

THE POST OFFICE GROUP LITIGATION

Claim No. HQ16X01238, HQ17X02637 & HQ17X04248

IN THE HIGH COURT OF JUSTICE

QUEEN'S BENCH DIVISION

Before The Hon. Mr Justice Fraser

B E T W E E N:-

ALAN BATES & OTHERS

Claimants

– and –

POST OFFICE LIMITED

Defendant

CLAIMANTS' WRITTEN OPENING
FOR TRIAL OF HORIZON ISSUES

Abbreviations & terminology

The following abbreviations are used:-

Generic pleadings: Particulars of Claim "GPOC"; Defence "GDef"; Reply "GReply"

Individual pleadings: Particulars of Claim "IPOC"; Defences "IDef"; Replies "IReply"

Claimants' first and supplemental report "Coyne 1" and "Coyne 2"

Defendants' first and supplemental report "Worden 1" and "Worden 2"

Experts' Joint Statements "Joint 1" and "Joint 2"

Subpostmaster of Subpostmistress "SPM"

References

References are generally as follows:-

Electronic trial bundle: in the format {Bundle/Tab/Page}

Witness statements: Surname, number, §para, e.g. Godeseth 2, §5

The tables of contents and internal references within this document are provided with embedded hyperlinks; and headings and sub-headings are all viewable in the navigation pane.

Suggested Pre-Reading

As was clear from the PTR, the Court has already read into many of the witness statements and expert reports (which for convenience are identified below).

- (1) Claimants' Written Opening {A/1}
- (2) Defendant's Written Opening {A/2}
- (3) Claimant's witness statements:
- | | | |
|-------------------------|--|----------------------------|
| Mr Adrees Latif | | {E1/1} |
| Mr Jayesh Tank | (1 st and 2 nd) | {E1/6} and {E1/11} |
| Mr Anup Patny | | {E1/3} |
| Mr Aakash Patny | | {E1/2} |
| Mrs Angela Burke | | {E1/4} |
| Mr Richard Roll | (1 st and 2 nd) | {E1/7} and {E1/10} |
| Mr Ian Henderson | | {E1/4/5} {E1/5} |
- (4) Defendant's witness statements:
- | | | |
|------------------------------|--|------------------------------|
| Angela van den Bogerd | (2 nd) | {E2/5} |
| Dawn Phillips | | {E2/3} |
| Tracy Mather | | {E2/8} |
| Paul Smith | | {E2/9} |
| David Johnson | (1 st and 2 nd) | {E2/4} and {E2/6} |
| Andy Dunks | | {E2/10} |
| Torsten Godeseth | (1 st , 2 nd and 3 rd) | {E2/1}, {E2/7} and {E2/14} |
| Stephen Parker | (1 st , 2 nd and 3 rd) | {E2/11}, {E2/12} and {E2/13} |
| William Membery | | {E2/2} |
- (5) Expert reports:
- | | | |
|-----------------|--|--------------------------|
| Joint 1 | | {D1/1} |
| Coyne 1 | | {D2/1} |
| Worden 1 | | {B3/2} {D3/1} |
| Coyne 2 | | {B3/3} {D2/4} |
| Worden 2 | | {B3/3} {D3/6} |
| Joint 2 | | {D1/2} |
| Joint 3 | | {D1/3} {D1/4} |

Contents

INTRODUCTION & BACKGROUND.....	5
Overview	5
Benefits from this Trial	6
Procedural Background and Horizon Issues	8
Provision of Information and Disclosure by Post Office	11
Candour & Dispelling Myths – Bugs	17
Remote Access & Editing of Transactions	21
Section A. EVIDENCE	27
Fact Witnesses	27
Expert Evidence	31
Section B. ISSUES	37
Bugs & Errors, Robustness, Potential for Errors Measures & Controls (1, 3, 4 & 6)	37
Reconciliation and TCs (5 & 15)	57
Horizon Alerting & Reporting Facilities for SPMs (2 & 14)	68
Horizon Shortfalls – Data and Reporting for Subpostmasters and Post Office (8 & 9) ..	77
Remote Access and Editing of Transactions (7, 10, 11, 12 and 13)	87
Section C. CONCLUSION	104
Appendix 1	106
Known Error Log (“KELs”)	106
PEAKs	110
Release Notes	113

*A more detailed Table of Contents is provided separately in hard copy
and at the end of this document in soft copy.*

INTRODUCTION & BACKGROUND

Overview

1. As the Court is well aware, this is the Horizon Issues Trial (“HIT”); it is the second trial of substantive issues in the Post Office Group Litigation, managed pursuant to the GLO made on 22 March 2017. The Horizon Issues are at {C1/1}.
2. This Introduction: (i) identifies benefits already derived from this Trial, in terms of the picture now available to the Claimants and the Court; (ii) illustrates some key differences of approach between the experts; (iii) sets out material aspects of the procedural background to this trial and the Horizon Issues (for reasons that will become apparent); (iv) highlights the way in which Post Office has approached disclosure in this case; (v) considers Post Office’s candour on key issues; and (vi) summarises how the picture has changed on remote access (publicly denied by Post Office in 2015 “*There is also no evidence of transactions recorded by branches being altered through ‘remote access’ to the system. Transactions as they are recorded by branches cannot be edited and the Panorama programme did not show anything that contradicts this*”). {F/1422/2}
3. In **Section A** (p.27) of this Written Opening, the Claimants provide a brief overview of the evidence before the Court, consisting of:
 - 3.1. witnesses of fact for the Claimants’ {E1} and Post Office {E2}; and
 - 3.2. the Joint Statements {D1} and expert reports of their respective experts, Mr Coyne (for the Claimants) {D2} and Dr Worden (for Post Office) {D3}.
4. In **Section B** (p.37, below), the Claimants identify the key issues between the parties in respect of the Horizon Issues, including:
 - 4.1. concessions made by Post Office on Horizon Issues;
 - 4.2. significant findings of Mr Coyne which the Court is invited to accept; and
 - 4.3. briefly why Dr Worden’s answers to the Issues should not be accepted.

Benefits from this Trial

5. Even before it has begun, the benefits of the Horizon Issues Trial to this litigation are already clear. Despite the fairly compressed timetable and some difficulties with disclosure and documents, it has nonetheless been possible to seek to pursue some key avenues of enquiry.
6. In short, the listing of this trial by the Court and the directions and preparation for this trial have flushed out some important matters, including the following:
 - (1) **Remote Access:** The true scope for remote alteration of branch data is unrecognisable from Post Office's public and pleaded position (p.21, below).
 - (2) **Further Bugs:** Post Office initially admitted three bugs, which Second Sight had already identified. There are others, such as Dalmellington and Data Tree Build Failure Discrepancies (p.43); in the time available the experts have identified between 12 and 29 significant bugs impacting branch accounts (paragraph 7(4), immediately below; and, for example, paragraph 117, p.39).
 - (3) **Lack of Controls:** For example: in relation to TCs, "*Individual challenges...were not recorded prior to [September 2018]*" (Smith 1, §16) {E2/9/3}; in relation to fixes and maintenance changes to Horizon, Ernst & Young were unable to identify any internal control over that process, increasing the risk of "*unauthorised and inappropriate changes*" being deployed (2011 Management Letter {F/869/31} and Executive Summary{F/869/3}).
 - (4) **Limited Trend Analysis/Monitoring:** Fujitsu and Post Office developed the Problem Management Procedure, designed "*to investigate, eliminate or prevent causes of Incidents and Known Errors ... to prevent the recurrence of Incidents related to these errors to establish the Root Cause of Incidents and then start actions to improve or correct the situation*" ({F/1500/7}, which would have allowed proper monitoring and trend analysis. But, this was not brought in. Mr Godeseth suggests this followed the departure of the Horizon Lead Service Delivery Manager in February 2013 (Godeseth 2 §62-63 {E2/7/15}).
 - (5) **Constantly Changing System:** Post Office's pleaded case is largely confined to Horizon as it was at the date of pleading (GDef §4) {C3/3/2}. In relation to changes to the Horizon system, there are nearly 20,000 Release Notes {C5/21/4} (approximately 19 changes per week made to Horizon) and over 36,000 Master Service Changes (MSCs) and Operation Control Procedures (OCPs) {C5/22/2}.

- (6) **Candour:** Post Office has been less than forthcoming, despite the volume of largely unstructured information which it has provided (see, e.g. Candour & Dispelling Myths, on p. 17 below).
7. The Claimants have set out the background as to how the picture available so far has emerged, out of necessity. It colours the context in which Mr Coyne has discovered what he has; and the inferences to be drawn as to the Defendant's approach to the Horizon system itself and the matters in issue in this Trial.
8. For example, having insisted upon including "*robustness*" of the Horizon system as an issue, Post Office did not volunteer the existence of the Dalmellington bug – which it well knew about (but which post-dated Second Sight), as discussed further below.
9. The fact that further significant bugs have come to light, in the way that they have, from the enquiries that the experts have been able to undertake, is significant:-
- (1) As noted above, Post Office, in these proceedings, initially only acknowledged three (already known) bugs which had affected branch accounts. For convenience, these were: the **Callendar Square** bug (p.42); the **Payments Mismatch** bug (p.42); and **Suspense Account** bug (p.42).
- (2) After a lot of work, Mr Coyne found the **Dalmellington/Branch Outreach** bug (e.g. paragraph 128.1, p.43). Post Office has known about this bug for over 3 years, but appears not to have even told its own expert about it.
- (3) After much further work, Mr Coyne identified the **Data Tree Build Failure Discrepancies** bug (paragraph 128.2, p.43), which had a financial impact on Branches of over £100,000.¹
- (4) There are a number of further bugs identified so far, which Post Office had neither admitted nor volunteered: between 12 (Dr Worden) and 29 (Mr Coyne) bugs with "*strong evidence of the bug causing a lasting discrepancy in branch accounts*".²

¹ Joint 2 {D1/2/32} at §1.31

² Joint 2 {D1/2/29} at §1.15

Procedural Background and Horizon Issues

10. This HIT follows the first trial of substantive issues, namely the Common Issues Trial (“CIT”), heard over 5 weeks commencing 5 November 2018. In the Common Issues Trial, Post Office put in issue whether or not the figures on the Horizon system were, as a matter of law, a settled account and how legal principles of accounting obligations applied to the situation. This required the Court to make findings of fact about how the system operated in practice, particularly with regard to the ability of SPMs to dispute figures on Horizon.

Horizon as a GLO Issue

11. One of the GLO Issues is “*The effect of Horizon*”.³ Although its relevance may seem obvious (particularly given the history, including appearances before the Select Committee, the BBC’s Panorama investigation and the Mediation Scheme), Post Office opposed including this as an issue; Post Office wanted the litigation resolved without consideration of the effect of Horizon as a generic issue.⁴
12. Prior to the GLO hearing on 26 January 2017, the parties’ positions were that (1) the Claimants sought to include within the GLO issues the risk of inaccuracy due to bugs error or defects, and the possibility of remote access by Post Office or Fujitsu,⁵ but (2) Post Office resisted these proposals entirely, contending these matters were fact specific in each case.⁶
13. Post Office eventually conceded this issue at the GLO hearing, expressly in the face of the inevitable;⁷ the broad and neutral formulation “*The effect of Horizon*” was ultimately proposed by Senior Master Fontaine, and agreed by the parties, on the basis that if necessary, the issues could be refined in due course.

³ GLO, Schedule 1, **Issue 5** {C7/3/12} – expressed in deliberately wide terms by the Court

⁴ This mirrors the sensitivity to the formulation of the Horizon Issues, discussed further below at paragraph 17 onwards.

⁵ Claimants’ skeleton argument for the GLO, 20 January 2017, §36-38 {C8.1/1/16} – see p.19 below

⁶ Post Office’s skeleton argument for the GLO, 25 January 2017, §24 {C8.1/2/12}

⁷ GLO Transcript, paragraph 333 {C8.1/3/8}: “*Master, I see which way the wind is blowing and I’m certainly not going to try and resist the inevitable.*”

Formulation of Horizon Issues

14. For the purposes of this Trial⁸ and following the Second CMC, the parties ultimately agreed 15 Horizon Issues, as set out in the Agreed List of Horizon Issues {C1/1}.
15. The parties have different views of the importance of particular Horizon Issues to their respective cases. Those issues are defined with differing levels of particularity, both as a result of the parties' knowledge of the issues when the Horizon Issues were agreed and because the wording of the Issues was the product of compromise between the parties.
16. The 15 Horizon Issues as originally formulated, can sensibly be grouped together as follows, reflecting the approach of the Claimants' expert Mr Coyne, and as addressed in this way in Section B of these submissions:
 - 16.1. **Bugs & Errors, Robustness, Potential for Errors Measures & Controls** (1, 3, 4 & 6)
 - 16.2. **Reconciliation and TCs** (5 & 15)
 - 16.3. **Horizon Alerting & Reporting Facilities for SPMs** (2 & 14)
 - 16.4. **Horizon Shortfalls – Data and Reporting for Subpostmasters and Post Office** (8 & 9)
 - 16.5. **Remote Access and Editing of Transactions** (7, 10, 11, 12 and 13)
17. As to the precise wording of the issues, the Claimants previously made clear that they consider the wording of some of the issues insisted upon by Post Office to be unhelpful,⁹ but their inclusion was ultimately agreed by the Claimants in order to reach agreement with Post Office. Post Office had very clear views on two particular points.
 - 17.1. First, on **Issue 1** (Robustness): Post Office was insistent on including this **Issue**, formulated by the Defendant is whether Horizon is "*robust*" and "*extremely*

⁸ The Horizon Issues Trial was directed to take place in the First CMC Order, §34 {C7/7/10}

⁹ Claimants' Supplemental Note for Adjourned Hearing on 22 February 2018, §34 {C8.4/1/7}

unlikely" to cause shortfalls. This reflects language pleaded in the GDef,¹⁰ and indeed "*robustness*" has been one of Post Office's "*narrative boxes*" and a favoured term in Post Office's public relations pronouncements (e.g. its response to the BBC's Panorama programme¹¹). Coincidentally or otherwise, it has also featured in the NFSP's defence of Post Office, relied upon by Mrs van den Bogerd¹². However, as the Claimants made clear in their GReply,¹³ whereas the Claimants' is that it is relatively robust and has become more robust over time – but not so as to be an answer to the Claim (and in so far as "*robustness*" has, in this case, a sufficiently clear meaning – addressed further herein). The combination of Horizon's admitted imperfections (and discovered bugs and remote access) and the volume of many millions of transactions,¹⁴ is entirely consistent with the levels of errors reflected in the Claimants' case.

