁵ However, some investment may be required during the bid stage in order to develop a 'proof-of-concept' demonstration.
20. In our view given the 'off the shelf' nature of software and hardware required and the fact that it is required at the point where a contract commences,¹⁶ this requirement does not appear to be a barrier to either entry or expansion, provided that a provider has the ability to finance its proof-of-concept demonstration.

¹¹ [Channel 4 hearing summary](#), paragraph 12.

¹² [Channel 5 hearing summary](#), paragraph 19.

¹³ [BSkyB hearing summary](#), paragraph 12.

¹⁴ *ibid*, paragraph 14.

¹⁵ Playout contracts are described by the parties as 'largely built to order' in that the actual facility is built to comply with a customer's specific requirements as agreed during the tender and contracting process. Parties' response to market questionnaire, paragraph 5.2.

¹⁶ [Main parties' initial submission](#), paragraph 5.30.

Experienced and skilled management, engineering and operational staff

21. A playout provider needs management, engineering and operational staff with the necessary skills and experience to help win and to deliver playout contract services.

In particular they need:

- *Management and engineering skills*—At the tendering stage a provider needs people who are able to demonstrate that they understand how to design and implement a playout facility that meets a broadcaster’s requirements and how to manage a transition from another provider. If the bid is successful then a provider will need staff that are able to build the new facility, put in place the appropriate systems and processes, and manage transition risk. We note that there have only been limited instances of the more complex UK channels being outsourced or switching provider, which may impact on the number of people available that have this type of experience.
- *Operational skills*—If the provider bids successfully it will also need operational staff with the skills to deliver the playout service. It appears that gaps in skills of operational staff may be overcome to some extent by the operation of TUPE. This means that any staff that are dedicated to a particular contract are able to transfer across to the broadcaster should an in-house option be chosen. However, we understand that more staff may need to be sourced in order to help during the ‘dual running’ phase that broadcasters put in place prior to the new contract starting. The parties stated that should a broadcaster find that it required additional staff, these could easily be hired from the pool of freelancers active in the linear playout market.¹⁷

22. Providers that wish to expand into providing these services to complex broadcasters need staff with the necessary skills and experience to win and deliver these contracts. This may require the recruitment of a number of staff or the use of

¹⁷ [Main parties’ initial submission](#), paragraph 5.35.

consultants in order to be able to make a credible tender and further hires in order to deliver on the contract.

23. We considered the evidence that parties had provided on barriers to entry and expansion with respect to the availability of both operational skills and planning and engineering skills.

General comments on availability of skills

24. Both Encompass¹⁸ and Sky¹⁹ told us that there were sufficient skilled staff in the market, and staff moved from one supplier to another. However, Encompass told us that for complex linear playout service delivery credibility and the availability of appropriately skilled and experienced staff were barriers to providing services to these customers.
25. Encompass told us that there was an incumbency advantage with respect to the knowledge and the working processes of a broadcaster that the incumbent supplier possessed.²⁰
26. Channel 4 said that it was possible for a playout provider to graduate to the level of complexity required by Channel 4 if it purchased the technical expertise and project and design teams of a competitor.²¹ Channel 5 said that from experience, management teams in playout services tended to move from organization to organization.²²

¹⁸ [Encompass hearing summary](#), paragraph 26.

¹⁹ [BSkyB hearing summary](#), paragraph 15.

²⁰ [Encompass hearing summary](#), paragraph 5.

²¹ [Channel 4 hearing summary](#), paragraph 28.

²² [Channel 5 hearing summary](#), paragraph 18.

Operational skills

27. A number of parties²³ noted that TUPE regulations would mean that operational staff who were wholly or primarily devoted to working on a playout contract would transfer to the new provider.
28. Arqiva stated that it was relatively easy to source [REDACTED] but that it was harder to recruit [REDACTED]. Arqiva said that a transition team would be needed as staff would only transfer under TUPE two weeks before the switch in provider. Arqiva gave the example of the contract which it had won to provide playout services for Turner where TUPE had not applied, but it was currently engaged with Turner to ensure that it could acquire individuals from Turner's playout team.²⁴
29. The main parties told us that both RBM and Technicolor used freelance staff and that such staff would freelance for a number of playout providers. The parties said that freelance staff could be used for ad hoc projects such as channel launches or migration or for longer terms to manage shift patterns.²⁵ The parties said that the skills required for any playout contract were broadly the same and were not unique to any contract or level of complexity and that staff could and did switch from working from one channel to another. The parties gave the example of RBM having recently hired playout directors who used to work for [REDACTED], [REDACTED] and [REDACTED] and Technicolor having moved [REDACTED] of its transmission controllers from [REDACTED] to [REDACTED]. Technicolor also employed staff that had come from a number of its competitors (including [REDACTED] and [REDACTED]).²⁶

²³ For example, [BBC hearing summary](#), paragraph 16; [Encompass hearing summary](#), paragraph 26; [main parties' initial submission](#), paragraph 3.31(ii).

