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BT RFS Attribution Methodology Changes.

15 October 2013

Contents

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1 Introduction and Approach

This report sets out the findings of Deloitte's review of BT's revised cost attribution methodologies ("the review"), used in the preparation of the Regulatory Financial Statements (RFS) for the year ended 31 March 2013, as published on 31 July 2013.

The section discusses the scope of the review, the approach followed and the structure of this report.

1.1 Scope of the Review

The scope of the review is limited to a set of revisions defined by BT ("the revisions"), and set out by BT in a report to Ofcom[1] ("the BT report on RFS changes") . In particular, the scope of this review covers the attribution methodologies applied to the following costs:

- DSLAMs;
- WBA Bandwidth Volumes;
- 21CN & Core Directors;
- DACS;
- Fault rates, SFI, Broadband Boost, SLGs and TRCs;
- Openreach Development;
- Specialised Accommodation Space;
- Specific Group Provisions;
- Career Transition Centre;
- Vacant Space In Exchanges;
- Openreach Overheads;
- BT TSO – Development;
- BT TSO – Computing; and

[1] BT, "Report requested by Ofcom describing certain changes to the Accounting Documents for the year ended 31 March 2013 and illustrating the resulting differences to the Current Cost Financial Statements had those changes not applied", 3 October 2013, available at http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2013/ReportrequestedbyOfcomfortheyearended31March2013.pdf

- BT TSO – Operating Costs.

1.2 Approach

The purpose of the review is to provide an assessment of each methodology change in context of the principles of cost allocation and the principles of pricing and cost recovery set out by Ofcom.

The relevant cost allocation principles are articulated in Section 1 of BT's Primary Accounting Documents[2] and summarised in Table 1 below.

Table 1: Cost allocation principles

Principle[3]	Explanation
Causality	Costs should be attributed using methodologies that reflect the underlying reasons why the costs are incurred. This is generally accepted as the primary principle.
Objectivity	Costs should be attributed in a manner that does not seek to generate a preferential outcome for the reporting entity at the expense of competitive entities in respect of the distribution of costs between activities, services or markets etc.
Consistency[4]	Costs should be attributed in a consistent manner between reporting periods in order that the user can understand the reasons why the attribution of cost may vary over time in response to variations in business conditions rather than in response to changes in attribution methodology. Costs of a similar type should be attributed in a consistent manner in support of the complementary principles of transparency and objectivity.
Transparency	Costs should be attributed in a manner that an informed user, aided by clear documentation, can understand the rationale for, and impact of, the methodology. Aside from the clarity of documentation, the methodology should avoid unnecessary complexity in terms of multiple steps, exclusions and exceptions, so that the flow of costs can be clearly understood.

The relevant pricing and cost recovery principles were well articulated in Oftel's framework for the assessment of cost recovery as part of a review for Number Portability in 1995[5]. These principles are summarised in Table 2 below.

[2] http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2013/Primary_Accounting_Doc_2013.pdf

[3] Additional contextual principles set out in the Primary Accounting Documents are 'Priority', 'Definitions' and 'Compliance with applicable law and International Accounting Standards'. These are not considered specifically as part of this review. The final principle of Sampling is also not considered.

[4] Consistency applies between, and within, reporting periods. Clearly a consistency challenge is presented by changing attribution methodologies between reporting periods, so this is not discussed specifically in the context of each methodology change. However, where appropriate, commentary is provided on consistency in treatment between similar cost types.

Table 2: Pricing and cost recovery principles

Principle[6]	Explanation
Cost causation	Costs should be recovered from those activities that cause the costs to be incurred.
Cost Minimisation	The mechanism for cost recovery should ensure that there are strong incentives to minimise costs.
Distribution of Benefits	Costs should be recovered from all beneficiaries, including those who benefit indirectly through externalities.
Effective Competition	The mechanism for cost recovery should not undermine or weaken the pressures for effective competition.
Practicability	The mechanism for cost recovery needs to be practicable and relatively easy to implement.

The review has focussed on whether each individual methodology change can be considered to be an improvement compared to that applied in the previous reporting period. This qualitative assessment on superiority is made with reference to each of the cost allocation and cost recovery principles. Whilst the review has been conducted under this logical framework, there is necessarily some judgment required in balancing different factors and, as such, there cannot be any certainty that other parties will reach the same conclusions.

1.3 Structure of this report

This report addresses each of the methodological revisions in turn. For each revision, the report provides a summary of the previous and revised methodology, and an assessment of the revised methodology against the cost allocation and cost recovery principles.

[5] http://www.competition-commission.org.uk/rep_pub/reports/1995/374telephone.htm#full

[6] The principle of 'Reciprocity' is not considered in this review, as the changes to cost attribution methodologies do not affect the existence or quantum of any reciprocal charging between BT and other operators.

2 DSLAMs

This attribution methodology relates to DSLAM equipment asset and overhead costs. The change results in a £9m increase in cost in WBA Market 1 and 2 and a corresponding £9m decrease in the cost of the Wholesale Residual.

2.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

2.1.1 Summary of previous methodology

Costs associated with this methodological change were categorised into DSLAM asset and overhead costs.

DSLAM assets (CR188)

DSLAM equipment depreciation costs (including chassis/racks, line cards, controller cards and their associated interface ports) were attributed equally across all non-fully depreciated DSLAMs. Fully depreciated DSLAMs did not receive an attribution as the asset cost had already been recovered in previous years. Each DSLAM was then categorised into one of the three regulated WBA markets[7]. Costs were then attributed to internal and external services based on the number of end users served by each DSLAM.

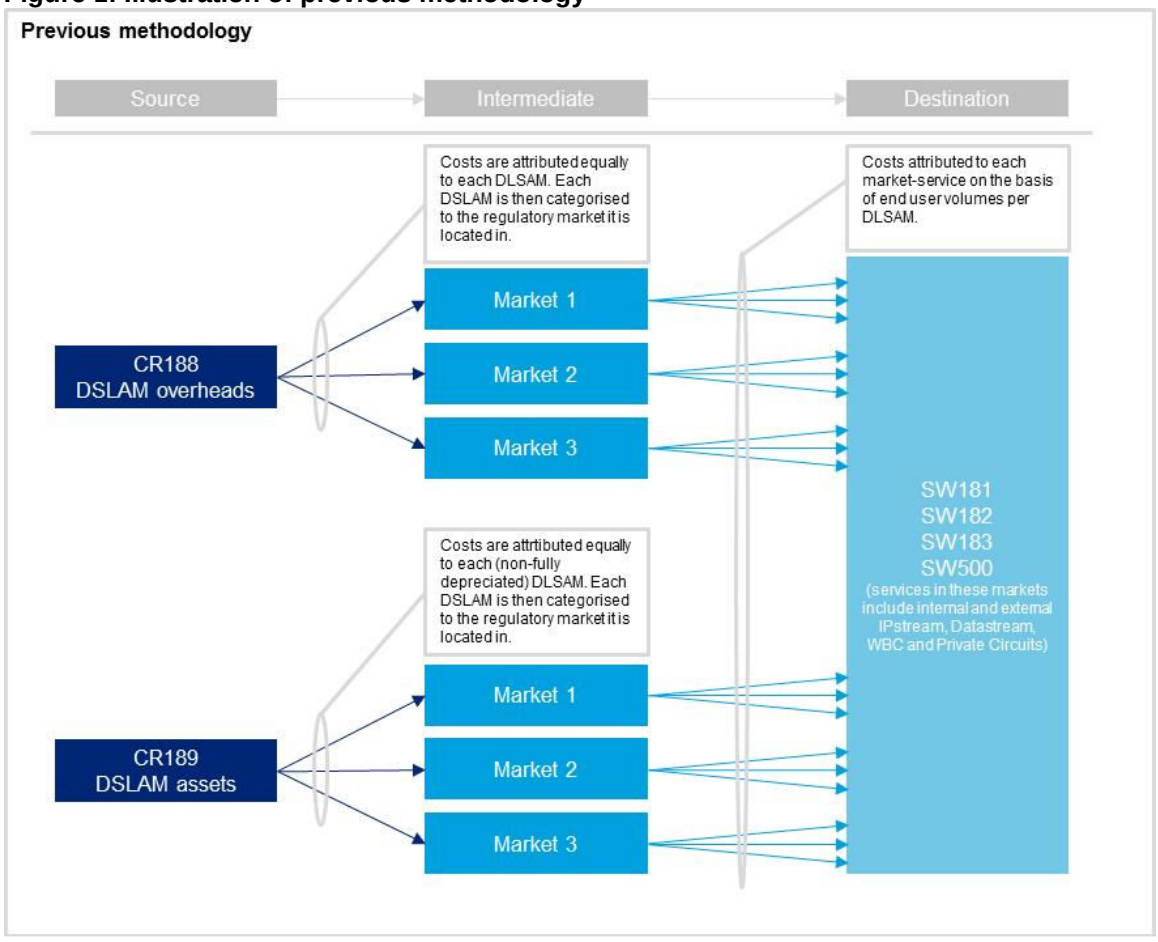
DSLAM overheads (CR189)

The methodology used was the same as that described above, except that fully depreciated DSLAMs also received a proportion of costs on the basis that fully depreciated equipment may still have been in use in the network.