17.2. Generally: As the Court will remember, the premise upon which Post Office wished the Horizon Issues to be formulated was that "*Horizon is designed to transfer and store the data put into it. It does not create shortfalls*" and "*Horizon does not create shortfalls or reconcile data, it only transfer and stores data.*"¹⁵

18. In short, the Claimants prefer a more concrete approach and the Defendant tends to prefer a more abstract approach. The Defendant's approach has also found expression in Dr Worden's treatment of the Horizon Issues and his focus on "*robustness*" through the prism

¹⁰ GDef §16 {C3/3/5}, §50 {C3/3/21} and §153 {C3/3/61}.

¹¹ {F/1422}

¹² Van Den Bogerd 1, §98 and footnote 26 "*ComputerWorld UK – 27 June 2012: "George Thomson, general secretary of the National Federation of SubPostmasters (NFSP), backed the Post Office: "We continue to have complete confidence in the Horizon system, which carries out hundreds of millions of transactions every week at 11,500 Post Office outlets across the country. The NFSP has seen no evidence to suggest that Horizon has been at fault and we believe it to be robust."* (not currently in Horizon trial bundle, but available in trial bundle for Common Issues at {C2/1/29})

¹³ GReply §§36-37 and §52

¹⁴ E.g. the Van Den Bogerd 1, §98 and footnote 26, as above.

¹⁵ Post Office's Skeleton Argument for the Third CMC, esp. at §259(a) {C8.4/2/9} and see Exhibit 2 {C8.4/2/25} – Cf. Claimants' Responsive Note {C8.4/3/1}

of so-called “*countermeasures*” and his theoretical statistical modelling which is said to disprove the Claimants’ case.

Provision of Information and Disclosure by Post Office

19. The documents which it is necessary to consider in order to determine the Horizon Issues are almost exclusively in the possession or control of Post Office (as they are Post Office or Fujitsu documents). The timing, method and approach to disclosure of those documents to the Claimants and the experts has had a material impact on the shape of the evidence which now comes before the Court.
20. The Claimants highlight below three particular classes of documents, which illustrate Post Office’s approach to the provision of relevant documents, which has caused difficulties for the Claimants and their expert Mr Coyne, namely: Known Error Logs (p.12, below); PEAKs (p.14); and Release Notes (p.16).
21. The Claimants also highlight in this section the fact that Post Office has engaged a team of shadow experts (immediately below), which is relevant context to its approach to disclosure and provision of information to experts, and the presentation of its evidence more widely.
22. Finally, in this section, the Claimants address Post Office’s lack of candour and professed “*dispelling of myths*” in relation to certain known bugs (p.17). The way in which Post Office has approached the provision of factual information to the Claimants and the Court invites scrutiny; it should inform the Court’s assessment of the evidence which Post Office will invite the Court to accept.

Post Office’s Shadow Experts

23. In addition to its expert Dr Worden, who has Part 35 duties to the Court, Post Office has instructed an unknown number of additional experts, expressly “*for the purposes of determining its litigation strategy*”. The Claimants reasonably infer this will include its approach to evidence and disclosure.

24. By the middle of last year (20 June 2018), Post Office had spent around £500,000 on these other experts. Post Office recorded its expenditure in its Skeleton Argument dated 31 May 2018 in respect of its costs budget {C8.5/2/17}:

53. The Defendant's budget includes "other disbursements" totalling £830,857.94 in the incurred costs for the expert evidence phase. The Claimants' solicitors have asked for further details of that expenditure in correspondence and have been told that they relate principally to (i) Fujitsu's costs of assisting with the litigation and (ii) other third party costs in respect of Horizon related issues raised by the litigation.

54. The Defendant is happy to provide further clarification now: the amount paid to Fujitsu is around £300,000. The Defendant has spent around £500,000 on investigations by internally appointed experts for the purposes of determining its litigation strategy. The resulting material - which is privileged - has not been provided to the Defendant's expert for the purposes of this litigation.

25. As far as the Claimants are aware, the fruits of the work of the additional expert team have not been shared with either Dr Worden, or Post Office's counsel. By not sharing such information with their own expert, Post Office side-steps the effect of Dr Worden's Part 35 duties. (The Claimants make clear that any adverse documents which have come to Post Office's knowledge through the work of these additional experts (or indeed Fujitsu's work) should have been disclosed).

Known Error Logs ("KELs")

26. The Claimants first sought disclosure of the Known Error Logs in their 28 April 2016 Letter of Claim.¹⁶
27. As set out in **Appendix 1** to this Written Opening, Post Office created many and varied excuses for not providing the Known Error Log to the Claimants, including casting doubt on whether it existed, denying Post Office had control over it, maintaining that there was nothing in it which could affect the accuracy of a branch's accounts, and repeatedly saying it was simply not relevant (see esp. pp.106–110, below). For example, at the CMC on 19

¹⁶ Paragraph 124 {H/1/32}, and 169 (22) {H/1/43}.

October 2017, Post Office (having now admitted its existence), maintained both that Post Office did not have control of the Known Error Log and that it was irrelevant:

“MR. DE GARR ROBINSON: It contains things like there’s a problem with printers. There’s a printer. You have to kick it on the left-hand side to make the printer work. I mean there’s a vast range of hardware problems of that sort and maybe some software problems (inaudible) but not the kind of bugs, errors and defects that the claimants are wishing to pursue in their particulars of claim so far as Post Office is aware.”

28. The Court labelled Post Office’s attitude to disclosure as “obstructive” and that it needed to be “nipped in the bud”,¹⁷ and ultimately, the outcome of that hearing was that Post Office agreed to Mr Coyne being permitted to attend Fujitsu’s premises to inspect the Known Error Log.
29. When Mr Coyne inspected the KELs he made clear that he considered the contents very relevant (as the Claimants had anticipated they would be, from their Letter of Claim.
30. Disclosure of the KELs, was then made as follows:
 - 30.1. **10 May 2018:** Post Office provided most (but not all) of the Known Error Logs or “KELs” on 10 May 2018, some two years after the Claimants’ initial request in their 28 April 2016 Letter of Claim.
 - 30.2. **16 November 2018:** Some further KELs, which related to particular bugs were provided together with Post Office’s responsive evidence, on 16 November 2018.¹⁸
 - 30.3. On **19 December 2018** the Claimants’ wrote to Post Office identifying two further KELs that were expressly referred to in Dr Worden’s first report but had not been disclosed to the Claimants or Mr Coyne.¹⁹

¹⁷ Transcript of the First CMC at p.100E-H {C8.2/3/26}

¹⁸ Coyne 2, §4.3(c) – KELS relating to Callendar Square bug, exhibited to Godeseth 2.

¹⁹ Letter from Freeths to WBD 19 December 2018 {H/151/1}

- 30.4. **17 January 2019:** Further KELs, which had apparently been deleted by Fujitsu, but remained available, were recently disclosed on 17 January 2019.²⁰
31. The relevance and importance of the KELs is beyond question. They are essential documents for this Trial and the resolution of the Horizon Issues.
32. The KELs certainly include evidence of the impact of bugs on branch accounts – not just for the bugs originally admitted by Post Office. For example, in relation to the Dalmellington Bug – not previously acknowledged by Post Office in its Letter of Response, but identified by Mr Coyne²¹ – the KEL²² records (emphasis added):

“Symptoms: A cash pouch was received at an outreach branch and scanned into Horizon. The manual process was followed and 2 Delivery Receipts printed. Then the clerk pressed Enter to complete the process, and a Rem In slip was printed. They were then able to press Enter again and another Rem In slip was printed - and the same amount of cash was recorded a second time. They may have repeated several times before using Cancel to escape, resulting in much more cash being recorded on the system than they actually have.”

33. Further, KEL analysis forms the foundation of much of Dr Worden’s opinion evidence. He describes the KELs as *“a rich source of evidence about Horizon in service - about events which threatened to have harmful consequences, and how well or badly the robustness countermeasures acted in those cases”*.²³ Dr Worden’s reliance on the KELs is in stark contrast to the explanations advanced by Post Office as to the alleged irrelevance of the KELs to this litigation, when trying to avoid having to provide them to the Claimants.

PEAKs

34. PEAKs are created by Fujitsu’s third and fourth line support teams as a call management system and diagnostic database. As the experts have agreed, Joint 2 at 0.5 {D1/2/27} (emphasis added):

²⁰ See e.g. {C5/33/14}.

²¹ Coyne 1 §5.16-5.19 and 5.23 {D2/1/58}

²² acha621P raised 15 October 2015 {F/1246}

²³ Worden 1, §56 {D3/1/13} and {D3/1/95}

“PEAKs record a timeline of activities to fix a bug or a problem. They sometimes contain information not found in KELs about specific impact on branches or root causes – what needs to be fixed. They are written, by people who know Horizon very well. They do not contain design detail for any change. They are generally about development activities and timeline rather than about potential impact. PEAKs typically stop when development has done its job, so they are not likely to contain information about follow-on activities, such as compensating branches for any losses.”

35. The Claimants did not know about PEAKs²⁴ at the date of their Letter of Claim, and only became aware of this term and the significance of these records at a later stage. However, the relevance of PEAKs must have been obvious to Post Office from the outset of this litigation and during the period when Post Office was resisting disclosure of the KELs – which themselves refer to PEAKs (and vice versa). PEAKs plainly include important information, which are central to the issues in this Trial.²⁵ However again, Post Office’s approach was far from co-operative or forthcoming.
36. As set out in more detail in **Appendix 1** (esp. pp.110-113, below), when Mr Coyne saw PEAKs referred to in KELs, on 18 May 2018, he requested access to the PEAK system(s) for inspection with the capability to extract specific requested bugs/issues/peaks from the system(s) for later review {C5/4/5}. However, Post Office were resistant to Mr Coyne being able to inspect the system, questioned the purpose of obviously relevant requests made by Mr Coyne, and professed that there was no mechanism for exporting the PEAKs.
37. It was not until **27 September 2018**, that 220,000 PEAK entries were disclosed to Mr Coyne, just two weeks before his expert report was due to be filed. The Court may note that Post Office chooses to characterise this disclosure as “voluntary”, a characterisation

²⁴ PEAK is not an acronym; it is a term used by Post Office/Fujitsu by which incidents are reported apparently because ‘PinICL’ was the old name for the PEAK system. According to Mr Godeseth, “PEAK is browser-based software incident and problem management system used by Post Office Account which enables details of the incident and diagnostic progress to be captured in a searchable format and allows the tracking of problems from detection through to resolution” Godeseth 2, §16 {E2/7/6}. Mr Coyne explains that “By 2010, the 1st and 2nd line support Powerhelp system had been replaced by a system called Triole for Service (TfS) to record incidents and PinICL had been replaced by PEAK, an in-house developed Fujitsu services incident and release management system. An individual incident so recorded is referred to as a PEAK” Coyne 1 § 4.84 {D2/1/51}.

²⁵ The Court should however note that the experts agree that neither the PEAKs nor the KEL’s provide “a comprehensive picture” since they are “incomplete in various respects” Joint 2, at 0.3 {D1/2/26}.

the Claimants entirely reject. On 25 October 2018, a further 3,866 PEAKs (which Post Office had withheld for privilege review), were disclosed - two weeks after Mr Coyne's report.²⁶ However, following disclosure of Operational Change Process documents on 24 January 2019, Mr Coyne identified further relevant PEAKs that had not been disclosed, and these were not disclosed until 18 February 2019, after Mr Coyne's second report.²⁷

38. It has always been Mr Coyne's view that, whilst there are many limitations to the PEAK system overall, the PEAKs are a valuable source of information about bugs and errors in Horizon. Dr Worden has also agreed that the PEAKs are important, as Joint 2 records agreement that: "*KELs and Peaks together form a useful source of information about bugs in Horizon*"; "*sometimes contain information not found in KELs about specific impact on branches or root causes – what needs to be fixed*" and "*Some Peaks record observations of financial impact*" {D1/2/26-27}.
39. Given the significance of the PEAKs to the issues in this litigation, Post Office's approach to the provision of these documents to Mr Coyne has been unhelpful and disruptive to the Claimants and Mr Coyne's preparation for this trial. The Claimants invite scrutiny of Post Office's approach to resist and delay disclosure of these documents, which in many ways mirrors the position in relation to KELs, above, and again, falls to be considered against a background of a shadow expert team having been engaged by Post Office for the issues in this trial.