²⁴ [Arqiva hearing summary](#), paragraph 17.

²⁵ [Main parties' initial submission](#), paragraph 3.19.

²⁶ [Main parties' initial submission](#), paragraph 3.18.

Planning and engineering skills

30. Due to the nature of TUPE regulations, staff who did not work primarily on a single broadcaster's playout would not transfer if the playout provider changed. For example, the BBC told us that its incumbent provider, [REDACTED]. These staff were not dedicated to the BBC and would not transfer under TUPE. [REDACTED].²⁷ The BBC estimated that the number of staff that a competitor would need to acquire from RBM in order to demonstrate the necessary knowledge and understanding would be between [REDACTED].²⁸
31. [REDACTED] noted that whilst operational staff would transfer under TUPE, engineering staff would not.
32. Arqiva told us that to participate in a complex tender its decision to invest in a bid team would be dependent on identifying and recruiting key staff, such as transmission controllers with experience of complex playout (see paragraph 24). Specifically, Arqiva told us that to bid credibly for the BBC contract, [REDACTED]²⁹ would be required quite early in the bid process; and at either proof-of-concept stage (if there was one) or at preferred bidder stage there would be a need for [REDACTED] staff³⁰ and [REDACTED].³¹
33. The main parties told us that if a playout provider felt that it did not have the right personnel to manage a bid process, its team could easily be supplemented by the advice, support services and experience of established third party suppliers and consultants, including technology and equipment providers and systems integrators.³² [REDACTED] and Ericsson has previously engaged systems integrators and/or external consultants to assist with its bids. The parties noted that the use of external

²⁷ [REDACTED]

²⁸ *ibid*, paragraph 30.

²⁹ [REDACTED]

³⁰ [REDACTED]

³¹ Or network directors in the language of the BBC. Arqiva said that extremely low numbers of network directors were available on the open freelance market.

³² [Response to issues statement](#), paragraphs 5.13–5.16; and [initial submission](#), paragraphs 3.20–3.22.

'systems integrators' continued after the bidding process with integrators overseeing the purchase of relevant hardware and software and assembling the playout suite ready for use.³³

34. We also considered evidence on the availability of people with relevant skills and experience in both operational roles and those with planning and engineering skills. We thought that TUPE provisions would allow playout providers adequately to staff a playout facility once the service transferred and the availability of freelance staff would aid in this. We further considered that the possible role of third party suppliers of hardware and software, 'systems integrators' and consultants in assisting in the design and implementation of a playout system. We considered to what extent potential suppliers were dependent on recruiting staff with relevant experience of certain specialized roles to support a bid team. We considered Arqiva's evidence (see paragraph 32)³⁴ on this point and we agree that for certain roles there may be a limited number of individuals with direct experience. This may impact on a potential provider's ability to demonstrate knowledge at the bidding stage. We thought that should the knowledge and experience contained within such individuals be crucial to understanding a broadcaster's requirements, then a motivated customer (such as the BBC or ITV) would try to ensure that all bidding parties had access to this information.

Costs of tendering and capital investment

35. Playout providers need access to finance to meet the cost of tendering for the business, and if their bid is successful, to invest in premises, technology and people to deliver playout services under the contract.

³³ [Main parties' initial submission](#), paragraph 3.35.

³⁴ See also Appendix D, Annex 1, on the roles which different broadcasters outsource with the playout contract.

36. The costs of tendering may include both staff costs and, for bidders that reach the latter stages of a tender process, there may be costs of developing a proof-of-concept system to demonstrate how a particular technology solution works, which would incur cash costs.³⁵ Encompass said that bidding for business absorbed a lot of time and a large effort for the business.³⁶
37. The level of these tendering costs will vary according to the complexity of a broadcaster's requirements. For customers with a small number of channels and a limited number of complex requirements the tender process may be relatively simple, with a small number of companies invited to participate.³⁷ In contrast the BBC is required to follow public procurement rules which require an open, advertised tender process with multiple set stages, which may provide a wider field of participating firms, but with increased tender costs to individual bidders (from multiple stages) and to the industry as a whole (from the greater field of candidate suppliers). Arqiva said that bidding for the BBC contract would require a significant financial investment.
38. Existing competitors with a range of customers might not incur all of these tendering costs. Those that have clients with similar playout requirements might be able to use an existing client's system for a proof-of-concept demonstration. Similarly there may be an advantage for the incumbent provider in terms of the reduced cost of staff time involved in developing relationships with customers prior to the announcement of a tender process.
39. Overall, the costs of tendering do not appear to be a significant barrier to entry and expansion. However, this barrier is potentially more significant for those that wish to expand to provide services for more complex customers, as the tender costs for less