A diagram of the two-step attribution process is presented in the following figure.

[7] DSLAMs located in market 0 are pro-rated across markets 1-3. Market 0 is BT's designation for exchanges that are not classified by Ofcom into markets 1-3, and includes trial, special or specific sites such as Heathrow Terminal 5.

Figure 1: Illustration of previous methodology



Source: Deloitte based on information provided by BT

2.1.2 Summary of revised methodology

DSLAM assets:

The revised methodology includes an additional preliminary step in the cost attribution process. BT has classified DSLAM asset costs as either fixed or variable with respect to the number of end users. Costs that are considered variable (the cost of the line cards) are treated differently in the revised methodology, while no change in methodology is made for the fixed costs.

The separation between line cards (variable) and other DSLAM costs (fixed) recognises that the cost of a fully utilised DSLAM would, in practice, be significantly different from the cost of a less utilised DSLAM. The revised approach recognises this by attributing variable DSLAM asset costs on the basis of the number of end users connected to the DSLAM.

BT based the fixed/variable cost categorisation on the basis of a detailed analysis of the DSLAM Class of Work (CoW), which enabled a calculation of the cost of the minimum deployment specification for each major DSLAM type, i.e. the minimum specification of a DSLAM that would be deployed in the network to support one end user. This was considered to be the fixed cost of the

DSLAM. Any additional line card costs, dependent on the number of users connected to that DSLAM, was classified as variable cost.

This analysis results in 86% of DSLAM asset costs being categorised as fixed with respect to the number of end users and 14% of costs being categorised as variable.

Fixed costs are attributed as per the previous methodology, i.e. based on the number of non-fully depreciated DSLAMs by market and then subsequently to services based on end user volumes per DSLAM[8]. Variable costs are attributed directly to services on the basis of end user volumes per DSLAM.

DSLAM overheads

In line with the approach set out above, a preliminary step in the attribution process has been introduced to identify the proportion of costs that can be considered as either fixed or variable. This analysis is undertaken on the basis of cost sectors[9]. Each material cost sector is analysed to determine the extent of variability with respect to end user volumes. The material cost sectors, and the methodology used for each, is summarised below.

Table 3 DSLAM overhead cost analysis

Sector	Commentary
Accommodation	Costs are attributed based on the footprint of the DSLAM. As the space requirement of a DSLAM does not vary with respect to the number of end users, this is considered 100% fixed.
Network Power	Analysis produced by Alcatel Lucent, suppliers of BT's DSLAMs, suggest that 80% of power costs of a fully utilised DSLAM are associated with the line cards. BT re-weighted this value, to account for actual DSLAM utilisation in BT's network. This adjustment results in 72% of power costs being variable with respect to the number of end users.
Accommodation Plant Net	In BT's cost attribution methodologies, costs associated with cooling follow the same attribution as network power. Therefore cooling is assumed to have the same fixed/variable characteristics as network power: 72% variable.
Maintenance	Maintenance costs are associated with third party contracts for network maintenance. A sample of DSLAM faults was analysed for Q4 FY12-13 and 90% of faults were found to be associated with line cards. Line card faults were

[8] More specifically, DSLAMs may be deployed in the network either to serve backhaul requirements, or end-users. The cost of DSLAMs deployed for backhaul is attributed to bandwidth services, whereas the cost of DSLAMs used by end-users is attributed to the associated end user services. Where a DSLAM has no connected subscribers, such as for testing or during provisioning, it was assigned to IPStream as this service is considered to be driving incremental growth of DSLAM deployment, as opposed to DataStream where end user volumes are declining.

[9] Cost sectors are groupings of functionally similar General Ledger (GL) items.

Sector	Commentary
	observed to be caused by high CPU utilisation; which occurs due to high usage. As a consequence 90% of maintenance costs are considered variable with respect to the number of end users.
General management and other	This sector includes costs for customer service, product management and other overhead management services. Costs are assessed based on FTEs, 80% of which relate to customer services and therefore are considered to variable with respect to the number of end users. Product management costs are considered variable as, were BT to have fewer broadband associated end users, product managers for these services would be redeployed to other services and these services would then fall within the portfolio of managers of other services.
All other	Remaining costs, which comprise approximately 20% of the DSLAM overhead cost base, either are not sufficiently material to analyse separately, or no robust method was identified to determine a fixed/variable categorisation. As such, they are pro-rated on the basis of the cost sectors analysed directly.

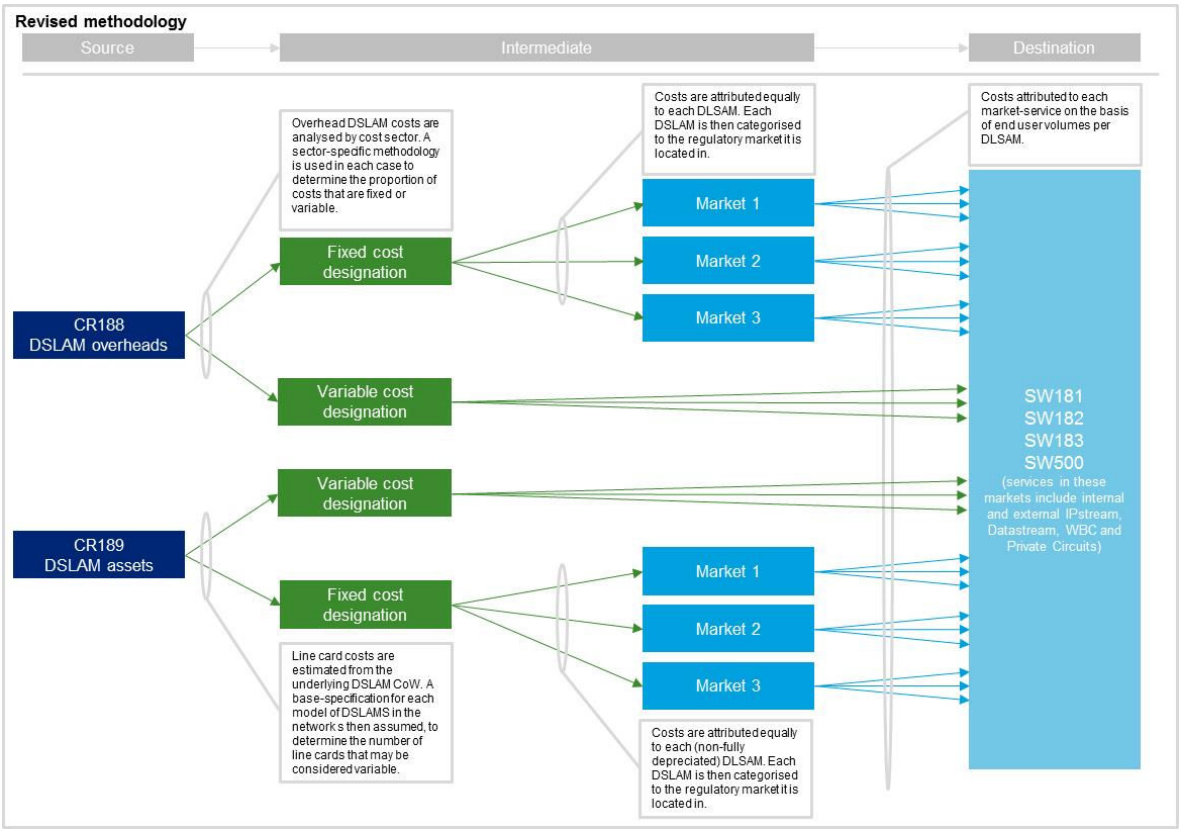
Source: Deloitte based on information provided by BT

A sum of the cost sector values and their fixed versus variable categorisation was then calculated to generate an overall value for the fixed versus variable composition of DSLAM overhead costs. This analysis produced an overall categorisation of 68% fixed and 32% variable for DSLAM overhead costs.