Release Notes

40. The Claimants have also sought the disclosure of Release Notes in relation to Horizon and the software updates and version releases that have occurred since its inception. The Claimants anticipate that the Court will be familiar with Release Notes in software cases, especially where the issues range over an extended period of time. They are plainly relevant in that they, typically, contain a summary of the updates that have been made including enhancements, changes and any fixes to bugs and often document the problems

²⁶ See Coyne 2, §2.1 {D2/4/9}

²⁷ Letter from WBD to Freeths dated 18 February 2019 {H/206/1}

which have been corrected. They are primarily made to assist the end user of the software (most likely, Post Office, here).

41. The detailed position in relation to Release Notes is also set out in **Appendix 1** (esp. pp.113– 115). The short point is that despite Mr Coyne requesting them on 12 July 2018, Post Office’s position has been that it is for the Claimants to identify which of the release notes they wish to see. The scale and difficulty of this task is obvious where Post Office has simply provided a list of release notes without explanation. Mr Coyne has requested some specific notes which are yet to be provided.
42. The Claimants are not confident that they will be able to review in any detail any Release Notes prior to the start of the trial. This is a further example of the Post Office’s approach to disclosure, impeding the Claimants from obtaining a full view of the documents and the totality of the Horizon system.

Candour & Dispelling Myths – Bugs

43. As the Court is already aware, Post Office has been looking into issues relevant to this Trial for many years.²⁸ Indeed, Post Office’s Letter of Response dated 28 July 2016 {H/2/1}, specifically relied upon the scrutiny to which its system had been subjected: *“Thousands of hours of investigations have been conducted and tens of thousands of documents have been disclosed.”*

{H2/95}

44. As to specific bugs, Post Office’s Letter of Response stated ~~{H2/2/95}~~ (emphasis added):

“In order to dispel any myths around the defects reported on by Second Sight and cited by other sources, we have set out below in detail what happened in these instances”

45. The Letter of Response then set out an account of Post Office’s position in relation to the Callendar Square, Receipts & Payments Mismatch, and Local Suspense Account bugs (these being bugs which had been reported on by Second Sight or, in the case of Callendar Square, in the trial of Seema Misra).

²⁸ Including for the purposes of appearances before the Select Committee; responding to the BBC’s Panorama programme; and the Mediation Scheme.

46. The accounts given by Post Office in that letter, and various other accounts given by Post Office to the Claimants and others about these bugs, have proven to be, at best, lacking candour.

47. In relation to Callendar Square, Post Office conveyed the impression that only *one branch* was known to be affected (“*This fix was distributed to the entire network – not just the affected branch – in March 2006*”)²⁹, a position later confirmed on 11 January 2017:

“The Falkirk / Callendar Square issue was only known to have affected that one branch”.³⁰

48. Yet, Mr Godeseth in his witness statement dated 16 November 2018 confesses to a very different state of affairs: “*I understand from Matthew Lenton (Fujitsu’s Post Office Account Document Manager) that this bug affected thirty branches, resulting in mismatches at twenty, and that Fujitsu has established this for the purposes of this statement using the event logs described above”*.³¹

49. Accordingly, Post Office’s position appears to be that Post Office – and Fujitsu? – did not know until preparing Mr Godeseth’s second witness statement that in fact thirty branches were affected. If that is correct, it reveals a frankly astonishing lack of knowledge of the effect of bugs within Horizon, not least where (as Post Office chose to highlight in their Letter of Response), the potential impact of the Callendar Square bug was raised as an issue by the defence in the criminal prosecution of Seema Misra, and in civil proceedings against Lee Castleton, and in both cases Post Office presented evidence to those courts about the effect of the bug (at the Seema Misra trial, Mr Gareth Jenkins gave evidence for Fujitsu).

50. The Claimants believe that a candid account of the true impact of the Callendar Square bug is still yet to be provided. The Court will note that Mr Godeseth in fact has no first-

²⁹ Schedule 6, §2.6 {H/2/96}

³⁰ §7.1.8 {H/6/3}

³¹ Godeseth 2 §15 {E2/7/5}. The Court will note that this is presented as hearsay evidence from Mr Godeseth, with no disclosed documents to the Claimants as to the number of affected branches or eg the amounts in question.

hand knowledge at all of these events. His evidence relating to them is either derived from (limited) disclosed documents, or hearsay evidence.³² The Claimants will invite the Court to scrutinise the decision by Post Office to present Mr Godeseth to give hearsay evidence in this way, where the limitations of his evidence are clearly foreseeable and important.

51. The Claimants have further, only very recently (on 11 February 2019) obtained further documents relating to the Callendar Square branch (but no other affected branches), which include a record that advice given by the Helpline to the SPM was that when balancing the SPM should select the “*make good cash*” option, but not in fact put the cash in – see the Area Intervention Manager Visit Log dated 16 November 2005 (emphasis added):³³

“16.11.05 Discussed on going issue of loss due to Horizon mis balance. Spmr concerned that he has now made a fraudulent entry in that he has rolled over to the next trading period and put the loss into local suspense. He has then gone on to state that the cash has been made good, which it hasn’t. This was done on the advice of the Helpdesk.”

52. This and other very recently disclosed Area Intervention Manager Visit Logs³⁴ paint a very different picture from the position which Post Office has previously presented – both by its Letter of Response, and Mr Godeseth’s witness statement, both of which refer to advice having been provided to the SPM, but make no mention of this advice, despite its obvious importance to this litigation.
53. There are other similar issues arising in relation to the other two bugs – Payments Mismatch, and Local Suspense Account bug, both of which Post Office addressed in Post Office’s Letter of Response, and which Mr Godeseth provides evidence about in his second witness statement – again despite having no first-hand knowledge of them.

³² Godeseth 2 §13 {E2/7/3}.

³³ {F/312.1/2}

³⁴ {F/300.1/1} {F/301.2/1} {F/310.1/1} {F/325.1/1}

54. One of the many bugs or errors not addressed by Post Office in its Letter of Response was one which, in October 2015 caused a £24,000 discrepancy in the Dalmellington branch SPM's accounts. This issue was only addressed by Post Office in Mr Godeseth's second witness statement, after the bug was discovered and identified by Mr Coyne in his first report. Again, Mr Godeseth's account is almost entirely hearsay ("*I understand from Gareth Jenkins...*" at §55, §57, §58 and §61)³⁵, so it seems that the Claimants and the Court are unlikely to be able to establish with Mr Godeseth the truth of what really happened.
55. The Court will note the significance of this issue which (according to a Fujitsu presentation dated 10 December 2015)³⁶ occurred **112 times over a 5 year period**, and which well demonstrates the absence and/or ineffectiveness of the supposed "*countermeasures*" which Dr Worden relies upon so heavily. Notably, the Fujitsu presentation records that:
- 55.1. despite **6 incidents in 2011, 9 incidents in 2012, 7 incidents in 2013, and 14 incidents in 2014**, in all of these years were **0 calls raised with Fujitsu**, and it was only with **16 instances in 2015**, that a call was raised with Fujitsu (relating to the Dalmellington branch) which led to a fix being implemented in 2016;
- 55.2. as at the date of the presentation, Fujitsu had not been able to identify the outcomes in relation to two very significant occurrences: "*2 Unknown outcomes FAD 157242 – value £25,000 and FAD 209311 – value £2,500.*"³⁷ If and how those occurrences were resolved remains unknown, at least to the Claimants.
56. Again, further disclosure (which the Claimants have been pursuing for some time and has only very recently been provided) is illuminating.

³⁵ Godeseth 2 §13 {E2/7/14} and {E2/7/15}

³⁶ Redacted version as exhibited to Godeseth 2 {F/1416}, but unredacted version also disclosed {F/1415}.

³⁷ {F/1415/8}

57. The Claimants note in an email from Paula Vennells dated 1 July 2016:³⁸

*“This particular blog is independent of Sparrow but clearly related in that it appears to present similar challenges that were raised in the course of the scheme.
I’m most concerned that we/ our suppliers appear to be very lax at handling £24k.”*

58. Rob Houghton’s response was:³⁹

*“I need an urgent review and mini <taskforce> on this one. It probably needs to link up heavily with Angelas work as FSC are mentioned extensively - Angela cfi. I don’t know how we respond to this but can we section a few inside people to get all over it and give me/ Al/ Paula evidence and understanding.
R”*

59. Then followed by:

*“Can you stand down on this please? Redacted
Any specific actions and I will revert.
My apologies.
R”*

60. Thus, it appears that Post Office actively decided not to investigate further – one consequence of which is that further disclosable documents were not created. The Claimants note the timing of these emails as significant – the Claimants had sent their Letter of Claim on 28 April 2016 and Post Office sent its Letter of Response on 28 July 2016 – as above, choosing not to mention the Dalmellington issue at all, despite (as the 1 July 2016 emails show), it being very much known about as a serious issue at the highest levels within Post Office.

Remote Access & Editing of Transactions

61. The Claimants’ source of information in relation to Post Office’s abilities to remotely access and edit data is Richard Roll, a former Fujitsu employee and whistleblower, who featured on the BBC Panorama programme which aired on 17 August 2015, and referred to Fujitsu having gone in “*through the back door*” and made changes, sometimes without

³⁸ {F/1495.2/1}

³⁹ {F/1495.2/1}

the SPM knowing, and that Post Office's position to the effect this was not possible, was not true.

62. As the Court is aware from the CIT, in August 2015, Post Office made a public statement in response which entirely denied this ability {F/1422/2}:

There is also no evidence of transactions recorded by branches being altered through 'remote access' to the system. Transactions as they are recorded by branches cannot be edited and the Panorama programme did not show anything that contradicts this.

63. This was not true.

64. It has since been both admitted and demonstrated to be false.

65. Following the Claimants' Letter of Claim (which referred to Mr Roll's account), Post Office admitted (in their 28 July 2016 Letter of Response) that in fact Post Office and/or Fujitsu did have some limited capacity remotely to access and edit transactions, and explanations were given, broadly reflecting what later appears in Post Office's GDef, below.

66. Post Office's Leading Counsel sought to explain the position at the GLO hearing on 26 January 2017 (seeking to persuade the Court not to include remote access as a GLO Issue), as follows [emphasis added] {C8.1/3/7}:

"Master, first of all, could I just deal with the remote access point!

The letter [the Post Office Panorama response] to which my learned friend took you to was, as you might expect, written by people who thought it was correct. The Horizon system is a very complicated system. It involves lots of departments in ... both in Fujitsu and in the Post Office. And the people who are responsible for the correspondence didn't know that in fact, there were these two other routes. Very few people at Post Office knew that there were these two other routes. They were ... they were routes that are under ... essentially under the control of Fujitsu who's the expert independent contractor that is involved in the operation of the system. And it is a matter of enormous regret that the people who wrote that correspondence and made those submissions weren't aware of that but, you know, we are where we are; the point is that, the point having been discovered, the Post Office wasted no time in ... in bringing the truth ... the accurate ... and accurate set of facts to the knowledge of the claimants.

294. *Now the .., if one looks at the ... the issue that my learned friend suggests, the suggestion that there's a material risk is based upon two matters; that is the defect flaws or bugs, or the ability of Post Office to alter. Both of those two points are not in issue. As my learned friend has fairly said, the fact that there are bugs is not in issue; of course there are, any IT system has bugs and the fact that there's a possibility to alter remotely is itself ... is also not in issue, it now having being discovered and the fact there are these clever routes by which it can be done."*

67. Thus, the Court was specifically being told that both the Court and the Claimants now had "*an accurate set of facts*", and there was therefore no need for remote access to be an issue at all in this litigation (with the attendant need for disclosure).
68. Post Office then served its Generic Defence on 18 July 2017, and pleaded at §57 {C3/3/25} as follows (emphasis added):

"As to the circumstances in which such transaction data can be edited or deleted without the consent of the Subpostmaster:

(1) Neither Post Office nor Fujitsu has the ability to log on remotely to a Horizon terminal in a branch so as to conduct transactions.

(2) A Post Office employee with "global user" authorisation can, when physically present at a branch, use a terminal within the branch to add a transaction into the branch's accounts. The purpose of "Global User" authorization is to allow access to the systems for during training and/ or audits. Any transactions effected by a Global User are recorded against a Global User ID and are readily identifiable as such.

(3) Fujitsu (and not Post Office) has the ability to inject transactions into branch accounts (since the introduction of Horizon Online in 2010, transactions of this sort have been called "Balancing Transactions"). These transactions do not involve any removal or amendment of the transactions entered at the branch. Their intended purpose is to allow Fujitsu to correct errors or bugs in Horizon by cancelling the effect of an error or bug on a branch's data. They may be conducted only by a small number of specialists at Fujitsu and only in accordance with specific authorisation requirements. They are rarely used. To the best of Post Office's information and belief, only one Balancing Transaction has ever been made so as to affect a branch's transaction data, and this was not in a branch operated by a Claimant. A Balancing Transaction is readily identifiable as such."

69. By this date, Post Office knew beyond question that remote access to and alteration of data was in issue, that the position had previously been incorrectly and untruthfully stated, and that they had expressly represented to the Court that the Claimants now had an accurate set of facts. The need for Post Office to plead its case with care and precision – and obviously, truthfully – was acute.
70. It was therefore incumbent on Post Office to plead the position in relation to remote access clearly and correctly, in the GDef, which related to hundreds of Claimants, and was signed by a statement of truth.
71. The witness evidence which then followed has proven that the GDef is in fact materially inaccurate and demonstrably untrue.
72. The Claimants served a witness statement from Richard Roll dated 11 July 2016 {E1/7/1}, which stated (inter alia) that during his employment (which was during Legacy Horizon):
 - 72.1. Fujitsu had an extensive ability to remotely access the system at branch level;
 - 72.2. this was frequently done; and
 - 72.3. sometimes this was done without the SPM's knowledge.
73. Following that statement, Post Office served evidence from Fujitsu:
 - 73.1. stating that *“Mr Roll's account of Fujitsu's actions and powers is inaccurate and misleading”* – §11 of Parker 1 {E2/11/3};
 - 73.2. admitting that in fact under Legacy Horizon, Fujitsu had the ability to inject transactions, but contending this would always be visible to an SPM because it would show a counter position greater than 32 – Godeseth 1 §58.10 {E2/1/17}); and
 - 73.3. admitting that within Horizon Online, Fujitsu Software Support Centre (*“SSC”*) staff have privileged access rights, enabling them to edit or delete transaction data in the Branch Database i.e. the BRDB and admitting this change would not be flagged as a change by a privileged user – Godeseth 1, §59.1 – 59.3 {E2/1/17}.