³⁵ In economic terms we do not draw a firm distinction between financial costs and opportunity costs, but the availability of cash and investment capital may dictate certain business decisions.

³⁶ [Encompass hearing summary](#), paragraph 11.

³⁷ For example, [redacted] invited only three companies to tender and did not have multiple stages to its tender process. [redacted]

complex customers are lower because it is only the most complex customers which will have particularly complex and expensive tender processes. We consider in greater detail the tender process and how this varies by different broadcaster in our assessment of competitive effects.

40. Once the playout contract has been won, the provider will need to make the investment in the human resources, technology and premises to deliver under the playout contract.
41. It appears that the costs associated with putting in place the people and facilities to deliver on these contracts are likely to be significant—particularly for those broadcasters with complex requirements that require a dedicated playout suite with new technology. However, we note that once the contract has been won there is less uncertainty associated with the investment so it may be less likely to be a barrier to entry and expansion than high bid costs. Further, to some extent the costs involved in building to order would have to be met whoever won the contract whether or not they were current market players and the degree of complexity of the broadcaster concerned.

Credible reputation/track record

42. We have been told that in order to be invited to participate in a tender and to be successful in winning playout contracts a supplier must have a credible reputation for providing playout services to other customers with similar complexity and we consider this in detail in our assessment of competitive effects.

Our conclusion

43. In assessing whether new entry or expansion might prevent an SLC, we have considered whether there might be barriers that prevent it from occurring—in a timely, likely and sufficient way.

44. There appear to be relatively low barriers to entering the playout market at the less complex end. There are a number of examples of such entry over recent years such as Globecast. This appears to be facilitated by the low barriers to obtaining staff, premises and technology. Further at the less complex end of the market customers appear to place greater importance on price than the reputation of providers.

45. We have considered whether providers of playout services to broadcasters with less complex requirements are capable of stepping up to provide playout services to broadcasters with complex requirements. The most significant of these barriers is the importance to broadcasters of a provider's credibility in supplying services of similar complexity. A number of providers told us that not having previous experience for a particular type of provider is a significant disadvantage—particularly when up against rivals that do have such experience. However, there do not appear to be significant barriers to prevent playout providers that wish to invest in their capabilities to enhance their chances of winning complex customers. If a provider has access to the requisite finance it should be able to secure the right premises and technology. It should also be possible to identify and recruit staff with the necessary skill and experience to win a bid for a more complex client and, if the bid is successful, those with experience in designing and implementing the playout system for a complex broadcaster. Further, most of investment to finance this expansion will only be necessary if the bid is successful.

46. However, given the importance of credibility, particularly to broadcasters with complex requirements—it seems unlikely that a provider without any experience in providing playout services for a complex provider to win a contract to provide these services for ITV or the BBC. Similarly, it is unlikely that any new entrant to the market could win a contract to provide a moderately complex broadcaster, let alone one of the most complex.

Glossary

Access and metadata	Access services include subtitling and sign language. Metadata is additional content information such as full title, screen and sound format, duration and information for generating the electronic programme guide and content discovery.
Act	The Enterprise Act 2002.
Arqiva	Arqiva Limited, a communications infrastructure and media services company, operating in broadcast, satellite and mobile communications markets. Arqiva provides playout services to broadcasters including British Eurosport, ESPN and Turner .
Ascent	Ascent Media's global content distribution business, including broadcast facilities. Ascent was purchased by Encompass in February 2011.
Atos	Atos SE, a French multinational IT and managed services company. Atos is the BBC's outsourced IT and technology provider.
Babcock	Babcock International Group plc, a company which provides infrastructure support services, including technology for the operation of playout.
BBC	British Broadcasting Corporation, a PSB funded by the licence fee paid by UK households. The BBC provides ten national television channels plus regional programming, ten national radio stations, 40 local radio stations and an extensive website. BBC World Service broadcasts to the world on radio, on television and online, providing news and information in 27 languages and world service English language.
BBC Broadcast	BBC Broadcast Limited, incorporated in 2002 by the BBC to transfer its playout operations to. It was acquired in 2005 by a consortium including Macquarie and MCAG and renamed RBM .
BBC Worldwide	BBC Worldwide Ltd, a wholly-owned subsidiary of the BBC which undertakes commercial operations abroad including the broadcast of a number of channels outside of the UK such as BBC America.
Box TV	Box TV is a premium video network providing movies, television shows and premium video content.
British Eurosport	British Eurosport is a division of the pan-European television sports network Eurosport. It broadcasts two channels of live and pre-recorded European and international sporting events.
Broadcast chain	The chain of services that enable a programme/event to be broadcast. This chain may include content provision, media logistics, access and metadata, playout and then distribution.
Broadcaster	A broadcaster is a supplier of broadcast television.