After the DSLAM overhead costs have been categorised into fixed or variable, the revised methodology follows the same approach as described in the revised DSLAM asset attribution methodology. That is, DSLAM overhead costs that are categorised as variable are attributed to services based on end user volumes per DSLAM, whereas fixed costs are attributed first to each DSLAM and then to services on the basis of end user volumes per DSLAM. However, as in the case of the previous methodology, fully depreciated DSLAMs receive an attribution of overhead costs.

An illustration of the three-step attribution process is presented in the figure below.

Figure 2: Illustration of revised DSLAM methodology



Source: Deloitte based on information provided by BT

2.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 4: DSLAM Allocation: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	The revised methodology identifies and attributes fixed and variable costs associated with DSLAM assets and overhead costs separately, as well as by market and by services (as previous). The revised methodology recognises that some costs may be driven by the number of DSLAMs per market (e.g. accommodation), whereas other costs are driven by the number of users per DSLAM. The revised methodology therefore better identifies the cost causal relationship between the occurrence and attribution of cost.

Allocation Principle	Assessment
Consistency	This revised methodology introduces the concept of fixed and variable cost decomposition in the cost attribution process. This categorisation is not used widely in BT's cost attribution approach.
Objectivity	Both the previous and revised methodologies appear to be objective; it is not apparent that the new attribution method is intended to benefit BT or another CP.
Transparency	The revised methodology is clearly documented in the DAM and easily understood. Where additional complexity has been introduced, due to additional computations, these are adequately explained and justified on pages 278-280 of the BT DAM 2013.

Table 5: DSLAM Allocation: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The discrete treatment of costs that are fixed and variable in respect of the number of end users is an enhancement to the methodology from a cost causation perspective. (see Table 5 above).
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology provides a more robust basis for the recovery of cost from services provided in those areas that require greatest investment in order to service. Therefore there is an enhancement in respect of the distribution of benefits principle.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

2.3 Conclusion

The revised methodology is a demonstrable improvement in the attribution of DSLAM costs. BT has recognised that a proportion of DSLAM-related cost is driven by the number of end users that access the equipment and attributes these costs accordingly; for those costs that are fixed in respect of the volume of users, these are treated appropriately as fixed costs and attributed equally across all DSLAMs. In summary, the revised approach better aligns cost attribution with cost causation.

3 WBA Bandwidth Volumes

This attribution methodology relates to the cost of core and metro node equipment, and the associated active transmission equipment between those nodes. This equipment is deployed in BT's network to provide core capacity services, these services are sold on the basis of bandwidth usage and the bandwidth capacity of the equipment is a primary determinant of the quantity of equipment required. As a consequence, the use of bandwidth capacity as a cost driver is the appropriate basis for the attribution of this equipment. The main categories of equipment are:

- Broadband service-specific equipment costs in 21CN Metro nodes such as BRAS, as well broadband service allocation of shared elements such as P-Routers;
- Equipment associated with transmission between metro nodes, other metro nodes and core;
- Edge Ethernet Aggregator (EEA) ports used for broadband services. The EEA provides the point of access to metro nodes for other parts of the network; and,
- Core director costs, used for 21CN intra-core node transmission (see section 4).

The change results in a £10m decrease in costs attributed to WBA Market 1 and 2, a £9m increase in costs attributed to the Wholesale Residual and a decrease of £16m in costs attributed to the Retail Residual.

3.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

3.1.1 Summary of previous methodology

The previous attribution methodology was based on bandwidth usage by service divided by total subscribers by service. This methodology was also used to apportion revenues associated with bandwidth services.

3.1.2 Summary of revised methodology

The revised methodology utilises improved data from the Wholesale Customer Reporting (WCR) system that was identified to provide a measurement of bandwidth peak usage, on a market and service level. The data provides the peak recorded bandwidth usage in a given month. The data was sampled over a five month period.

Based on this traffic sample data, peak bandwidth consumption by end users, by service for each market is now used instead of a national average bandwidth, in order to attribute costs. This methodology therefore allows differential bandwidth consumption across markets, to affect the attribution of bandwidth costs.

BT's rationale for using peak bandwidth as a proxy for total consumed bandwidth is as follows:

- All else remaining equal, i.e. assuming the same usage pattern, an end user with a higher recorded peak bandwidth, would use more capacity and therefore generate more cumulative bandwidth usage than another end user with a lower peak bandwidth. This is because more data would be transferred if the users had the same usage durations.

- The traffic sample demonstrates that end users with higher peak bandwidth also used the connection more intensively. Therefore, not only did high-bandwidth end users utilise more bandwidth for the equivalent period of usage than low bandwidth end users, but they also used the connection more intensively.

3.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 6: WBA Bandwidth: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	The previous methodology used a more aggregated measure of bandwidth (using a national average end user bandwidth by service). The revised methodology makes use of newly available data to define a more detailed proxy for bandwidth usage, through relative peak burst consumption by market and service, to define the cost driver. As costs attributed using this analysis relate to network bandwidth equipment and transmission capacity, the change is therefore an improvement in the cost driver basis.
Consistency	The revised methodology maintains the same underlying cost driver as the previous approach, but makes use of an alternative, more granular proxy. It is understood that bandwidth usage is also used for cost attribution purposes for the equivalent 20CN bandwidth components.
Objectivity	The revised methodology is based on samples of system-generated data on peak bandwidth usage by service and by market and therefore provides an objective basis for apportionment.
Transparency	The revised methodology is marginally more complex than previously but is adequately explained and justified in the DAM such that it does not impair transparency.

Table 7: WBA Bandwidth: Assessment against cost recovery principles

Recovery Principle	Assessment

Recovery Principle	Assessment
Cost causation	The revised methodology takes account of the fact that bandwidth usage, by each service, varies across markets. As costs being allocated using this methodology relate to bandwidth provision, the revised approach is an improvement in cost causal attribution.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	This approach aligns the cost attribution methodology with WBA peak usage by product and market. Previously, data limitations led to the assumption that bandwidth usage by market was equal; the improved data demonstrates that this is not the case, and the revised methodology provides a better alignment between costs incurred and the benefits provided to end users.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on newly accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

3.3 Conclusion

The network equipment to which this methodology is applied is characterised by costs that vary with the number of users, as well as costs that are sensitive to the bandwidth consumed by those customers. The availability of improved data from the WCR system enables both cost drivers to be reflected in the cost attribution methodology. As such the new methodology is a clear enhancement in terms of cost causality.

The data source for the methodology is a system-generated report, rather than ad-hoc analysis; as such it provides an objective input. In addition, the duration of the sample period minimises the risk of sample error.

As such, the revised methodology can be considered an improvement on the cost attribution methodology used in the FY11-12 RFS.

4 21CN & Core Directors

This methodology attributes the cost of 21CN Core Directors. Core Directors are used as a traffic switch resilience platform, replicating on the modern 21CN the functionality of the legacy Time Divisional Multiplexing (TDM) platform. The change results in a £14m decrease of costs in TISBO markets, and an increase of £7m in WBA markets 1 and 2 and an increase of £7m in the Wholesale Residual (which includes WBA market 3).

4.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

4.1.1 Summary of previous methodology

Previously the cost of 21CN Core Directors was attributed to TISBO services, reflecting the original intended use of this type of equipment, also known as the “future benefits” basis.

4.1.2 Summary of revised methodology

The revised methodology reflects the current usage of the equipment in support primarily of WBA services, as well as, to a more limited extent, voice and other traffic types.

4.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 8: Core Directors: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	Core Directors are already being used to carry broadband traffic, as broadband traffic is offloaded from the ATM/MSIP[10]. Therefore, the revised methodology appears to reflect a stronger causal link than the previous methodology.

[10] BT’s Multi Service Intranet Platform

Allocation Principle	Assessment
Consistency	The future benefits principle is applied to other 21CN assets, so the new attribution methodology is different from this approach reflecting how the Core Directors are now being used. This means the new methodology is not fully consistent in principle with the general approach.
Objectivity	The revised methodology is based on current use of the Core Directors and so is objective.
Transparency	The transparency of the revised methodology is constrained by the limited publicly available information on the current use of 21CN equipment.