74. In response to the allegation that Mr Roll's witness statement was misleading, the Claimants served a further statement from Mr Roll {E1/10/1}, which specifically addressed the reliance by Dr Worden on Mr Godeseth's statement that transactions inserted under Legacy Horizon would always show a counter position greater than 32. Mr Roll made it absolutely clear that was not correct, as insertions could be made as if directly at the counter (rather than as from the correspondence server) and therefore would appear as if they had been made by the Subpostmaster or Assistant at that counter position in the Branch: Roll 2, §20 {E1/10/6}.
75. Only after that further statement from Mr Roll, did Post Office finally admit the truth. Post Office served a further witness statement from Mr Parker of Fujitsu (without permission, and without any prior warning to the Claimants) which, buried within it at §27 {E2/12/9}, included the important concession that Mr Roll was in fact correct, so that:-
- 75.1. Data could be altered on Horizon as if at the Branch – under Legacy Horizon transactions could be inserted at the counter in the manner described by Mr Roll.
- 75.2. Post Office's previous accounts, including to the public, the Court and the Claimants were clearly untrue.
- 75.3. The allegation that *"Mr Roll's account of Fujitsu's actions and powers is inaccurate and misleading"*⁴⁰ evidence was unwarranted and unfounded. It should not have been made. It has yet to be withdrawn.
76. Without Mr Roll as the Fujitsu whistleblower, the Claimants' pursuit of these proceedings and the listing of this Trial, the matters above would never have been revealed.
77. Post Office must now candidly explain the true position to the Court.
78. The genesis of Post Office's position in relation to explaining remote access to date does not inspire confidence. The way in which Post Office has chosen to present its position was exposed during the Common Issues Trial, in the belatedly disclosed email, from

⁴⁰ Parker 1, §11 {E2/11/3}

Paula Vennells, Post Office's Chief Executive, in preparation for her giving evidence to the Select Committee, in February 2015, on this very issue {F/1349/5}:

From: Paula Vennells <paula.vennells@postoffice.co.uk>

Date: 30 January 2015 07:29:00 GMT

To: Mark R Davies <mark.r.davies@postoffice.co.uk>, Lesley J Sewell <lesley.j.sewell@postoffice.co.uk>

Subject: Urgent: Accessing Horizon

Dear both, your help please in answers and in phrasing those answers, in prep for the SC:

1) "is it possible to access the system remotely? We are told it is."

What is the true answer? I hope it is that we know this is not possible and that we are able to explain why that is. I need to say no it is not possible and that we are sure of this because of xxx and that we know this because we have had the system assured.

2) "you have said this is such a vital system to the Post Office, what testing do you do and how often? When was the last time?"

Lesley, I need the facts on these - I know we have discussed before but I haven't got the answer front of mind - too many facts to hold in my head! But this is an important one and I want to be sure I do have it. And then Mark, to phrase the facts into answers, plus a line to take the conversation back up a level - ie., to one of our narrative boxes/rocks.

Thanks, Paula

Paula Vennells
Chief Executive
Post Office Ltd

79. Post Office has put the Claimants and the Court to enormous trouble and cost, to get closer to the truth. Its approach has been discreditable and unhelpful.

Section A. EVIDENCE

Fact Witnesses

Claimants' Fact Witnesses

80. The Claimants will call 7 factual witnesses, the scope of whose evidence is relatively limited. Corrective statements for Mr Aakash Patny and Mrs Angela Burke, dated 27 February 2019 and for Mr Adrees Latif dated 1 March 2019, have been filed; and a short supplemental witness statement of Mr Jayesh Tank, also dated 27 February 2019, has been filed {E1/11/1}.

Mr Jayesh Tank

81. Mr Tank was the SPM of the Fleckney branch from 4 May 2006 to 15 March 2017. He initially gave evidence {E1/6/1} about (1) a power failure in or around 2010-2011 and a shortfall of £600; and (2) recurring issues relating to mail labels. However, Post Office responded to his evidence (in Bogerd 2, §§75-84 {E2/5/20} pointing out a shortfall of £195.04 (not £600) in 2011. Mr Tank interrogated an old computer, on which he found contemporaneous forum posts (which he previously believed he no longer had access to) about both shortfalls: £195.04 in 2011 (to which Mrs van den Bogerd had referred) and another separate one of £600 in 2014. As it turns out, the circumstances of the first shortfall of £195.04 are illuminating. He has therefore served a supplemental witness statement to correct the chronology in his first witness statement and explain the circumstances of the shortfall about which Mrs van den Bogerd gives evidence. {E1/11/1}

Mr Latif

82. Mr Latif has been the SPM of the Caddington branch since 21 October 2001. He will give evidence (*by video link*) {E1/1/1} ~~and {E/12/1}~~ about a failed stock unit transfer in or around July 2015, and mistakes in transaction corrections (“TCs”) received from Post Office for lottery scratch cards in January 2018. (Mrs van den Bogerd states in her second statement that these were in fact transaction acknowledgements (“TAs”),⁴¹ which the Claimants accept.) Mr Latif originally thought that this was “*in or around March 2018*”, but has now

⁴¹ Van Den Bogerd 2, §98

realised that this is incorrect and believes that it was January 2018. He has filed an amended witness statement, correcting that date.

Mr Anup Patny

83. Mr Anup Patny was the SPM of the Spencefield branch from 13 October 2014, suspended on 17 August 2016. His evidence {E1/3/1} concerns a system outage on 9 May 2016, followed by an 11 May 2016 balancing discrepancy.

Mr Aakash Patny

84. Mr Aakash Patny is the son of Mr Anup Patny and was an Assistant at the Spencefield branch. He gives evidence {E1/2/1} about the discrepancy experienced after the system outage (above) described by his father, and also about a problem with MoneyGram in February 2016.

Mrs Angela Burke

85. Mrs Burke was an assistant at the Newport branch, where her husband was SPM. She gives evidence {E1/4/1} about the 9 May 2016 system outage, the recovery process, and her efforts to rectify an apparent shortfall of £150, including tracking down the customer to his home and accompanying him to the bank. (There are interesting parallels with the £195.04 shortfall experience by Mr Tank.)

Mr Richard Roll

86. Mr Roll is a former Fujitsu employee and whistleblower, who gives evidence about the work carried out by Fujitsu including (importantly) remote access, but also wider issues such as testing of software and development of fixes. He has provided two statements, {E1/7/1} and {E1/10/1}, the second being responsive to Worden 1 (in accordance with directions as to responsive witness statements).⁴²

Mr Ian Henderson

87. Mr Henderson is director of Second Sight, who undertook a “limited scope review” of Horizon, as to factual (and ancillary technical) aspects of which he gives evidence {E1/5/1}.

⁴² §11 of the Fourth CMC Order {C7/18/3}

88. As the Court is aware from the PTR, due to constraints of time, the Claimants are not calling two witness who had originally served witness statements:

88.1. The Claimants had served a witness statement from **Mr Charles McLachlan** (expert at the Seema Misra trial).

88.2. The Claimants will also not call **Mr Setpal Singh**, as Post Office says it has no evidence relating to his branch, and his evidence concerns (1) a phantom transaction of a sale of stamps and (2) repeated screen freezes and black outs, which can be addressed by reference to other branches, using other documents.⁴³

Defendant's Fact Witnesses

89. The Defendant will call 9 factual witnesses and has served wide-ranging factual (and ancillary technical) evidence from them – 5 Post Office employees, and 4 Fujitsu employees (the main two of whom have served supplemental statements).

90. Adopting the Defendant's proposed order of witnesses (save that the timing for Mr Membroy is not yet known, due to his illness), an overview of the Defendant's evidence is as follows.

Mrs Angela van den Bogerd

91. The Court of course heard from Mrs van den Bogerd at the Common Issues Trial ('CIT') – she is now Post Office's *Business Improvement Director*. In her Second Witness Statement {E2/5/1}, served on 16 November 2018 for this Trial, her evidence covers: (1) comments on aspects of Mr Henderson's witness statement; (2) comments on each of the branch specific witness statements filed by the Claimants for this Trial; (3) comments on some of the Lead Claimant evidence filed by the Claimants for the CIT (e.g. Mr Abdulla's repeat lottery TCs for £1092); (4) responds to Coyne 1, in relation to failed reversals and changes to improve Horizon in branch; and (5) addresses miscellaneous "other matters" including

⁴³ See, for background, the Claimants' letter enclosing a Notice to Admit aspects of his evidence {H/187}, with the Notice to Admit itself {H/188}; and Post Office's response {H/200}; and the Claimants' reply ~~{H/226}~~ {H/226}

the process for disputing discrepancies (of which the Court heard evidence at the CIT in any event).

Ms Dawn Phillips

92. Ms Phillips is employed by Post Office as a Team Leader for Agent Accounting and Santander Banking, and oversees the process of recovering losses from SPMs. Her witness statement {E2/3/1} addresses (1) Balancing at the end of a Trading Period; and (2) Disputed Discrepancies – including the introduction in early 2018 of the “*Branch Dispute Form*”.

Ms Tracy Mather

93. Ms Mather is employed by Post Office as the Finance Service Centre (“FSC”) Team Leader. Her witness statement {E2/8/1} addresses (1) Credence, which is a management information system used by Post Office; and (2) whether Post Office have exceeded the contractually agreed number of ARQ requests.

Mr Paul Smith

94. Mr Smith is employed by Post Office as the Operations Support Manager at the FSC (and has worked in a variety of other roles). His witness statement {E2/9/1} addresses Transaction Corrections (“TCs”), which are issued by the FSC, and he provides some data in relation to TC numbers and disputes (although this is all based on information apparently provided to him by others, rather than directly within his knowledge).

Mr David Johnson

95. Mr Johnson is employed by Post Office as a training and audit advisor. His first witness statement {E2/4/1} addresses the current screen layouts and reporting functions on Horizon and, albeit in very broad terms, some changes over time. His second witness statement {E2/6/1} addresses the Fast Cash button and availability of transaction data in branch.

Mr Andy Dunks

96. Mr Dunks is employed by Fujitsu as an Information Technology Security Analyst. His short statement {E2/10/1} concerns the controls which apply during audit data extractions in response to Audit Record Query (“ARQ”) requests.

Mr William Membery

97. Mr Membery is employed by Fujitsu as a Central Quality Partner focusing on the Post Office account. His statement {E2/2/1} concerns external and internal audits of Horizon.

Mr Torsten Godeseth

98. Mr Godeseth is employed by Fujitsu as Chief Architect on the Post Office account. He has provided three statements. His first witness statement {E2/1/1} provides an overview of Horizon and is largely directed to (1) the accuracy of audit data retrieved from the audit store, and (2) the ability for Post Office and Fujitsu to remotely access or edit transaction data. His second witness statement {E2/7/1} is primarily concerned with individual bugs: the Callendar Square bug, Receipts and Payments mismatch, Local Suspense, and Dalmellington. It also addresses problem management processes. (A third witness statement was served on the Claimants solicitors on the evening of 28 February 2019.)

Mr Stephen Parker

99. Mr Parker is employed by Fujitsu as Head of Post Office Application Support. He has provided three statements, which address the evidence of Richard Roll, including (importantly) remote access (see paragraph 75, on p.25, above). The second witness statement {E2/12/1} conflicts with the first statement, but no amended first statement has been served, despite a request to that effect from the Claimants. (A third witness statement was served on the Claimants solicitors on the evening of 28 February 2019.)

Expert Evidence

100. The Claimant's expert is Mr Coyne, and the Defendants' expert is Dr Worden. They have each served lengthy and detailed reports, and there are three Joint Statements (with a fourth expected). The experts have explained the need for a Fourth Joint Statement, as follows:

“Issues 10, 11, 12 and 13 are omitted from this report and will be dealt with in a fourth Joint Statement as additional Defendant Witness Statements of Mr Godeseth and Mr Parker were only received after business hours 28th February 2019 and the experts need more time to consider the subsequent evidence in relation to those Issues.”