BT Sport	BT Sport is a group of sports television channels in the UK and in the Republic of Ireland, owned by the BT Retail part of the BT Group, which launched on 1 August 2013.
CBBC	CBBC is one of the BBC 's brands of children's television. This channel is aimed at children aged 6 to 12. It broadcasts from 7am to 7pm.
Cbeebies	CBeebies is one of the BBC 's brands of children's television. This channel is aimed at children below the age of six. It broadcasts from 6am to 7pm.
CBS International	A Bermudan company which owns the equity of CBSH .
CBSH	Creative Broadcast Services Holdings Limited, the immediate parent company of Creative .
Channel 4	A channel broadcast by Channel Four Television Corporation, which also broadcasts a number of other channels such as E4 and More4 and time-shifted versions of its channels.
Channel 5	A channel broadcast by Channel 5 Broadcasting Limited, which also broadcasts other channels such as 5* and 5USA and time-shifted versions of its channels.
Content provision	Content provision includes all material that is broadcast and includes programmes, adverts and idents .
Creative	Creative Broadcast Services Holdings (2) Limited. The entity which Ericsson proposed to purchase, owned by MAIP with some minority equity investment by Macquarie .
CSC	Formerly Chart Show Channels, a group of entertainment channels.
Deluxe	Deluxe is active in providing entertainment services for the television and film markets and has a wide portfolio of businesses, including broadcast deliveries and access services.
Digital media services	Digital media services comprise media logistics and non-linear playout services relating to video-on-demand , for web, television, desktop and laptop computers, mobile and tablets.
Discovery	Discovery Communications is a worldwide media company that broadcasts a number of factual content channels in the UK.
Disney	The Walt Disney Company Limited operates a portfolio of channels aimed at children and families in the UK, including Disney Channel, Disney XD and Disney Junior.
Distribution	Once playout has been performed, the output of the playout process needs to be distributed to the various providers of transmission (terrestrial antenna transmission, satellite, fibre-optic cable and Internet television) through the use of a high-speed data connection to the transmitter's hub.

Encompass	Encompass Digital Media Limited, a leading digital media services provider (including linear playout).
Ericsson	Telefonaktiebolaget LM Ericsson (PUBL).
ESPN	ESPN is a worldwide company that formerly operated several sports channels in the UK. In July 2013, BT acquired ESPN Global Limited which operated the ESPN and ESPN America Channels in the UK and the Republic of Ireland. ESPN (UK) is now available as part of the BT Sport pack and the channel includes both live sporting events as well as pre-recorded programmes.
Globecast	A provider of broadcast services (including linear playout) and wholly owned by Orange SA (formerly France Télécom.)
Ident	Idents are short clips played between programmes to identify the broadcasting channel.
Intervention	A scheduled or unscheduled non-automated action taken by the playout provider in the playout process. For example, if a scheduled programme overruns or under-runs, the playout provider may need to intervene manually to edit the schedule in order to accommodate the change and minimize disruption, or to execute changes between feeds.
iPlayer	A current example of non-linear playout that is provided by the BBC .
ITT	Invitation to tender.
ITV	ITV is an integrated producer broadcaster and the largest commercial television network in the UK, operating a family of channels. ITV is also the name of the broadcaster's flagship channel (see ITV1).
ITV1	We use ITV1 to refer to ITV's flagship channel.
JSTV	Japan Satellite TV.
Linear playout	Linear playout is a process whereby television content is prepared and compiled into a continuous stream for transmission to the audience, in compliance with the broadcaster's programme.
Macquarie	The Macquarie Group is a full-service investment bank and is listed on the Australian stock exchange. In 2005 Macquarie and MCAG acquired BBC Broadcast , which was subsequently renamed RBM and owned through Creative . In 2008 MAIP acquired nearly all of the equity of Creative .
MAIP	Macquarie Advanced Investment Partners, an unlisted investment fund managed by MIRA . It owns approximately 94 per cent of the equity of Creative .
MIRA	Macquarie Infrastructure and Real Assets, a division of Macquarie which undertakes asset and fund management.