Table 9: Core Directors: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	As above, the revised methodology is more cost causal as it reflects the current use of the equipment.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology enables cost recovery from customers and services that consume the services provided and therefore is consistent with the distribution of benefits principles.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on information which is readily accessible within BT and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

4.3 Conclusion

Whilst the previous methodology reflected the purpose for which 21C Core Directors were purchased originally, it failed to take into account how the current use of the equipment has departed from the original plans. The revised methodology provides a clearer causal link between the usage and the attribution of equipment cost. The new methodology removes a degree of subjective judgement that is required in relation to expected future usage. Transparency could be enhanced by further documentation of the changes made in this regard.

5 Digital Access Carrier System (DACS)

Costs attributed by this methodology relate to D-side and E-side copper asset depreciation and the methodology relates to usage factors used for the attribution of the cost of copper lines. In particular, the revised methodology reflects the fact that when DACS pair gain equipment is installed on a copper pair, it is capable of supporting two WLR lines. MPF, by contrast, cannot be provided on lines using this technology. The change results in only a relatively minor decrease in costs being attributed to Wholesale analogue exchange line services.

5.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

5.1.1 Summary of previous methodology

As part of the previous methodology, WLR and LLU MPF were each assigned a usage factor of 1 in the FY11-12 RFS.

5.1.2 Summary of revised methodology

The DACS pair gain system is a technology that can be applied to copper lines to enable two WLR signals to pass through one copper pair, whereas without this technology only one WLR line service can be provided per pair. In order to consider the effect of the application of the DACS technology, the usage factor for WLR's use of copper has been reduced from 1 to 0.996, whilst LLU MPF retains a usage factor of 1. This reflects the reduced average consumption of copper lines per average WLR services that results from the deployment of DACS pair gain equipment.

5.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 10: DACS: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	The FY11-12 RFS methodology did not take into account the fact that for a DACS-equipped line, two WLR lines may be provided over the same copper pair. As a consequence, including the adjustment to the usage factor for WLR better reflects the usage of copper assets in BT's network. The usage factor is reduced in proportion to the number of copper pairs that have DACS equipment installed and also run two WLR services over the pair.
Consistency	The revised methodology is actually a reversion to the methodology used in FY10-11 RFS. Whilst the materiality of the impact is very low, there is a clear

Allocation Principle	Assessment
	consistency challenge in changing the methodology in three successive reporting periods. However, as this change is a re-instatement of a methodology that was incorrectly omitted in the 2011/12 RFS, it would not be appropriate to maintain this error in the interests of consistency.
Objectivity	While it is not apparent that the current or previous attribution method intends to benefit BT or another Operator, the fact that BT has changed the methodology in each of the last three years may give rise to an objectivity challenge. Nevertheless, the FY12-13 RFS usage factor appears to provide a more objective approach.
Transparency	The methodology used to calculate the usage factor of 0.996 for WLR services is conceptually clear and calculated using an easily understood method.

Table 11: DACS: Assessment against pricing and cost recovery principles

Recovery Principle	Assessment
Cost causation	The revised methodology better accounts for the actual number of copper pairs that are required to provide WLR services on average. Consequently the revised methodology provides an improvement in cost causation.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology provides a marginal improvement in the capacity to recover costs from the beneficiaries of the WLR services provided.
Effective Competition	The revised approach does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

5.3 Conclusion

By reflecting the impact of the usage of DACS pair gain equipment on the capacity of copper lines to support WLR services, the revised methodology provides a demonstrable improvement in the cost causality of the attribution. The revised methodology takes into account the fact that the DACS technology allows a reduction in the amount of copper assets required in the provision of WLR. It is unfortunate that, as BT has noted in the RFS Report to Ofcom, this adjustment to the usage factor was not applied correctly in the FY11-12 RFS, however it would not be appropriate to maintain this error in the interests of consistency.

6 Fault Rates, SFI/Broadband Boost, SLGs and TRCs

This section provides a review of four specific attributions that have been revised as a result of the availability of better information:

- Service level guarantee (SLG) payments relating to credits to customers where SLGs are not met;
- Fault repair costs in relation to frame and dropwire repair activities;
- Costs related to Time-Related Charges (TRCs) levied when engineers perform services where the work is not covered within BT service level agreements; and,
- Costs related to Special Fault Investigations (SFIs) and 'broadband boost' visits.

The change results in net decrease of costs attributed to reported markets £1m, which is comprised of a £7m decrease in the cost attributed to AISBO and TISBO, a £10m increase in the WLA market and £4m decrease in the cost attributed to other reported access markets.

6.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

6.1.1 Summary of previous methodologies

Each of the previous methodologies are summarised in turn below:

- SLGs – the previous methodology attributed SLG payments to products as an overhead on service centre assurance attributions. As such, the methodology did not take account of the fact that SLG payments are based on the price of the service to which they relate and the incidence of SLG payments by product.
- Fault rates – the previous methodology attributed the cost of repairing main distribution frames and drop wires on the basis of line and jumpering factors. No costs were allocated to SMPF.
- TRCs – the previous methodology was based on CoW bookings by engineers, however this was provided an incomplete view of the relevant costs, particularly in the case of activities recorded as 'fault not found' or 'volume deals'.
- SFI / Broadband Boost – the previous methodology was based on the bookings that engineers made to CoW, which did not reflect the amount of time taken on different types of SFI activity.

6.1.2 Summary of revised methodologies

The cost attribution methodologies have been revised as follows:

- SLGs – the revised methodology treats internal and external SLG costs separately, allowing for an approach that attributes costs to respective internal and external service based on price, volume and fault rates.

- Fault Rates – actual fault rate data is now included in the attribution methodology for frame and drop wire repair costs.[11] For dropwire repairs, a 20% service level factor is also introduced to reflect higher service levels associated with MPF, SMPF and WLR premium compared to WLR basic. Incremental drop wire repair costs have also been allocated to SMPF for the first time.

- TRCs – the revised methodology uses estimates based on Openreach data on engineering time spent on TRCs to provide a more complete view of the total costs relating to TRCs. These costs are calculated separately, and segregated from the cost of provisioning across all Openreach products.

- SFI / Broadband Boost – due to concerns as to the level of accuracy in CoW bookings, the revised methodology uses time recording data from Openreach's Kilo Man Hour (KMH) system and average pay rate to calculate the total cost attributable to services.

6.2 Assessment against cost allocation and cost principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 12: SLGs, Fault Rates, TRCs and SFI: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	Several of the methodology changes in this category involve the use of time recording data from engineering systems, or estimates based thereon. BT considers these records to be more accurate then CoW postings. To the extent that these systems are used for operational time recording and planning, the changes can be considered to improve the causality the attributions.

[11] Note that this attribution is only used to attribute the cost of frame and drop wire repairs, not the cost of frame and drop wires themselves.

Allocation Principle	Assessment
Consistency	BT has explained that for copper frames and drop wires fault rates, the revised methodology is consistent with that used for the attribution of fault repair costs of D-side and E-side copper. However, drop wire fault repair costs have not previously been allocated to SMPF. The KMH data now used in the attribution of SFI/Broadband Boost is not used in other attributions – there is therefore some risk of inconsistency between these and other related attributions that may not make use of these data.
Objectivity	The revisions to these methodologies reflect the availability of better information, which has been applied objectively in refining the accuracy of the attributions.
Transparency	Whilst revised methodologies introduce additional data and some complexity in the attribution methods, they are based on well understood data used elsewhere in the attribution process.

Table 13: Fault rates, SFI, Broadband Boost, SLGs and TRCs: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	In each case, the revised methodologies are better aligned with the drivers of the cost being attributed.
Cost Minimisation	The revised methodologies do not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	In each case, the revised methodology provides a marginal improvement in the capacity to recover costs from the beneficiaries of the services provided or activities undertaken.
Effective Competition	The revised methodologies do not weaken pressure for effective competition, as they do not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodologies rely on readily accessible information and are easily understood analyses. They are therefore a practical input to cost recovery mechanisms.

6.3 Conclusion

In each case, the revised attribution methodologies can be considered to be improvements over the previous methodologies in that they make use of new or improved data sources, or that they improve the accuracy of the calculation of the cost of specific activities. In particular:

- SLGs – the revised methodology provides a more cost causal reflection of the relationship between SLG payments and the fault rates and prices of the services to which they relate.

- Fault Rates – in making use of estimates based on actual fault rate data the revised methodology improves the cost causality of the attribution. This approach could be further enhanced by replacing estimates with actual data, as this would remove the potential for subjectivity in the preparation of the estimates.