101. Whilst there is agreement between the experts on a number of factual matters, such as the overall architecture of Horizon, there remains much disagreement in respect of the Horizon Issues, and in a number of respects the experts have adopted different approaches to those issues. Notably, Dr Worden’s heavy reliance on his self-defined “*countermeasures*” and conclusions in respect of those countermeasures is not mirrored by Mr Coyne, and whereas Dr Worden has embarked upon various statistical analyses in his reports, Mr Coyne has not, and makes clear that he does not agree Dr Worden’s underlying assumptions.
102. The following illustrate indicative differences of approach between the experts:-

Bugs & Errors, Robustness, Potential for Errors Measures & Controls (1, 3, 4 & 6)

Mr Coyne has taken what he calls a “*bottom up*” approach by identifying sources of evidence where actual bugs errors and defects are recorded and reaching a view on those findings e.g. **Coyne 2**, §5.269 {D2/4/195}

Dr Worden adopts a financial and statistical retrospective risk analysis (initially of 3 bugs, latterly 12), based upon a number of assumptions and the effectiveness of “*countermeasures*”, from which he felt able to extrapolate and rule out the possibility that Horizon could account for even a small part of the shortfalls in issue. e.g. **Worden 1**, §52 {D3/1/12} and §64.1 {D3/1/16}

Reconciliation and TCs (5 & 15)

The factual mechanics are largely agreed, both as to manual and automated system processes. e.g. **Coyne 2**, §5.367-8 {D2/4/222}; **Worden 1**, §905 {D3/1/201}

However, Dr Worden has calculated “*an upper [financial limit] on the magnitude of discrepancies in Claimants’ accounts arising from erroneous TCs*” of £2 per branch per month, later reduced to £1.50. **Worden 1**, §895-6 {D3/1/199}; **Worden 2**, Appx C, §32 {D3/7/98}

Horizon Alerting & Reporting Facilities for SPMs (2 & 14)

Horizon does not in general alert SPMs to bugs or defects in the system itself. **Joint 2**, at 2.1 {D1/2/38}

It is agreed that Horizon does not record disputes by SPMs. **Joint 2**, at 14.6 {D1/2/42}

Horizon Shortfalls – Data and Reporting for Subpostmasters and Post Office (8 & 9)

The experts agree that Post Office has access to information that SPMs do not have. They disagree as to the effectiveness of information available to SPMs in identifying the cause of discrepancies. e.g. **Coyne 1**, §8.13 {D2/1/144}; **Worden 1**, §958 {D3/1/214}

Remote Access and Editing of Transactions (7, 10, 11, 12 and 13)

See **Parker 2**, §27 {E2/12/9} where he concedes that Mr Roll was in fact correct about “piggy-backing through the gateway” so as to appear as a transaction effected at a counter located in the Branch. Dr Worden does not accept this. **Worden 2**, §82-85 {D3/6/20}

103. The order of the expert evidence reports which are before the Court is as follows:

- (1) **Joint 1**, dated 4 September 2018 {D1/1/1};
- (2) **Coyne 1**, dated 16 October 2018 {D2/1/1};
- (3) **Worden 1**, dated 7 December 2018 ~~{B3/2/1}~~; {D3/1}
- (4) **Coyne 2**, dated 1 February 2019 ~~{B3/3/1}~~; {D2/4}
- (5) **Worden 2**, dated 1 February 2019 ~~{B3/3/1}~~; {D3/6}
- (6) **Joint 2**, dated 25 February 2019 {D1/2/1};
- (7) **Joint 3**, dated 1 March 2019 {D1/4/1}.

104. The views of the experts in relation to each of the Horizon Issues, and the Claimants’ position in respect of the opinion of Dr Worden, is summarised in Section B, below.

105. The Claimants make clear now that they will say that Dr Worden’s evidence is not impartial, rather it is designed to support Post Office’s case, even where the evidence is against it and to dismiss the claims advanced by the Claimants.⁴⁴

106. To take but one example, on the issue of remote access, despite Mr Parker confirming in his second witness statement that Mr Roll’s evidence is correct (that transactions could be inserted at the counter and not through the correspondence served, therefore not showing counter position 32), Dr Worden was unwilling in his Second Report to express any

⁴⁴ The Claimants’ rely on general principles that govern expert evidence, recently reaffirmed in *ICI v Merit Merrell Technology* [2018] EWHC 1577 (TCC); 178 Con. L.R. 89, particularly at §233 to 237.

change to the opinion expressed in his First Report. This unusual approach falls to be considered in the context of the course of reasoning by which he reached the views expressed in his First Report (in which he had relied on Mr Godeseth's account that if SSC injected transactions they would be visible as they would have a counter position of greater than 32 (Worden 1, §1114 – 1119) {D3/1/244}). Dr Worden regarded this factual evidence as dispositive in favour of Post Office.⁴⁵

107. His unwillingness to consider Mr Roll's evidence, or even the situation which would pertain if Mr Roll's evidence were to be accepted by the Court, is readily apparent from paragraphs 82 to 85 of his Second Report (Worden 2 {D3/6/20}) [emphasis added]:

82. In his paragraph 20, Mr Roll addresses a factual point about injection of transactions. He says: 'Sometimes we had to ask for a specific person to log in to the counter before injecting transactions so that the software would not detect any discrepancies. A transaction inserted in this way would appear to the subpostmaster as though it had been carried out through the counter in branch'. He then goes on to disagree with my paragraph 1119.

83. It seems to me that I require further factual information before I can comment on this evidence. Which 'specific person'? Under what circumstances? How frequently? Until I have that information, it remains possible in my view that any transaction which 'would appear to the subpostmaster as though it had been carried out through the counter in branch' might only be a transaction that he had given his consent for, as the 'specific person' - and which had in effect been made on his behalf.

84. Therefore, Mr Roll's new evidence does not cause me to alter the opinion expressed at paragraph 1119 of my First Report, when commenting on Mr Roll's first witness statement, that he could not alter branch accounts without the Subpostmaster knowing.

85. In his paragraphs 27 - 34, Mr Parker provides detailed and specific commentary on Mr Roll's paragraph 20, using his knowledge and the appropriate contemporary documents, where they have been found. Here he acknowledges that Fujitsu could insert transactions into branches by a piggy back process. I am not yet able to comment on Mr Parker's evidence or the documents he cites.

⁴⁵ *ICI v Merit Merrell Technology* [2018] EWHC 1577 (TCC); 178 Con. L.R. 89 at §237(2): "Where there is an issue, or are issues, of fact which are relevant to the opinion of an independent expert on any particular matter upon which they will be giving their opinion, it is not the place of an independent expert to identify which version of the facts they prefer. That is a matter for the court."

108. As noted above, in Joint 2, the experts have resolved some but not all points of difference (e.g. Dr Worden now accepts that there is strong evidence of a lasting discrepancy on branch accounts from 12 of the 29 bugs which Mr Coyne identifies as having such an effect⁴⁶). Dr Worden included many additional observations not found in his reports, which was not the intended purpose of this Joint Statement.⁴⁷

109. Having had sight of Joint 2, the Court sent the parties the following message:

“The form of this statement is not entirely helpful, as it contains only limited agreement, and essentially restatements of position. It would be helpful if future joint statements could focus on, and identify, precise points of agreement (if any). Such statements should not, at this stage of the proceedings, concentrate on reasons for disagreement, as these should be contained in the different reports the experts have served already.”

110. The Claimants’ solicitors wrote to Post Office’s solicitors on the same day, emphasising the importance of high degree of constructive co-operation between the experts and the respective lawyers supporting that endeavour {H/223/1}; Post Office’s solicitors responded in broad agreement {H/228/1}.

111. Joint 3, which covers Horizon Issues 3 to 8, is a more concise document with a clearer focus on identifying common ground between the experts.

112. Despite overall progress in this respect, there nonetheless appears to be some inconsistency between Dr Worden’s position in Joint 2 and Joint 3, as it pertains to the number of bugs which have been shown to impact branch accounts. As noted above, in Joint 2 Dr Worden confirmed that there were at least 12 such distinct bugs. In Joint 3, however, he does not agree with Mr Coyne’s statement that: *“More bugs/errors and defects have been shown to impact branch accounts than the initial three acknowledged by Post Office.”*⁴⁸

⁴⁶ Joint 2, §1.15 {D1/2/29}

⁴⁷ Contrary to the guidance given in *ICI v Merit Merrell Technology* [2018] EWHC 1577 (TCC); 178 Con. L.R. 89 at §237(4). See also *Mayr v CMS Cameron McKenna Nabarro Olswang LLP* [2018] EWHC 3669 (Comm), §2 to 4.

⁴⁸ Joint 3, §3.6 {D1/4/3}

This is also despite the fact that in the next statement the experts agree that PEAKs show that *“some defects have lain undetected in Horizon for extended periods without being diagnosed and fixed”*.⁴⁹ This is obviously of central relevance and any agreement should be stated.

113. At the time of finalising this Written Opening, it is understood that the experts are seeking to agree Joint 4 on Horizon Issues 10 to 13. It is hoped will further narrow the issues.

⁴⁹ Joint 3, §3.7 {D1/4/3}

Section B. ISSUES

114. As explained above, the Claimants adopt the following groups of issues, which reflects way these issues have been grouped and approached in the reports of Mr Coyne (and largely followed by Dr Worden):

Bugs & Errors, Robustness, Potential for Errors Measures & Controls (1, 3, 4 & 6)

Reconciliation and TCs (5 & 15)

Horizon Alerting & Reporting Facilities for SPMs (2 & 14)

Horizon Shortfalls – Data and Reporting for Subpostmasters and Post Office (8 & 9)

Remote Access and Editing of Transactions (7, 10, 11, 12 and 13)

Bugs & Errors, Robustness, Potential for Errors Measures & Controls (1, 3, 4 & 6)

Issues

115. The experts agree that **Issues 1, 3, 4 and 6** are related, and can helpfully be considered together.

116. These **Issues** are:

Bugs & Errors

- (1) *To what extent was it possible or likely for bugs, errors or defects of the nature alleged at §§23 and 24 of the GPOC and referred to in §§ 49 to 56 of the Generic Defence to have the **potential** to (a) cause apparent or alleged discrepancies or shortfalls relating to Subpostmasters' branch accounts or transactions, or (b) undermine the reliability of Horizon accurately to process and to record transactions as alleged at §24.1 GPOC?*

Robustness

- (3) *To what extent and in what respects is the Horizon System "robust" and extremely unlikely to be the cause of shortfalls in branches?*

Potential for Errors

- (4) *To what extent has there been potential for errors in data recorded within Horizon to arise in (a) data entry, (b) transfer or (c) processing of data in Horizon?*

Measures & Controls

(6) *To what extent did measures and/or controls that existed in Horizon prevent, detect, identify, report or reduce to an extremely low level the risk of the following:*

- a. data entry errors;*
- b. data packet or system level errors (including data processing, effecting, and recording the same);*
- c. a failure to detect, correct and remedy software coding errors or bugs;*
- d. errors in the transmission, replication and storage of transaction record data;*
and
- e. the data stored in the central data centre not being an accurate record of transactions entered on branch terminals?*

Expert Report	§	Fact Witness	Esp. §
Joint 1	2.1, 2.3, 2.4, 2.6 {D1/1/4}	Latif {E1/1/1}	
Coyne 1	5.1 to 5.200 {D2/1/55}	Patny (Aakash) {E1/2/1}	
Worden 1	43 to 68 {D3/1/11} 113 to 883 {D3/1/26}	Patny (Anup) {E1/3/1}	
Coyne 2	3.1 to 5.350 {D2/4/11}	Burke {E1/4/1}	10 to 26 {E1/4/2}
Worden 2	101 to 163 {D3/6/25}	Henderson {E1/5/1}	2.4 to 2.7 {E1/5/4}
Joint 2	1.1 to 1.51 {D1/2/27}	Tank 1 {E1/6/1}	
Joint 3	3.1 to 4.5 {D1/4/2} 6.1 to 6.5 {D1/4/9}	Roll 1 {E1/7/1}	
		Roll 2 {E1/10/1}	
		Godeseth 1 {E2/1/1}	20 to 46 {E2/1/6}
		Membery 1 {E2/2/1}	
		Bogerd 2 {E2/5/1}	19 to 110 {E2/5/7}
		Godeseth 2 {E2/7/1}	34 to 69 {E2/7/9}
		Parker 1 {E2/11/1}	60 to 68 {E2/11/17}
		Parker 2 {E2/12/1}	3 to 15 {E2/12/1} 24 to 26 {E2/12/7} 36 to 38 {E2/12/11}

117. The parties' experts agreed in Joint 1 that: *"Evidence exists that bugs / errors / defects have caused actual discrepancies or shortfalls relating to Subpostmasters' branch accounts / transactions."*⁵⁰
118. In Joint 2, it was agreed that the *"number of distinct bugs, for which the experts have seen strong evidence of the bug causing a lasting discrepancy in branch accounts, is between 12 and 29"*.⁵¹ However, as noted above, Dr Worden has chosen not to agree with the statement in Joint 3 that: *"More bugs/errors and defects have been shown to impact branch accounts than the initial three acknowledged by Post Office"*.⁵²
119. There are key differences, however, in the approach of the experts to answering **Issue 1** in particular. In summary:-
- 119.1. Mr Coyne did not consider financial impact in detail, addressing the question as it is formulated in the Horizon Issues. His analysis is aimed at addressing whether it was *"likely"* or *"possible"* for bugs in Horizon to have caused apparent or alleged discrepancies. In this regard, he adopted a 'bottom up' approach by identifying sources of actual evidence where identifiable bugs, errors and defects are recorded, and he has based his opinion on those findings.⁵³
- 119.2. Dr Worden, conversely, adopted a primarily financial and statistical analysis. He focussed on the financial impact of bugs, errors and defects based on a sample of KELs, Claimant data and values from the three bugs which have been acknowledged by Post Office in pre-action correspondence. He produces a statistical retrospective risk analysis, which has several assumptions built-in (such as the percentage of Subpostmasters who are likely to report a discrepancy at particular levels), and concludes that *"Horizon cannot account for even a small part of*

⁵⁰ Joint 1, Section 2.1 {D1/1/14}

⁵¹ Joint 2, §1.15 {D1/2/29}

⁵² Joint 3, §3.6 {D1/4/3}

⁵³ Coyne 2, §5.269 {D2/4/195}

the Claimants' shortfalls – either for all Claimants taken together, or for any individual Claimant."⁵⁴

119.3. Dr Worden contends that in order to answer **Issue 1**, it is necessary to define measures of the extent of bugs with possible impact on branch accounts.⁵⁵ The experts' differing views on what constitutes impact on the branch is captured in Joint 2 at §1.9 {D1/2/28}:

"The experts have differing views on "branch impact". Mr Coyne refers to any discrepancy that caused a loss (or gain) within branch accounts that needed corrective action as an "impact to branch accounts". Dr Worden only considers an effect or impact on branch accounts where a discrepancy loss (or gain) was not rectified by a correction such as a Transaction Correction."