MCAG	A listed investment fund which was managed by Macquarie and was part of the initial consortium that acquired BBC Broadcast . Its holding in Creative was sold to MAIP .
Media logistics	Media logistics involve managing the different stages of the broadcasting supply chain. This includes sourcing, ingest, compliance editing and quality control reviews.
Minutage	Broadcasters are subject to an Ofcom regulation setting pre-scribed limits on the number of minutes of advertising per hour.
MTV Europe	MTV is an innovative youth entertainment channel, owned by Viacom. The channel has a global audience, reaching more than half a billion homes.
Multichannel	Multichannel broadcasters are broadcasters that have a number of different channels (as opposed to a single channel). Examples of a multichannel broadcaster include NBCU and Turner . The term is sometimes used to in a sense that excludes the PSBs , or to denote channels other than the five former analogue terrestrial channels.
Multi-genre	Multi-genre channels are channels that provide different genres of programmes and events, for example a channel may provide news segments, live sports and pre-recorded programmes. This is opposed to single-genre channels that provide, for instance, only sports programmes.
NBCU	An international broadcaster with five UK channels and a number of international channels.
Non-linear playout	Non-linear playout is the provision of video-on-demand , which may be based on recently broadcast content or library content. Examples include the BBC's iPlayer and Channel 4's 4OD service.
OFT	The Office of Fair Trading.
On demand/video-on-demand	Video-on-demand is non-linear content delivered at the user's request, rather than on scheduled linear channels, and it involves the preparation of programme content for the use on different devices, including desktop/laptop computers, mobile telephones and tablets.
Playout controller	The role of the playout controller can differ between playout providers and can be referred to as the 'playout director'. The playout controller is part of the Playout Operations Coordination team and has a coordinating role, continuously communicating with the broadcaster .
Playout editor	The playout editor is part of the Playout Operations Coordination team and shares the responsibility for network playout. The playout controller reports to the playout editor. The playout editor role is sometimes kept in-house by the broadcaster and sometimes outsourced to the playout provider .

Playout provider	A provider of playout services.
PSB	Public service broadcasters are broadcasters that broadcast television programmes for the public benefit instead of for purely commercial purposes. The PSBs are the BBC , ITV , Channel 4 and Channel 5 .
Public Broadcasting Service	A US network that broadcasts one channel in the UK.
RBM	Red Bee Media Limited, operational subsidiary of Creative , a broadcast services firm, with operations in the UK, France, Germany, Spain and Australia.
Reactive content	Content requiring intervention by an operator (as opposed to content that can be played out via automation).
RFI	Request for information.
RFP	Request for proposal.
Schedule	A schedule is the order of programmes set by the broadcaster and followed by the playout provider .
Sky	The brand name of British Sky Broadcasting Group plc (BSkyB). Sky broadcasts a large number of its own channels, such as Sky1, the Sky Sports and Sky Movies channels, and retails a portfolio of third party channels on its satellite television platform. Sky also performs linear playout for its channels and a number of other channels that it retails.
SLC	Substantial lessening of competition, as set out in section 36(1) of the Act .
Technicolor	Ericsson Broadcasting Services, comprising Ericsson BS UK Ltd (formerly Technicolor Network Services—UK Ltd), Ericsson TBS UK Ltd (formerly Technicolor Broadcast Service—UK Ltd), Ericsson TDS UK Ltd (Technicolor Distribution Services UK Ltd).
Technicolor SA	An international media, technology and communications company. In 2012 it sold its international linear playout business (which we refer to as Technicolor) to Ericsson . It continues to trade using the Technicolor name.
Trailer	A clip made up of extracts from a film or broadcast used to generate publicity in advance.
TUPE	Transfer of Undertakings (Protection of Employment) Regulations 2006. TUPE provides for the safeguarding of employees' rights in the event of transfers of undertakings or businesses.
Turner	Turner Broadcasting System is a Time Warner company that operates worldwide news, entertainment, sports, animation, young adult and children's media networks with channels such as CNN and Cartoon Network.

UKTV

A **broadcaster** of a number of channels including Dave and Yesterday. It is 50 per cent owned by **BBC Worldwide** and 50 per cent owned by Scripps Networks Interactive.

WRN Broadcast

WRN, a provider of broadcast services including **linear playout**.