- TRCs – the revised methodology addresses historic weaknesses arising from the use of CoW bookings, by using estimates based on operational data from Openreach to calculate the cost of TRC-related activities on a discrete basis.

- SFI/Broadband Boost – the revised methodology addresses historic weaknesses arising from the use of CoW bookings, by using operational KMH time recording data from Openreach.

7 Openreach Computing and Development

The Openreach Computing and Development methodology attributes the depreciation costs of capitalised Openreach-specific computing and development projects managed by BT TSO.

The change results a reduction of £7m of costs attributed to reported access markets and a £5m increase in costs attributed to the Wholesale Residual. Within the reported access markets, costs attributed to AISBO/TISBO decrease by £39m and attribution to Wholesale analogue exchange line services increase by £24m.

7.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

7.1.1 Summary of previous methodology

The previous methodology attributed the depreciation charges in proportion to current annual capital expenditure by BT TSO on Openreach-specific projects. As such, there was an implicit assumption that the current portfolio of projects undertaken by BT TSO on behalf of Openreach was an appropriate proxy for understanding the nature of historic activity.

7.1.2 Summary of revised methodology

The revised methodology takes specific account of the specific projects to which the depreciation charges relate by reference to a detailed analysis of the Fixed Asset Register (FAR). Therefore the nature of the projects undertaken in the past is reflected in the attribution of the depreciation costs relating to those projects.

7.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 14: Openreach Development: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	Depreciation costs related to systems developed by BTID for Openreach were previously attributed on the basis of the capital expenditure incurred on current projects. However, the projects against which historic capital expenditure was recorded did not necessarily reflect the nature of the completed, past projects, whose depreciation charge this methodology is intended to allocate. The revised methodology, by taking into account the specific products to which past projects were related, via a detailed FAR analysis, provides a stronger cost causal link to the attribution destinations.

Allocation Principle	Assessment
Consistency	The revised methodology, which is based on an assessment of the nature of the historical costs recorded in the fixed asset register, appears more consistent with the treatment of other asset categories compared to the previous methodology.
Objectivity	The revised methodology meets the objectivity principle in that it is based on an objective analysis of values in the FAR.
Transparency	The revised methodology meets the principle in that is based on the description of the individual FAR lines in the relevant asset categories, and the treatment can be clearly understood.

Table 15: Openreach Development: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The revised methodology provides a more explicitly cost causal link (see Table 14 above).
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology is an improvement in that it takes specific account of the projects undertaken, and links these to specific products. The costs are therefore born by the consumers of products to which the capitalised development related.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

7.3 Conclusion

The revised methodology addresses a critical weakness in the previous approach, in that it does not make the implicit assumption that the current portfolio of projects undertaken by BT TSO for Openreach is an appropriate proxy for the attribution of depreciation costs relating to historic projects. By using information on the depreciation cost of each specific historic development project, the revised methodology provides a direct causal link between the occurrence and attribution of cost. As such, the new approach is a demonstrable enhancement from a cost causality perspective.

8 Specialised Accommodation Space

The Specialised Accommodation Space attribution concerns the cost of accommodation attributed to network equipment, and specifically the uplift applied to equipment footprints in order to reflect the operational need to ensure additional space is maintained in order to provide adequate ventilation.

The change results in a decrease in costs of £7m attributed to reported access markets, the most material of which relates to wholesale analogue exchange line services, where the impact is -£3m. The result of the change also leads to an increase of £10m of costs being attributed to WBA Markets 1 and 2.

8.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

8.1.1 Summary of previous methodology

The previous attribution method was based on specific equipment footprints, multiplied by a standard uplift factor of 3.85 for ventilation space.

8.1.2 Summary of revised methodology

The revised methodology takes industry planning rules into account, that require ventilation space to be provided based on the higher of the 3.85 uplift factor or 500 watts per m^2. BT has explained that this planning rule is applied in practice by the power planning team in BT TSO, informed by European standards, and that exceptions to the implementation of the rule are rare in practice.

8.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 16: Walk Around Space: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	The planning rule is implemented in practice. Space is allocated to network equipment types based on this planning rule. The revised approach enhances the previous methodology by aligning it with actual practice. It is therefore by definition more cost causal.

Allocation Principle	Assessment
Consistency	The revised methodology is consistent with the planning rule and is applied consistently to all equipment types.
Objectivity	The revised methodology is consistent with the planning rule and is applied objectively to all equipment types.
Transparency	The revised methodology is consistent with Openreach's publicly available LLU accommodation price list, and reflects the way in which other operators are charged by BT for accommodation.

Table 17: Walk Around Space: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The revised methodology provides a more explicitly cost causal link between the planning rules for accommodation and the equipment that is accommodated.
Cost Minimisation	The revised methodology reflects the fact that the planning rule enables BT to incur lower costs than would be achieved by installing the additional cooling equipment that would be required if the planning rule were not applied. Furthermore, revised methodology does not affect BT's incentives to minimise costs, as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology is an improvement in that it takes specific account of the accommodation demands of all assets, whether they are used exclusively for BT's benefit, or whether there are third party beneficiaries.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

8.3 Conclusion

The revised methodology is an improvement in that it aligns the attribution of cost with the way in which accommodation is planned in practice in respect of network equipment. The previous methodology was an incomplete representation of prevailing planning rules.

9 Specific Group Provision

This attribution deals with the attribution of costs arising from provisions put in place by BT in response to claims in relation to historic hearing damage caused by copper line testing equipment.

The change results in a reduction in the costs attributed to AISBO/TISBO of £8m, an increase of £3m of costs attributed to WLA and an increase of £17m of costs attributed to other reported access markets. The cost attributed to the Wholesale Residual reduces by £10m.

9.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

9.1.1 Summary of previous methodology

The previous methodology attributed these costs entirely to the Openreach LoB; the costs were then attributed on a pro rata to pay costs, and in turn to all products on an activity basis.

9.1.2 Summary of revised methodology

The revised methodology attributes the costs associated with this provision only to those products that are deemed to have benefited from the line testing equipment in question, i.e. copper-based services such as WLR and LLU. There is a specific plant group in Aspire related to line testing equipment, so the revised methodology fully allocates the Group Provisions to this plant group.

9.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 18: Specific Group Provisions: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	BT considers that the hearing conditions experienced by engineers have arisen as a consequence of the copper line testing equipment used. The revised methodology takes into account which products this testing equipment was used for and therefore provides a stronger causal link than the previous methodology.

Allocation Principle	Assessment
Consistency	This methodology change does not appear to present specific consistency challenges.
Objectivity	The link between the deafness and the use of certain oscillators for the testing of copper lines is recognised in publicly available documents. Therefore, the attribution of the Group Provisions to the services making use of the copper lines on which this equipment was used is an objective basis for cost attribution.
Transparency	As above, the publicly available documentation makes the revised methodology a transparent basis for cost attribution.

Table 19: Specific Group Provisions: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	BT's rationale for the change in attribution method to restrict the attribution to copper-based services is that hearing conditions experienced by engineers have arisen as a result of the copper line testing equipment used. As these costs were caused by the use of equipment specific to the provision of copper-based services, there is certainly a strong argument for attributing these costs to copper-based services only rather than seeking recovery across the full Openreach product portfolio.

Recovery Principle	Assessment
Cost Minimisation	On the basis that the occurrence of costs associated with this provision is a function of the number of engineers who seek to make a claim, and given that this number is not controllable by BT currently or in the future, it is not clear how a cost recovery mechanism could be constructed that would provide a strong incentive to minimise the quantum of these costs. Whilst BT has no control over the number of claims, it does have a degree of control over the nature, quantum and terms of the settlement. Therefore, pass-through of these costs could be considered to reduce the incentive to minimise the associated costs.
Distribution of Benefits	BT's cost attribution methodology is effectively founded on the distribution of benefits principle. It can be argued that all parties that consume copper-based services benefit from the historic servicing, operation and maintenance of the copper network. Whilst it may be possible to argue that intergenerational transfer of costs is not appropriate, to the extent that the existence of the provision reflects a demonstrable, current and on-going obligation to settle claims for deafness from current and former employees, there is a good argument for the recovery of such costs.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

9.3 Conclusion

The revised methodology's attribution of cost to copper-based access services only provides a clearly more cost causal link between the occurrence and attribution of cost. However, there are challenges from an appropriate cost recovery perspective. Reference to the conclusions drawn in Ofcom's Pensions Review highlights the likely arguments against recovery on the basis of cost minimisation and distribution of benefits principles.