120. Further, Dr Worden places particular importance on the issue of 'robustness' (**Issue 3**), his analysis of which permeates his opinion on other associated Issues (namely, **Issues 4** and 6). Dr Worden approaches the issue of robustness by reference to 18 'robustness countermeasures'. The utility of these touchstones is called into question by Mr Coyne (who regards them as little more than common IT practice and well recognised design aspirations). It should be noted that various agreements were reached in Joint 3 in respect of the issue of robustness and Dr Worden's countermeasures, which include:-

120.1. Horizon's robustness has generally improved over time. Overall, it is considered by the experts to be "*relatively robust*" in comparison to the experts' experience of other computer systems.⁵⁶

120.2. Computer systems are considered more robust if access to the back-end databases is restricted tightly and, in 2012, Post Office's auditors observed that there were inappropriate system privileges in this regard.⁵⁷

⁵⁴ Worden 1, §593 {D3/1/141}

⁵⁵ Joint 2, §1.8 {D1/2/28}

⁵⁶ Joint 3, §3.1 {D1/4/2}

⁵⁷ Joint 3, §3.2 to 3.3 {D1/4/3}

120.3. PEAKs show that some defects have lain undetected in Horizon for extended periods without being diagnosed and fixed.⁵⁸

120.4. The *effectiveness* of various countermeasures changed throughout the life of Horizon.⁵⁹ Indeed, the existence of the countermeasures has changed as well.⁶⁰

120.5. It is difficult to measure the extent of the robustness of Horizon, apart from how it might limit the extent of impact on branch accounts, as in **Issue 1**.⁶¹

Claimants' Position

Analysis of bugs / errors / defects in Horizon

121. In his expert reports, Mr Coyne was able to identify PEAKs and KELs relating to multiple bugs / errors / defects. Helpfully:

121.1. Mr Coyne provided Dr Worden with a list of the PEAKs that he would be dealing with in Coyne 2, so that Dr Worden could consider them and address them in Worden 2⁶² (although Dr Worden did not take this opportunity);

121.2. in Coyne 2 there is a table which groups the PEAKs observed by Mr Coyne by reference to the Horizon Issue to which he believes that they most clearly relate, with cross-references to the relevant sections of Coyne 2.⁶³

122. Mr Coyne makes it clear, however, that it is possible that other PEAKs dealing bugs, errors and defects did cause financial discrepancies in branch accounts, but they are not detailed in his reports, not least because it has simply not been possible for him to properly analyse the c.220,000 PEAKs that were disclosed.⁶⁴

⁵⁸ Joint 3, §3.6 {D1/4/3}

⁵⁹ Joint 3, §3.11 {D1/4/4}

⁶⁰ Joint 3, §3.20 {D1/4/5}

⁶¹ Joint 3, §3.15 {D1/4/4}

⁶² As Mr Coyne explains, at Coyne 2, §3.21 {D2/4/16}

⁶³ Coyne 2, §3.21 {D2/4/16}

⁶⁴ Coyne 2, §3.24 {D2/4/17}

123. Three of the bugs referred to by Mr Coyne were previously acknowledged by Post Office in pre-action correspondence, namely:

123.1. 'Callendar Square' bug;

123.2. 'Payments Mismatch' bug; and

123.3. the 'Suspense Account' bug.

Callendar Square

124. The Callendar Square bug was discovered in 2005 and fixed in March 2006. It involved Horizon failing to recognise transfers between different stock units. In summary, stock units receiving transfers could not "see" them, resulting in branch account discrepancies.⁶⁵ It is important to note that while Post Office acknowledged that this bug was *discovered* in 2005, in Mr Coyne's opinion it is likely that this bug was in effect since 2000.⁶⁶ Indeed, this view appears to be shared by Dr Worden.⁶⁷

Payments Mismatch

125. The Payments Mismatch bug affected at least 62 branches and related to the process of moving discrepancies into the local suspense account. The majority of incidents are recorded as occurring between August and October 2010.⁶⁸ In Mr Coyne's view, the true extent of this bug has not been fully confirmed.⁶⁹

Suspense Account

126. The Suspense Account bug caused Horizon to erroneously replicate suspense account items. It appears that the bug caused Horizon to use 2010 monthly branch trading figures for 2011 and 2012. It is reported that Post Office later investigated and identified the same bug may have been the cause of the issue in January 2013, suggesting that the bug may

⁶⁵ Coyne 1, §5.5 {D2/1/57}, Coyne 2, §3.34 to 3.42 {D2/4/20}

⁶⁶ Coyne 2, §3.36 {D2/4/22}

⁶⁷ Worden 1, §660 {D3/1/155}

⁶⁸ Coyne 1, §5.6 to 5.11 {D2/1/57}, Coyne 2, §3.27 to 3.33 {D2/4/17}

⁶⁹ Coyne 2, §3.33 {D2/4/19}

have been resident within Horizon for an extended period.⁷⁰ This bug may have been a consequence of changes made to the archiving strategy related to stock units.⁷¹

Further bugs / errors / defects identified

127. In addition to the above bugs, which were acknowledged by Post Office in pre-action correspondence, Mr Coyne has identified several other bugs and errors which have not previously been acknowledged as system-wide issues by Post Office.

128. Significant examples include:-

Dalmellington

128.1. This bug relates to the issue which arises when trying to transfer funds to outreach branches. Dalmellington is the name of the branch which reported the issue in 2015. A Fujitsu document referred to by Mr Godeseth in Godeseth 2⁷² identifies that there are two potentially separate issues at play within this bug. In total, initial findings of an audit found 112 occurrences of duplicate pouch IDs affecting 88 branches over a five-year period, with some branches impacted up to five separate times. In four instances, this document records that correction was “*still to be confirmed*”. Therefore, it is not clearly determined whether those Subpostmasters bore the financial cost. The range of the impact on branch accounts was between £0.01 and £25,000.⁷³

Data Tree Build Failure Discrepancies

128.2. Mr Coyne identifies a PEAK, created on 10 November 1999, which documents an issue where the Dugannon branch suffered a £43,000 discrepancy but the cause was not immediately known. It is documented that the Branch Manager and Post Office agreed to amend the week 32 cash account figures manually in order to

⁷⁰ Coyne 1, §5.12 to 5.14 {D2/1/58}, Coyne 2, §3.43 to 3.45 {D2/4/23}

⁷¹ {F/1073/2} Report: Local Supsense Account Problem (Gareth Jenkins, Fujitsu)

⁷² Godeseth 2, §61 {E2/7/15}: “*I understand from Gareth Jenkins that Fujitsu’s analysis was shared with Post Office to enable Post Office to issue Transaction Corrections or advise Subpostmasters how to take corrective action (Exhibit TOG2, pages 13 to 27).*”

⁷³ Coyne 1, §5.16 to 5.19 {D2/1/58}, Coyne 2, §3.46 to 3.54 {D2/4/24}

work around the issue. The PEAK detail further records other branches that appear to be affected by the same bug with varying degrees of shortfall (£52,814.29 and £9,368.40). The root cause is eventually diagnosed as the PEAK detail states: *“Data trees have been failing to build fully, and the system has not been detecting this...”* The same PEAK states: *“There have been a number of calls relating to this kind of issue.”*⁷⁴

Robustness

129. Mr Coyne states at paragraph 5.88 of Coyne 1:

*“In my position as an expert I am unable to estimate the level of the Horizon system’s robustness. Given the size and age of Horizon, I would however make the expert assumption (based upon systems of similar magnitude), that there are not many people who could. The sheer enormity of the task to garner a thorough understanding of the code, which would be required to estimate robustness is, in my opinion, nearly impossible.”*⁷⁵

130. Mr Coyne states that his view is compounded by the fact that 19,842 Release Notes for Horizon were introduced between 29 November 1999 and 8 August 2018; this equates to approximately 1,000 changes to the Horizon system per year, or 19 changes per week.⁷⁶

131. In light of these considerations, Mr Coyne instead estimated the likely level of robustness of Horizon and benchmarks this against industry standard based upon a review of the evidence available (which includes the disclosed PEAKs and KELs). The following observations are particularly of note:

Manual correction and workarounds

131.1. Numerous processes and workarounds are in place to allow Fujitsu to modify data already recorded by Horizon. This is said to be consistent with a lack of internal integrity within the Horizon system.⁷⁷

⁷⁴ Coyne 2, §3.106 to 3.118 {D2/4/43}

⁷⁵ {D2/1/77}

⁷⁶ Coyne 1, §5.89 to 5.90 {D2/1/78}

⁷⁷ Coyne 1, §5.97 {D2/1/79}

Reference Data modification

131.2. Mr Coyne has questioned the apparent ability prior to July 2017 to alter Reference Data without going through an appropriate change process⁷⁸ – this could have had a very significant effect upon Horizon’s reliability and robustness.⁷⁹ Indeed, as recently agreed by the experts in Joint 3: “*Reference data is critical to the operation of Horizon and errors in reference data have led to discrepancies in branch accounts*”.⁸⁰

Transaction Corrections

131.3. Transaction Corrections also have the potential to affect the robustness of the Horizon system. Transaction Corrections are described by Mr Godeseth in his witness statement as one of the four sources of transactions that make up transaction data within Horizon.⁸¹ Mr Coyne notes that various Post Office statistics which show, for example, that 20% of Transactions Corrections between 2013 – 2014 were classified as “*not caused by branch*”. Further, a summary of Transaction Corrections issued in 2010 – 2011 sets out the net value of those TCs not categorised as “*caused by branch*” at £7.4m.⁸²

132. Following review of additional PEAK disclosure documents and responsive witness statements, Mr Coyne confirmed in Coyne 2 that his opinion as to the robustness of Horizon had changed since Coyne 1: Mr Coyne now concludes that Horizon is less robust than he initially considered.⁸³ The reasons for this include:

132.1. access to modify the Horizon branch database was not as restricted as it should have been;

⁷⁸ Coyne 1, §4.21 {D2/1/37}

⁷⁹ Coyne 1, §5.103 {D2/1/80}

⁸⁰ Joint 3, §4.3 {D1/4/7}

⁸¹ Godeseth 1, §17.2 {E2/1/4}

⁸² Coyne 1, §5.104 to 5.105 {D2/1/81}

⁸³ See Coyne 2, §5.206 {D2/4/177}

- 132.2. whilst said to be governed by a documented policy, it was actually unaudited as to what actions were to be taken whilst the access was provided;
- 132.3. Post Office do not consult the full audit data before ruling on a discrepancy, instead using third party client reconciliation data or subsections of the audit data from within Credence or HORice;
- 132.4. the PEAKS are consistent with many more bugs/errors and defects shown to impact branch accounts than the initial three acknowledged by Post Office;
- 132.5. some PEAKS show defects have lain undetected in Horizon for extended periods without detection;
- 132.6. the PEAKS confirm Post Office often only becoming aware of bug/errors and defects when Subpostmasters report problems, suggesting that Post Office detection methods are not as good as initially suggested; and
- 132.7. PEAKs confirm that Post Office suspend active investigations into known discrepancy causing bugs due to a Subpostmaster not reporting shortfalls.

Procurement & Development Background

133. By way of material background, Dr Worden's view of the procurement and development of Horizon, namely that it was "green field" development,⁸⁴ overlooks the actual procurement and development history of this software. It was, in fact, originally jointly procured by the Benefits Agency of the Department of Social Security and Post Office.
134. This was a notorious project at the time and the NAO Report referred to by Mr Coyne makes clear many of the difficulties encountered, as well as how the commercial terms binding Post Office were seen as justified in avoiding litigation with ICL Pathway over the DSS's cancellation of its side of the project.⁸⁵

⁸⁴ Worden 1, esp. §57 ~~{D/3/1/13}~~ {D3/1/13}

⁸⁵ See e.g. Figure 9 {F/51/36}; and e.g. Note 4 to Figure 10 {F/51/39} "On the basis of legal advice, the Treasury reflected on these factors when costing the cancellation option."

135. Although focused on the cancellation of the benefits payment aspect of the system, the Report gives a flavour of the background, for example as follows, at paragraph 24 {F/51/15):

“In the event, the greater than expected complexity of the service requirement obliged Pathway to develop much more new software than they had planned. The Department’s view is that Pathway knew what was required but had intended to fit the requirement to match a system they had already implemented in Eire. The extent of new software development had major implications for the degree of difficulty of the project, since this is a high-risk activity with high failure rates, especially in large organisations.”

136. True it is that this was not “very old legacy software” when first introduced. However, it is a significant oversimplification for Dr Worden to present Horizon as a “green field” development and to suggest that it was “unencumbered by any IT legacy” and “Therefore, it was much easier to build a robust architecture from the start” since this presents a materially incomplete picture of the circumstances in which the software was both procured and developed.

Extent of errors in data recorded in Horizon

137. Mr Coyne concludes that the potential for such errors must exist.

138. In Coyne 1, Mr Coyne analysed 5,144 KEL entries, of which he found reference to 163 PEAKs “that could be of significant interest and of these 76 are referred to in the report.”⁸⁶

139. In terms of the specific errors referred to in **Issue 4(a)** to (c):-

Data entry:

139.1. Mr Coyne states that it is evident that data entry was clearly a significant problem at the branch counter. By reference to various reports and presentations, it is clear that the issue of mis-keying (i.e. entering the wrong value on the Horizon terminal) was a particular problem which had a financial impact.⁸⁷ In particular:-

⁸⁶ Coyne 1, §5.114 {D2/1/83}

⁸⁷ Coyne 1, §5.122 to 5.133 {D2/1/86}

- a. An internal feasibility report, carried out in 2012, was commissioned to investigate the issue of mis-keyed transactions and the options of preventing the problem. The report noted that *“the value of mis-keyed banking deposit transactions amount to over 60 per week. The total of investigations that become necessary as a result of mis-keyed transaction equates to £10 million per annum (approx).”*⁸⁸
- b. Further, Mr Coyne cites an internal presentation from Post Office looking into efficiency gains reported that *“a significant portion of demand at FSC is driven by error and mistakes made in branch with entering in data into horizon. Part of these errors can be avoided with relatively small changes to horizon.”*⁸⁹ The presentation goes on to set out four changes that could be made to Horizon that would save time for the Subpostmaster and reduce data entry errors in Horizon.
- c. Other presentations provided similar suggestions for changes to be implemented so as to mitigate against the possibility of data entry errors.
- d. As yet, no documents have been identified in the disclosure to suggest that any of these recommendations have been implemented by Post Office. The Court will also recall that Ms van den Bogerd was cross-examined on this very point in the CIT and was unable to say whether these recommendations were implemented.⁹⁰

Transfer of data

139.2. Mr Coyne sets out the evidence which is said to demonstrate various issues experienced with the transfer of data within Horizon.⁹¹

⁸⁸ {F/944/4}

⁸⁹ Coyne 1, §5.124 {D2/1/86}

⁹⁰ Claimants’ Written Closing for the CIT, §80 {C8.11/6/28}

⁹¹ Coyne 1, §5.134 to 5.137 {D2/1/90}

Processing of data

- 139.3. Mr Coyne sets out the evidence which is said to demonstrate various issues experienced with the processing of data within Horizon.⁹²
140. In his Second Report, Mr Coyne identifies further PEAKs which he states are relevant to **Issue 4** and illustrate the varying types of errors in data recorded within Horizon. These include, *inter alia*:
- 140.1. 'Phantom Transactions';⁹³
- 140.2. 'Reconciliation Issues';⁹⁴
- 140.3. 'Branch Customer Discrepancies';⁹⁵
- 140.4. 'Recovery Failures';⁹⁶
- 140.5. 'Transaction Correction Issues';⁹⁷ and
- 140.6. Bugs / Errors / Defects introduced by previously applied PEAK fixes.⁹⁸
141. Mr Coyne states that it is not clear what the true extent of errors recorded within Horizon is since the quantification of undocumented issues is not fully known. This includes, for example, bugs / errors / defects not reported by a Subpostmaster but possibly accepted as an accounting error on their part.⁹⁹
142. Further, the limited disclosure, coupled with the "*incomplete*"¹⁰⁰ information contained within KELs and PEAKs renders it impossible to measure the full extent of errors in data

⁹² Coyne 1, §5.138 to 5.145 {D2/1/91}

⁹³ Coyne 2, §3.148 to 3.153 {D2/4/54}

⁹⁴ Coyne 2, §3.154 to 3.173 {D2/4/55}

⁹⁵ Coyne 2, §3.174 to 3.178 {D2/4/59}

⁹⁶ Coyne 2, §3.191 to 3.196 {D2/4/63}

⁹⁷ Coyne 2, §3.197 to 3.210 {D2/4/65}

⁹⁸ Coyne 2, §3.211 to 3.219 {D2/4/68}

⁹⁹ Coyne 1, §5.115 {D2/1/83}

¹⁰⁰ Joint 2, §0.3 {D1/2/26}

recorded within Horizon.¹⁰¹ However, from the documented examples evidenced in his reports alone, Mr Coyne's opinion is that "it is clear that significant errors in data recorded within Horizon have occurred."¹⁰²

Measures and controls

143. Mr Coyne states that there are various methods and controls implemented within Horizon by means of electronic system checks and manual business processes which sought to prevent / detect / identify / report and reduce errors in Horizon.¹⁰³

144. Mr Coyne notes, however, that these mechanisms have been shown to have failed. Indeed, this is an agreed matter which is recorded in Joint 1.¹⁰⁴ Further points of note arising from Mr Coyne's analysis:-

144.1. It has been identified that known issues / bugs were often deferred and dealt with on a cost / benefit basis.¹⁰⁵

144.2. A management letter¹⁰⁶ by Ernst & Young arising from a 2011 audit recommended changes to strengthen the change management process. It was noted, *inter alia*, that there was no identifiable internal control with the third-party service provider to authorise fixes and maintenance changes prior to development for in-scope applications.

144.3. There is evidence that, despite procedures being in place, these were not followed by Fujitsu.¹⁰⁷

¹⁰¹ See Coyne 2, §3.1 to 3.6 for the limitations of PEAK and KEL records {D2/4/11}

¹⁰² Coyne 1, §5.154 {D2/1/95}

¹⁰³ Coyne 1, §5.155 {D2/1/95}

¹⁰⁴ Joint 1, Section 2.6 {D2/1/12}

¹⁰⁵ Coyne 1, §5.161 {D2/1/97}

¹⁰⁶ {F/869/1}

¹⁰⁷ Coyne 1, §5.188 {D2/1/105}

144.4. Mr Coyne identifies several issues with Credence (Post Office’s back-end management information system), which was used by Post Office to initially investigate disputed transactions.¹⁰⁸

Post Office’s Position

Robustness

145. In Dr Worden’s opinion, **Issue 3** (robustness of the Horizon system) is elevated to the most important of all the issues¹⁰⁹ – notwithstanding the point made above (at paragraph 17.1 on p.9) as to the (obvious) effect of a small chance of error being multiplied over tens of millions of transactions a week.¹¹⁰

146. On that premise, Dr Worden begins with an analysis of the robustness of the system, with his views on this issue permeating his analysis of all linked issues and suffusing his approach generally.

147. Dr Worden’s view is that at all times for which there are KELs, which is nearly all the lifetime of the Horizon system, Horizon has been “*a very robust system*”, compared to other major systems Dr Worden has worked on in various sectors.¹¹¹

148. Dr Worden’s approach to his assessment of robustness differs to Mr Coyne’s. In particular, Dr Worden evaluates robustness by measure to 18 ‘robustness countermeasures’:

“Robustness involves the use of a set of techniques, which I call countermeasures, to ensure that many kinds of potentially harmful events (including hardware failures, communications failures, user errors and software bugs) do not have harmful consequences – or if they do, the harmful consequences are kept within acceptable limits.”¹¹²

¹⁰⁸ Coyne 1, §5.174 to 5.180 {D2/1/101}

¹⁰⁹ Worden 1, §48 {D3/1/11}

¹¹⁰ Referring to GReply §§36-37 {C3/4/21} and §52 {C3/4/29}

¹¹¹ Worden 1, §49.1 {D3/1/12}

¹¹² Worden 1, §52 {D3/1/12}

149. These countermeasures are defined and described in Worden 1 in a table at paragraph 60.¹¹³ Dr Worden explains them at length in that same report.¹¹⁴ Mr Coyne has also set out these countermeasures in a table in Coyne 2, which identifies whether they are industry standard acronyms or technical standard features in IT system design, along with cross-references to where they are addressed in Coyne 2.¹¹⁵
150. Dr Worden has also set out his analysis of the effectiveness of these countermeasures and concluded that they were well designed and have been effective in preventing errors in accounts. He opines that *“very few adverse events – including user errors and software bugs – have evaded all the countermeasures to the extent of causing significant inaccuracies in branch accounts.”*¹¹⁶ He regards the fact that there have been bugs and they have been detected and corrected as a strong (if not key) indicator that the system is robust. (As noted below, one of his countermeasures is Subpostmasters detecting errors.) Accordingly, he reaches his conclusion that Horizon is very unlikely to cause significant shortfalls in branches.
151. Further, as noted above (at paragraph 133, on p.46) Dr Worden relies on the fact that Horizon was *“essentially unencumbered by any IT legacy”*, as it was a ‘green field’ development started in 1996 – this made it easier to build a robust architecture from the start as opposed to systems he has viewed in other sectors, where robustness is often compromised by the presence of very old legacy software.¹¹⁷ To the extent that this weighs in the balance at all, this overlooks the system’s difficult procurement and development history.
152. As it pertains to variations in the robustness of Horizon over time, Dr Worden finds that they were all available, and have been a common part of mainstream IT practice, since the inception of Horizon. As they were available to Fujitsu from the beginning, Dr Worden sees no evidence that any of the countermeasures was applied more or less effectively in

¹¹³ Worden 1, §60 {D3/1/14}

¹¹⁴ Worden 1, §436 to 509 {D3/1/112}

¹¹⁵ Coyne 2, §5.68 {D2/4/138}

¹¹⁶ Worden 1, §49.3 {D3/1/12}

¹¹⁷ Worden 1, §366 {D3/1/95}

any period of Horizon's lifetime¹¹⁸ and therefore concludes accordingly. This appears to have been somewhat qualified by the agreed position in Joint 3 that "[t]he effectiveness of various countermeasures changed throughout the life of Horizon"¹¹⁹ and that "[a]s Horizon has changed throughout its lifetime, the existence and effectiveness of any countermeasures has too."¹²⁰

Analysis of bugs / errors / defects in Horizon

153. Dr Worden adopts a different approach to Mr Coyne in how he approached **Issue 1**. Instead of a detailed analysis of PEAKs and KELs as disclosed by Post Office, identifying the different bugs and errors that those documents demonstrated, Dr Worden approached the matter mathematically, assessing the question quantitatively by a retrospective IT risk analysis. This is because, in Dr Worden's opinion, "*any simple counting or cataloguing of bugs – for instance, derived from KELs and PEAKs... does little to answer the question of Issue 1.*"¹²¹
154. Dr Worden assesses the possibility of shortfalls in a branch's account for a given month of £300 or more, finding the chances of that having arisen from a bug or defect in Horizon which has been detected as "*very small indeed*".¹²² Dr Worden explains his methodology as follows:

"I have assessed this quantitatively by a retrospective IT Risk Analysis, with the following result: the probability of any of the three known bugs introducing a discrepancy in a Claimant's branch accounts in any given month is of the order of two parts in a million. To make that probability as large as one part in 10, there would need to be more than 50,000 distinct bugs in Horizon, each of which created errors in branch accounts comparable to one of the three known bugs (which are discussed in section 8.6). The figure of 50,000 bugs is to be compared to the handful of bugs

¹¹⁸ Worden 1, §525 {D3/1/127}

¹¹⁹ Joint 3, §3.11 {D1/4/4}

¹²⁰ Joint 3, §3.20 {D1/4/5}

¹²¹ Worden 1, §594 {D3/1/141}

¹²² Worden 1, §64.1 {D3/1/16}

possibly affecting branch accounts which have been disclosed (i.e. the three known bugs) or found by the experts."¹²³ [Emphasis added]

155. This was recalculated in Worden 2 to a figure of 40,000 bugs, which Dr Worden still considers an *"impossibly high number of bugs"*.¹²⁴ Dr Worden calculates an upper limit on the number of different bugs with financial impact in Horizon over its lifetime to be 672 bugs.¹²⁵
156. Therefore, Dr Worden's analysis extrapolates from only three bugs (which happen to be those previously acknowledged by Post Office). It appears that Post Office had not disclosed to him the existence of other bugs, which he could have taken into account.
157. It is also based on multiple assumptions, including Dr Worden's statement that, because of the countermeasures built into Horizon, the potential for unknown bugs (i.e. limited to those never detected *"is very small indeed"*).¹²⁶
158. Dr Worden explains the significance of choosing a £300 discrepancy value, largely on the basis of assumptions made as to the likelihood of a Subpostmaster reporting the same to Post Office.¹²⁷
159. Dr Worden then goes on to calculate that the total net impact of all bugs in Horizon on the Claimants' branch accounts must be less than 0.15% of the shortfalls claimed by the Claimants.¹²⁸ Dr Worden references the Claimants' purported assertion *"that some significant part of their losses was caused by bugs in Horizon"*, which he states *"is even more*

¹²³ Worden 1, §64.1 {D3/1/16}

¹²⁴ Worden 2, §117 {D3/6/31}

¹²⁵ Worden 2, §126 {D3/6/32}

¹²⁶ Worden 1, §64.2 {D3/1/17}

¹²⁷ See, e.g. Worden 1, §413 to 417 {D3/1/106} and §1171 {D3/1/254}

¹²⁸ Worden 1, §64.3 {D3/1/17} and §700 to 701 {D3/1/164}

implausible than I have described".¹²⁹ Dr Worden has since revised this estimate twice: once in Worden 2 (to 0.181%)¹³⁰ and in Joint 2 (to 0.4%).¹³¹

160. Dr Worden does, however, carry out an analysis of the three bugs acknowledged by Post Office in pre-action correspondence, effectively concluding that although their occurrence indicated the failure of a particular countermeasure, the fact that they were caught and rectified demonstrates that, ultimately, the Horizon countermeasures which he describes operated effectively.¹³²
161. This was even in circumstances where detection of a problem took a significant period of time and/or when it even took many years to fix *after* it had been detected (as with the Callendar Square bug).¹³³
162. Having failed to recognise it as a distinct bug in Worden 1, Dr Worden has analysed the Dalmellington bug in Worden 2.¹³⁴
163. It is notable that Dr Worden states that a *"particularly important countermeasure was the manual inspection of data (MID), by the Subpostmasters themselves, at various times – in customer transactions, in daily cash balancing, and in their monthly balancing and rollover."*¹³⁵

¹²⁹ Worden 1, §644 {D3/1/152}

¹³⁰ Worden 2, §134 {D3/6/34}

¹³¹ Joint 2, §1.31 {D1/2/32}. By reference now to 12 bugs which Dr Worden concedes might have had an impact on branch accounts (when previously he only considered 7), he adjusts his mean impact upwards from £6,000 to £13,300, which results in an increase of his estimate of the maximum possible proportion of the Claimants' claimed shortfalls which might arise from bugs in Horizon to 0.4%.