10 Career Transition Centre

This attribution methodology relates to the cost of BT's Career Transition Centre, where employees who are considered surplus to requirements in their current Line of Business (LoB), are pooled in anticipation of redeployment to another part of BT. The costs to which this methodology is applied are those incurred between a member of staff's employment in their former LoB and their new LoB. During this time they are available to be resourced on projects for any BT LoB.

The change results in a reduction of £16m in costs attributed to the Retail Residual, and increase of £7m of costs attributed to Wholesale analogue exchange line services and a £3m increase in costs attributed to WLA.

10.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

10.1.1 Summary of previous methodology

The previous methodology attributed the costs of staff in the Career Transition Centre to the LoB that had employed that member of staff until the point at which they were reassigned to the Career Transition Centre.

10.1.2 Summary of revised methodology

The revised methodology reflects the status of the Career Transition Centre and the staff members within it as Group-wide resources that can be deployed in support of projects undertaken by any BT LoB. As such, Career Transition Centre costs are now treated in the same way as other corporate overheads using a corporate overhead attribution pay and ROCE attribution base.

10.2 Assessment against cost allocation and cost principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles of cost allocation.

Table 20: Career Transition Centre: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	The revised methodology abstracts from the direct causality of the cost of redundancy being driven by the LoB that the staff member was employed by. This directly causal interpretation is replaced with a more general notion of cost efficiency programmes being a BT Group-led strategy, complemented by the argument that as a cross-group resource the costs associated with the Career Transition Centre should properly be considered as an overhead. The cost causality principle requires that costs should be attributed in line with the activities that cause those costs to be incurred. By removing the link to the

Allocation Principle	Assessment
	LoB making the redundancy decision, there is a strong argument that the revised methodology fails to provide the required causal link.
Consistency	If the Career Transition Centre can be considered as a cross group resource, it would be entirely consistent to use the overhead attribution base that has been adopted in the revised methodology.
Objectivity	By enabling costs that might previously have been attributable directly to BT's Retail and Global Services LoBs to be attributed, at least in part, to services provided by the Wholesale and Openreach LoBs, BT risks a challenge on the objectivity of the revised methodology.
Transparency	The revised methodology is marginally more transparent than previously in that it relies on a commonly understood overhead attribution approach, however this does not outweigh the challenges to the other cost allocation principles.

Table 21: Career Transition Centres: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The revised methodology is problematic in that is causes costs to be attributed to LoBs that Career Transition Centre employees may never have worked for. It could be argued that CPs have done nothing to cause that cost to be incurred, and therefore that it is inappropriate to recover it from the services that they consume.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Distribution of Benefits	The revised methodology enables beneficiaries to benefit from reduced costs as some costs are born by non-beneficiary LoBs. For example, even if Openreach placed no staff in the Career Transition Centre, and recruited no staff from it, Openreach would still receive a cost attribution. As such, the revised methodology risks failing the distribution of benefits principle in that the costs can ultimately be in part recovered from external parties who are not beneficiaries of the cost reduction programme that leads to the costs incurred by the Career Transition Centres.
Practicability	The previous method was not sufficiently impractical to warrant replacement on this basis.

10.3 Conclusion

It is not apparent that the revised method is demonstrably superior in terms of alignment with the cost allocation and cost recovery principles. By treating the Career Transition Centre as a group overhead, the revised methodology breaks the causal link between the occurrence and attribution of costs. As such, the new approach may not be considered to be an appropriate input to the preparation of the RFS or to cost recovery mechanisms based thereon.

11 Vacant Space in Exchanges

The Vacant Space in Exchanges attribution relates to the cost of accommodation in BT's network buildings, and specifically the vacant space created by the reduction in the footprint of network equipment over recent years.

As shown in the BT report on RFS changes, the aggregate effect of the revised methodology may lead to an increase of £25m of costs to be recovered from WLR/LLU services. These costs are primarily transferred from non-AISBO/TISBO wholesale markets and from retail residual.

11.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

11.1.1 Summary of previous methodology

The previous methodology attributed the cost of vacant space in proportion to the attribution of 'occupied space'. Thus the greater the proportion of occupied space attributed to a destination component, the greater the proportion of the cost of vacant space would be attributed to that component.

11.1.2 Summary of revised methodology

Under the revised methodology, there are two distinct approaches:

- The majority of the cost of vacant space is attributed between MDFs and cable chambers on the basis that it is these assets that drive the requirement to maintain vacant space because it is not economically viable to re-house these assets in a lower number of consolidated network sites.

- The remaining space is attributed to Openreach LLU assets based on forecasts provided by CPs.

11.2 Attribution of vacant space according to MDFs and cable chambers

The majority of the cost of vacant space is attributed to MDFs and cable chambers. This attribution is made on the basis that it is these assets, in particular, that could not be relocated economically if BT were to adopt a property rationalisation programme with a view to reducing the amount of vacant space.

11.2.1 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 22: Vacant space – MDFs and cable chambers: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	As set out above, vacant space exists for three reasons. This revised methodology reflects a key driver of the current need to maintain vacant space in that it is more economical to do so than to relocate the access network links and nodes, which would be required in order to relocate MDFs and cable chambers.
Consistency	The cost of vacant space in non-network buildings is not attributed by reference to key administrative functions that could not be relocated. However, there is not a corresponding operational imperative that prevents relocation of staff as there is for MDFs and chambers.
Objectivity	Irrespective of the objective basis for the change in methodology, the effect in terms of attribution of costs to key access network assets is likely to raise a challenge as to whether the revised methodology is objective in purpose and outcome.
Transparency	The revised methodology meets the principle in that is based on readily accessible information, and the treatment can be clearly understood.

Table 23: Vacant space – MDFs and cable chambers: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	As above, the revised methodology reflects a key driver of the current need to maintain vacant space.
Cost Minimisation	The revised methodology reflects the fact that the maintenance of vacant space is more cost effective than consolidating the network and property estate to rationalise vacant space. Furthermore, the revised methodology does not affect BT's incentives to minimise costs, as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology provides a direct linkage between the attribution of costs and the assets from access to which third parties benefit through BT's wholesale charges.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

11.2.2 Conclusion

The revised methodology seeks to align cost attribution with the reasons why vacant space is required to be maintained and therefore can be considered to be an improvement on the previous methodology.

11.3 Attribution of vacant space according to CP forecasts

The remaining cost of vacant space is attributed to Openreach LLU hostel assets based on the forecasts provide by CPs.

11.3.1 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 24: Vacant space in exchanges – CP forecasts: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	Vacant space exists for three key reasons: 1. Historic reductions in the physical footprints of assets. This implies attribution of associated costs to those asset classes which have experienced reduction in footprint. 2. To service future demand for space from CPs which BT is obliged to provide. Maintaining vacant space enables BT to provide the ability to deliver this requirement. This implies attribution of some of the cost of vacant space to Openreach LLU assets. 3. It would be uneconomic to relocate certain assets in alternative premises in order to eliminate vacant space. This implies attribution of some of the cost of vacant space to those assets which would be uneconomical to relocate, in particular copper local loop network assets such as MDFs and cable chambers. While vacant space may have come to exist in exchanges because of the first point, vacant space is maintained as a result of points two and three. Therefore the cause of the current expense is the current obligation, rather than the historic events that originally gave rise to vacant space. The revised methodology reflects this causal link explicitly whereas the previous method did not.

Allocation Principle	Assessment
Consistency	Vacant space is not attributed to other equipment types based on expected future use. However, BT is not obliged to provide space for other purposes in the same way as for CP LLU hostels.
Objectivity	Irrespective of the objective basis for the change in methodology, the effect in terms of attribution of costs to LLU assets is likely to raise a challenge as to whether the revised methodology is objective in purpose and outcome.
Transparency	The revised methodology meets the principle in that is based on readily accessible information, and the treatment can be clearly understood.

Table 25: Vacant space in exchanges– CP forecasts: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	There is a strong argument that the revised methodology is significantly more cost causal than the previous method in that it enables the costs of vacant space to be recovered from those parties who stand to benefit from it being maintained.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology provides a direct linkage between the attribution of costs and the LLU operators as the current (and expected) beneficiaries of the continued existence of vacant space.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

11.3.2 Conclusion

Whilst the previous methodology applied a broadly acceptable approach to the attribution of vacant space in exchanges, the new approach prevents the attribution of costs to destination components that are not necessarily responsible for the continued existence of vacant space. Specific account is now taken of the current and continuing obligation to maintain vacant space for the use by CPs. By using the CPs' own forecast data, the new methodology is both objective and transparent. As such, the new approach is a demonstrable enhancement.

12 Openreach Overheads

This attribution methodology deals with operating expenses incurred in the management of the Openreach business.

The change results in an increase of £13m of costs attributed to Wholesale analogue exchange line services and a corresponding reduction for the Retail and Wholesale Residual.

12.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

12.1.1 Summary of previous methodology

The previous methodology attributed Openreach overhead costs on the basis of previously attributed Openreach pay costs.

12.1.2 Summary of revised methodology

The revised methodology takes into account the importance of asset stewardship in the management of the Openreach business and uses an attribution base that includes previously attributed pay costs plus a ROCE on Openreach assets. This provides consistency with the methodologies used for overheads throughout BT's cost attributions.

12.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 26: Openreach Overheads: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	Openreach is a highly asset-intensive business and therefore it can be expected that Openreach managers' effort is directed not only to the management of staff, but also of the assets that are owned and operated. Therefore, the revised methodology reflects a stronger cost causal relationship than the previous methodology.

Allocation Principle	Assessment
Consistency	The categorisation of overhead activities has not changed from the previous year, and the methodology is consistent with the treatment of other overheads in the company.
Objectivity	The revised methodology is based on objective data contained within BT's accounts, and no subjective view is required in developing the attribution base.
Transparency	The revised methodology is more transparent as it requires little additional data or calculations and can be very easily understood.

Table 27: Openreach Overheads: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The revised methodology better reflects the fact that asset stewardship is at the heart of the management of Openreach.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology enables recovery of the cost of asset stewardship from all parties that benefit from the economic value attributable to those assets.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

12.3 Conclusion

Whilst the previous methodology applied a broadly acceptable approach to the attribution of Openreach overheads, for an asset-intensive business like Openreach, an attribution of overheads that takes into account the value of the assets managed by the business can be considered to better align to the cost causality principle than an attribution based on pay costs only. As such, the new approach is a demonstrable enhancement.

13 BT TSO – Development

This attribution methodology relates to BT TSO – Development asset costs.

The change in this aspect of BT TSO cost attribution results in an increase in costs attributed to WLA of £16m, an increase of £9m to Wholesale analogue exchange line services and a decrease in costs attributed to WBA Markets 1 and 2 of £11m.

13.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

13.1.1 Summary of previous methodology

These asset costs are primarily related to the capitalised software development costs previously undertaken by BTID for BTO.

The previous methodology involved an analysis of the entries in the FAR related to these assets, with the aim of identifying, to the extent possible, the nature of the specific development projects and their most appropriate allocation destination. In practice, however, the previous methodology resulted in the majority of these costs being allocated as a BTO overhead, on the basis of BTO Pay costs.

13.1.2 Summary of revised methodology

Due to the restructuring of the old BTID/BTO units into the combined BT TSO unit, an attribution of costs between BTID to BT TSO is no longer possible. BT was therefore forced to revise the attribution of these assets.

In the new methodology, these assets are attributed on the basis of the NBV of all other BT TSO assets. As the majority of the assets was already treated as a BTO overhead (attributed on the basis of BTO Pay costs), in the new methodology BT has effectively maintained the overhead characterisation of these assets.

13.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 28: BT TSO – Development: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	In general, the revised methodology is an appropriate basis for the causal attribution of common costs. A detailed analysis of assets within this category

Allocation Principle	Assessment
	highlights some elements for which the previous methodologies could be argued to be more cost causal. For example, over 21% of development costs were previously identified as 21CN specific, rather than BTO overheads. However, BT would need to argue that the benefits of a common, transparent and objective approach to the treatment of all BT TSO overhead costs can be argued to outweigh the isolated occasion where specific cost types might be attributed using alternative drivers.
Consistency	This methodology is consistent with the treatment of other BT TSO overhead costs.
Objectivity	Both the previous and revised methodologies appear to be objective; it is not apparent that the new attribution method is intended to benefit BT or another Operator.
Transparency	The revised methodology appears to be at least as transparent as the previous methodology, as it is based on system values and the approach is easily understandable.

Table 29: BT TSO – Development: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The methodology seems appropriate from a cost causality perspective, although in some instances the previous methodologies could be argued to be more cost causal.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology enables recovery of the cost of assets from all parties that benefit from the economic value attributable to those assets.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

13.3 Conclusion

The revised methodology generally reflects the overhead nature of these assets and is consistent with the attribution of other BT TSO overhead costs. Furthermore, the attribution of these assets on the basis of the previous methodology, which primarily involved a BTO Pay cost based attribution,

is no longer possible within the new BT TSO structure. However, in some instances, it could be argued that the revised methodology presents a less cost causal link than the previous methodology, where assets that were previously identified as specific to certain projects or activities are now treated as overheads. There is necessarily some judgment required in balancing these different factors and the revised methodology could, on balance, be considered to meet the cost allocation and cost recovery principles.

14 BT TSO – Computing

This attribution methodology relates to BT TSO – Computing costs.

The change in this aspect of BT TSO Computing assets cost attribution results an increase in costs attributed to Wholesale analogue exchange line services of £16m and £6m to WLA. Costs attributed to the Retail Residual are reduced by £20m.

14.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

14.1.1 Summary of previous methodology

The main computing assets categories covered by this methodology include, in order of materiality, the COMPA CoW relating to BT's own use of computer mainframes and peripheral (representing 47% of total BT TSO Computing costs), the ACPC CoW, relating to the construction and fit-out of computer rooms used to house BT's computer main frame equipment (representing 19% of total BT TSO Computing costs), and the COMPE and COMPF CoWs relating to BT's computer networking, laptops and desktop computing assets (together representing 20% of total BT TSO Computing costs).

Previously, these assets were treated as an overhead, following the attribution of pay costs of the Service Infrastructure team. However, due to the change from the old BTO/BTID organisation to the new BTO structure, the allocation of the Services Infrastructure opex costs has changed. This is discussed in more detailed in Section 15. As such, the previous methodology for BT TSO Computing costs was no longer feasible to implement and had to be revisited by BT.

14.1.2 Summary of revised methodology

In the revised methodology, BT TSO computing assets are treated as a general overhead and attributed on the basis of the corporate overhead methodology, i.e. on the basis of BT Group pay and ROCE costs.

BT's justification for this change is that this methodology better reflects the nature of the assets involved, which relate to hardware and main frames which, while operated by BT TSO, are in practice used to support software used by every function within BT Group. Therefore, this revised methodology aligns better the cost incurred with the ultimate beneficiaries of the assets.

14.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the principles of cost allocation as well as pricing and cost recovery.

Table 30: BT TSO – Computing: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	The revised methodology reflects the fact that these assets are used to support software used by every function within BT Group and therefore provides a stronger alignment of the asset cost to the beneficiaries of the assets.
Consistency	Given the restructuring of BTO/BTID into the new BT TSO structure, maintaining an allocation of these assets consistent with the previous methodology would have been very complex and would have likely resulted in a significant loss of transparency. The revised methodology, whilst not consistent with the previous methodology, is however consistent with the treatment of all other costs that are considered as Corporate overheads.
Objectivity	Both the previous and revised methodologies appear to be objective; it is not apparent that the new attribution method is intended to benefit BT or another Operator.
Transparency	The revised methodology meets the principle in that is based on readily accessible information, and the treatment can be clearly understood.

Table 31: BT TSO – Computing: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The cost causality link is stronger under the revised methodology, as it better reflects the ultimate beneficiaries of the assets.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology enables recovery of the cost of asset from all parties that benefit from the economic value attributable to those assets.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

14.3 Conclusion

A change in methodology for these assets was necessary due to the change in the BT TSO organisation. The new methodology appears to provide a strong cost causality link between the costs and the beneficiaries of the assets, across the whole Group. The revised methodology is also

consistent with the treatment of other corporate overheads. For these reasons, the revised methodology can be considered to be superior to the previous attribution.

15 BT TSO – Operating costs

During FY12-13, BT restructured the BT Operate (BTO) and BT Innovate & Design (BTID) business units to form a single Technology, Service and Operations (TSO) business unit. This fundamental change in structure led to reappraisal of the attribution methodologies applied to the operating costs of the new unit.

Previously, these fixed costs were attributed in proportion to the distribution of specific activity costs with known drivers. Given the fundamental change in the structure of BT TSO and the consequent change in the way in which common and overhead functions supported BT TSO activities, adoption of the previous approach would have been excessively complex and resulted in a significant change in the attribution of costs. Given the complexity of this task, and the inevitable lack of transparency in the changed distribution of costs, BT has elected to adopt a significantly more consistent and transparent approach. This approach has resulted in the definition of just three 'fixed trades':

- A BT TSO managed assets base is used to attribute the cost of operational units relating to the management of the BT TSO network. This base is applied to a variety of common costs incurred by BT TSO for which no direct Line of Business (LoB) cost attribution is possible. These include own use security and IT costs, consultancy, the energy and carbon emissions team, conferencing, other general management, other people and pay relates costs. This attribution base is reviewed in Section 15.1;

- A BT TSO pay and return on assets overheads base is used to attribute the cost of overhead groups such as CEO's office, finance, HR, centre, and business/operational strategy. This methodology is consistent with the approach used for Openreach and corporate overheads and is reviewed in Section 15.2; and,

- A BT-wide corporate overheads base is used for BT TSO costs that are corporate in nature and benefit the whole of BT. These include Oracle licences and Research and Innovation division costs. This is reviewed in Section 15.3.

Whilst each of these three methodologies is analysed in turn below, conclusions are presented at the end of the sections, considering an overall assessment across the three methodologies.

15.1 BT TSO Common Cost – attribution by NBV managed assets

15.1.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

Summary of previous methodology

Prior to the revised methodology, several approaches were adopted for the attribution of BT TSO common costs. These included:

- Using data such as power consumption for the attribution of costs related to energy and carbon emission reduction;
- Attribution of costs as pay overheads of the underlying engineering/BTID teams;
- Attribution of costs as overheads of the direct Service Delivery CoW bookings;
- Attribution of costs as overheads of the direct trades analysis; and
- Using analysis of subcontractor/specialist team costs to identify the network assets/technology platforms supported.

Summary of revised methodology

The revised methodology attributes BT TSO common costs to BT TSO-managed assets on the basis of an NBV analysis. This methodology excludes the underground core and access network assets such as fibre, copper and duct. It also excludes motor transport, land, buildings, office machines and machinery awaiting installation. The asset categories which received BT TSO common costs are: local and main exchanges, IN platforms, international termination, telex, power equipment, network accommodation plant, private circuits, apparatus, public payphones, general computers and software.

15.1.2 Assessment against cost allocation and cost recovery principles

The tables below provide an assessment of the revised methodology against the cost allocation and cost recovery principles.

Table 32: BT TSO – Common Costs: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	Whilst the revised methodology is an appropriate basis for the attribution of common costs, some of the previous individual methodologies that were applied to this category might be argued to be more directly causal in nature. For example, the third party costs associated with minimisation of BT's carbon emissions were previously attributed according to power consumption, which could be argued to have a stronger causal link then NBV.
Consistency	The revised methodology provides significantly greater consistency in the treatment of BT TSO common costs.
Objectivity	The revised methodology is no less objective than the previous approach. Indeed, by applying a consistent approach to the treatment of all BT TSO common costs, the scope for potentially subjective treatment of specific items is reduced.
Transparency	The revised methodology is more transparent due to the system-generated nature of the previous calculations.

Table 33: BT TSO – Common Costs: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	It is possible to argue that specific elements of the BT TSO operating costs had more causal attribution bases under the previous methodology.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology continues to enable the costs of supporting the BT TSO operations to be recovered from all parties that consume, either directly or indirectly, the BT TSO services provided.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

15.2 BT TSO Overheads – attribution by BT TSO pay and return on assets

15.2.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

Summary of previous methodology

Previously, BT TSO overheads were attributed on a pro rata basis in proportion to the costs of the groups supported.

Summary of revised methodology

The revised methodology takes into account the importance of the management of fixed assets to the BT TSO business and uses an attribution base that includes previously attributed pay costs plus a ROCE on BT TSO assets.

15.2.2 Assessment against cost allocation and cost recovery principles

The tables below consider the revised methodology against the cost allocation and cost recovery principles.

Table 34: BT TSO Overheads: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	BT TSO is a highly asset-intensive business and therefore it can be expected that BT TSO managers' effort is directed not only to the management of staff, but also of the assets that are owned and operated. Therefore, the revised methodology reflects a stronger cost causal relationship than the previous methodology.
Consistency	The revised methodology is consistent with the treatment of other overheads in the company.
Objectivity	The revised methodology is based on objective data contained within BT's accounts, and no subjective view is required in developing the attribution base.
Transparency	The revised methodology is more transparent as it requires little additional data or calculations and can be very easily understood.

Table 35: BT TSO – Overheads: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	As above, the revised methodology better reflects the fact that the management of fixed assets is a key element of the management of BT TSO.
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology enables recovery of the cost of the management of fixed assets from all parties that benefit from the economic value attributable to those assets.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

15.3 Corporate Overheads Incurred in BT TSO– attribution by group pay and return on assets

15.3.1 Methodological review

This section summarises the previous and revised methodologies and provides an assessment of the revised methodology against the cost allocation and cost recovery principles.

Summary of previous methodology

Previously, the group corporate overhead costs incurred in BT TSO were attributed based on FTEs or previously attributed LoB pay costs.

Summary of revised methodology

Under the revised methodology the group corporate overhead costs incurred in BT TSO are attributed using the corporate overheads base, which includes pay and return on assets.

15.3.2 Assessment against cost allocation and cost recovery principles

The tables below provide an assessment of the revised methodology against the cost allocation and cost recovery principles.

Table 36: BT TSO - Corporate Overheads: Assessment against cost allocation principles

Allocation Principle	Assessment
Causality	BT is a highly asset-intensive business and therefore it can be expected that BT TSO's support to the business as whole should reflect both the asset and staff elements of BT's business. Therefore, the revised methodology reflects a stronger cost causal relationship than the previous methodology, which did not take specific account of the asset element.
Consistency	The revised methodology is consistent with the treatment of other corporate overheads in the company.
Objectivity	The revised methodology is based on objective data contained within BT's accounts, and no subjective view is required in developing the attribution base.
Transparency	The revised methodology is more transparent as it requires little additional data or calculations and can be very easily understood.

Table 37: BT TSO – Corporate Overheads: Assessment against cost recovery principles

Recovery Principle	Assessment
Cost causation	The revised methodology better reflects the fact that the management of fixed assets is a key element of of BT TSO's support to BT Group.

Recovery Principle	Assessment
Cost Minimisation	The revised methodology does not affect BT's incentives to minimise costs as these incentives are, for regulated markets, set by Ofcom within the structures of each price control, and these are not impacted by the revised methodology.
Distribution of Benefits	The revised methodology enables recovery of the cost of the management of fixed asset from all parties that benefit from the economic value attributable to those assets.
Effective Competition	The revised methodology does not weaken pressure for effective competition, as it does not affect the competitive or regulatory constraints on pricing which BT is subject to.
Practicability	The revised methodology relies on readily accessible information and is an easily understood analysis. It is therefore a practical input to cost recovery mechanisms.

15.4 Conclusion

BT found that the restructuring of BT TSO made it impractical to follow the same methodology for the attribution of common and overhead costs, and has provided clear explanations to support this position. For example, the former Service Infrastructure (SI) team was split across several new teams as part of the restructuring; elements of the Application, Support and Maintenance (ASM) team moved from SI into the Architecture & Global IT Platforms, Group Customer Experience and CIO teams. The same happened for the more general costs in SI which were not previously directly attributed to LoBs. In addition, the Architecture & Global IT Platforms team also has 'general costs' elements from the former BTO units of SI, SSI and Security following the restructuring.

Each of these general cost elements had previously used different attribution methods in that they were treated as overheads of direct allocations.

These fundamental changes to the way in which the newly formed BT TSO entity is supported by common functions, made methodologies that were appropriate to the discrete BTO and BTID functions impractical to apply, and unlikely to deliver a more cost causal outcome, for the new entity.

In relation to overheads, the inclusion of the return on assets element in the revised methodologies (either TSO-specific or corporate assets) reflects a stronger cost causal link and is consistent with the treatment of other overheads.

On balance, the revised methodologies for TSO operating costs are consistent with the principles of cost allocation and cost recovery.