¹³² Worden 1, §649 to 689 {D3/1/153}

¹³³ Worden 1, §669 {D3/1/157}

¹³⁴ Worden 2, §144 to 163 {D3/6/38}

¹³⁵ Worden 1, §580 {D3/1/138} – It is worth reminding oneself of Post Office's position that *"no Subpostmaster has ever been able to establish to the Defendant's satisfaction that an alleged shortfall was the result of a Horizon bug or error"* referenced in the GReply §39 {C3/4/22} and §52.4 {C3/4/30}.

164. It is not clear the extent to which Dr Worden believes that Subpostmasters would be able to detect bugs, and then successfully get through and/or report them to the Helpline (and/or persist in pursuing them as may have been necessary).

Extent of errors in data recorded in Horizon

165. Dr Worden finds elements of this issue (**Issue 4**) difficult to interpret and understand.¹³⁶ His opinion, however, is linked to his conclusion on robustness, having found that **Issue 4** constitutes subsets of **Issue 3** (robustness). In the circumstances, he reiterates his view that Horizon has been a robust system at all times, and its robustness countermeasures have worked effectively.¹³⁷

Measures and controls

166. Again, Dr Worden finds that **Issue 6**, (relating to the measures and / or controls that existed within Horizon so as to prevent, detect, identify, report or reduce to an extremely low level the risk of various errors), is linked to **Issue 3** and his conclusions on robustness.

167. Accordingly, his conclusions are the same – suffused with reassurance from his conclusions as to the robustness of the system.¹³⁸

¹³⁶ Worden 1, §545 {D3/1/131}

¹³⁷ Worden 1, §549 {D3/1/131}

¹³⁸ Worden 1, §559 {D3/1/133}

Reconciliation and TCs (5 & 15)

Issues

168. The experts agree that **Issues 5 and 15** fall to be considered together. These are:

Reconciliation

(5) *How, if at all, does the Horizon system itself compare transaction data recorded by Horizon against transaction data from sources outside of Horizon?*

TCs

(15) *How did Horizon process and/or record Transaction Corrections?*

Expert Report	§	Fact Witness	Esp. §
Joint 1	2.5, 2.15 {D1/1/11}	Henderson {E1/5/1}	2.11 to 2.13 {E1/5/5}
Coyne 1	6.1 to 6.78 {D2/1/109}	Roll 2 {E1/10/1}	12 to 14 {E1/10/4}
Worden 1	884 to 948 {D3/1/198}	Phillips 1 {E2/3/2}	
Coyne 2	5.351 to 5.378 {D2/4/219}	Bogerd 2 {E2/5/1}	96 to 102 {E2/5/24}
Worden 2	172 to 177 {D3/6/46}	Mather 1 {E2/8/1}	
Joint 2	15.1 to 15.13 {D1/2/43}	Smith 1 {E2/9/1}	
Joint 3	5.1 to 5.6 {D1/4/8}	Parker 2 {E2/12/1}	16 to 23 {E2/12/6}

169. Although the Court has already heard clear evidence on the process, during the Common Issues Trial, the parties' experts have considered and broadly agreed the mechanics, factually, arising in relation to reconciliation and TCs,¹³⁹ including the scope for human error by Post Office or others, broadly as follows:-

169.1. **Automated reconciliation:** For most of Post Office's clients, there is a regular automated process of comparing (or reconciling) transactions as recorded in branches with the transactions recorded in the data received back from third party clients (e.g. Camelot and Santander). Some of those comparisons are carried out

¹³⁹ See, e.g. Coyne 2, §5.367 to 5.368 (agreeing with Dr Worden's comments on reconciliation) {D2/4/222}; and Worden 1, §905 (agreeing with Mr Coyne's comments on TCs) {D3/1/201}

within Horizon 'itself', while others may not be. Regardless, due to the large volume of transactions, these comparisons are largely automated.

169.2. **Manual allocation of responsibility:** Whenever the comparison revealed a discrepancy, there was then a human or manual process involved in determining where to allocate responsibility for that discrepancy. As a human process, this is inevitably subject to errors.¹⁴⁰

169.3. **Transaction Correction:** If responsibility was allocated to a branch, then it resulted in a Transaction Correction ("TC") being issued to that branch. At that time, the Subpostmaster could either accept the TC, the effect of which would be recorded on Horizon. The Subpostmaster could also: (i) seek further evidence (where this was an option); or (ii) delay dealing with the TC until the end of the branch trading period. The experts agree that the adequacy of Post Office back-office processes to prevent discrepancies in branch accounts can be measured by the quality of the TC process.¹⁴¹

169.4. **Accept or 'Settle Centrally':** All TCs had to be either accepted or 'settled centrally' at the end of the branch trading period. The effect of this, again, was that the TC would be recorded and processed on Horizon and be reflected in the branch account (with a corresponding entry bringing the account to balance).¹⁴² Any dispute that a Subpostmaster wished to raise in respect of the TC had to be done outside of Horizon (by way of calling the Helpline and the Helpline identifying and recording a dispute). The Horizon system did not record any such disputes.

170. Internal Post Office documents have confirmed that errors may occur during reconciliation due to system faults, in respect of which corrective action is considered on a contractual and / or cost benefit basis.¹⁴³

¹⁴⁰ Worden 1, §77.3 {D3/1/19}

¹⁴¹ Joint 3, §5.3 {D1/4/8}

¹⁴² As noted already above: Coyne 2, §5.367 to 5.368 (agreeing with Dr Worden on reconciliation) {D2/4/222}; and Worden 1, §905 (agreeing with Mr Coyne on TCs) {D3/1/201}

¹⁴³ Reconciliation and Incident Management Joint Working Document (18 March 2013) {F/1697/10}

“Each and every Reconciliation error is the result of some system fault. That fault might, for example, be a software ~~bug~~ [sic] fault (introduced through either design or coding), a system crash, or a telephone line being dug up. Such faults may affect transactions, thus it is the job of Reconciliation Service to detect when and how any transaction is affected by any system fault.

A reported Reconciliation error provides:

- *A business impact in terms of an error report on a transaction, and*
- *Evidence of a system fault that may need some corrective action.*

It is acknowledged that not all system faults will lead to corrective action as this is generally done on a contractual and/or cost benefit basis.”

171. While not accepting that the Horizon Issues extend to discussion of the “*manual business processes operated by Post Office*” (i.e. how TCs themselves operate and the possibility of them being issued in error),¹⁴⁴ Dr Worden nonetheless calculates an upper financial limit on the magnitude of discrepancies in Claimants’ accounts arising from erroneous TCs (without prejudice to his position). His calculation is based on various assumptions and evidence derived from Smith 1 (as well as by reference to other statistics and call logs). In his First Report, Dr Worden estimated the upper limit to be £2 per branch per month. His analysis then cantilevers out further to calculating “*the chances of a discrepancy of £1,000 would be one in 500 (500 = £1000/2).*” In Worden 2, he then revised his upper limit to less than £1.50 per branch per month. On his reasoning, the chances of a shortfall of £1000 from an erroneous TC would now be one in 666.

172. The basis, validity and utility of Dr Worden’s calculations and evidence on this issue will be challenged at trial.

Claimants’ Position

173. The Claimants’ starting point is the largely uncontentious overview above, namely that:

173.1. reconciliation is the process by which the Horizon system itself compares transaction data recorded by Horizon against transaction data from sources outside of Horizon, including Post Office’s external clients; and

¹⁴⁴ Worden 1, §890 to 891 {D3/1/198}

173.2. if the reconciliation process identifies a difference between the data in the sources being compared, then manual steps are taken to establish and correct the errors, potentially by way of issuing Transaction Corrections.¹⁴⁵

174. However, the Claimants do not accept that every system error will be correctly identified through the reconciliation process.

Setup of Horizon and interactions with other systems

175. Mr Coyne references Horizon architecture diagrams (dated 2010) which indicate that there are four main areas within the Horizon architecture:¹⁴⁶

175.1. POLFS – Post Office’s financial accounting system;

175.2. Reference Data Proving – an environment in which changes to Reference Data (relating to product details) are proved before release;

175.3. Branches – as, for example, operated by Subpostmasters; and

175.4. ‘Core Horizon’ – the central systems that support Horizon.

176. **Core Horizon:** Core Horizon components for transaction processing include:-

176.1. Various systems which facilitate: (i) the sending of branch data to the data centre as a Branch Access Layer (BAL) message where the Branch Access Layer (BAL) processes the message and all the accounting lines are recorded and committed to the Branch Database (BRDB);¹⁴⁷ (ii) the sending of branch data on to external systems; and (iii) the receipt of batch data from external services for reconciliation and onward distribution to branches. These include, for example, Transaction Processing System (“TPS”), which provides daily data to other systems including POLFS. It also includes Automated Payment System (“APS”), which provides

¹⁴⁵ Coyne 2, §5.366 {D2/4/222}

¹⁴⁶ Coyne 1, §6.6 {D2/1/110}

¹⁴⁷ Coyne 1. §4.44 {D2/1/41}

daily data to Automatic Payment clients (such as British Gas and BT), and receives customer and tariff data for Quantum and Water Card services once per day.¹⁴⁸

176.2. Reconciliation and enquiry services, including:

- a. Data Reconciliation Service (“DRS”) reconciles individual transactions for the Debit Card System, Electronic Top Up and Banking Services;
- b. APS reconciles transactions between itself and TPS; and
- c. Transaction Enquiry Service (“TES”) allows Post Office to query transaction status for banking services only.¹⁴⁹

177. Further, Core Horizon communicates with ‘external systems’, such as banks (e.g. Santander) or Online Clients (e.g. DVLA), obtaining online authorisation of transactions, as well as sharing transaction data used for reconciliation as noted above.¹⁵⁰

Reconciliation process

178. Mr Coyne explains in his First Report:

“Each day, branch account transactions are harvested and processed through the Horizon system in order to inform Post Office Finance of the aggregated totals for products and services sold. This enables Post Office to provide settlement figures to their clients. Reconciliation is therefore used by Post Office Ltd to provide financial and business reconciliation at transaction level to demonstrate that each transaction is complete and correct and report on any transaction that is not.”¹⁵¹

179. End-to-end reconciliation within Horizon is the mechanism by which Post Office establishes which transactions are complete and correct, and which are not. An incomplete transaction is not necessarily a reconciliation error, but it might become one if

¹⁴⁸ Coyne 1, §6.7 {D2/1/111}

¹⁴⁹ Coyne 1, §6.7 {D2/1/111}

¹⁵⁰ Coyne 1, §6.8 {D2/1/111}

¹⁵¹ Coyne 1, §6.14 {D2/1/113}

it is not completed in timely manner. An incorrect transaction is termed a “*Reconciliation error*”.¹⁵²

180. As noted above at paragraph 170, in relation to Reconciliation errors, a Post Office document¹⁵³ confirms that:

180.1. “*each and every reconciliation error is the result of some systems fault*”;¹⁵⁴ and

180.2. “*not all system faults will lead to corrective action and this is generally done on a contractual and / or cost benefit analysis*”.

181. The Horizon system does itself contain some integrity checking functionality which monitors and records transaction progression as it flows through the system (which has evolved since Horizon was first introduced), with any exceptions (transaction anomalies) which it identifies being flagged and then dealt with using largely manual processes.¹⁵⁵

182. Reconciliation is delivered as a set of printable reports (typically in .txt files). The various sets of reconciliation reports and the known system components to facilitate them are set out in detail in Appendix E of Coyne 1.¹⁵⁶

183. Where transactional data does not conform to its expected format or to copies of itself or corresponding records, then it causes a reconciliation error. As Post Office acknowledges, errors may occur within counter transactions or during the harvesting process.¹⁵⁷ In addition to errors highlighted by Fujitsu within the TPS Report Set,¹⁵⁸ errors may also be discovered by POL Finance when reconciling data within its central systems or as a result of enquiries from Post Office clients.

¹⁵² Reconciliation and Incident Management Joint Working Document (18 March 2013) {F/1697/10}

¹⁵³ Reconciliation and Incident Management Joint Working Document (18 March 2013) {F/1697/10}

¹⁵⁴ Examples given include: software fault, a system crash, or a telephone line being dug up.

¹⁵⁵ Coyne 1, §6.15 to §6.16 {D2/1/114}

¹⁵⁶ {D2/1/201}

¹⁵⁷ Coyne 1, §6.14 {D2/1/113}

¹⁵⁸ See Coyne 1, Appendix E, §15.1 to §15.8 for more information on the TPS Report, which was kept by Fujitsu, but available to Post Office upon request {D2/1/201}

184. Post Office has confirmed that over 10,000 transactions per week¹⁵⁹ are identified as suffering from system bugs or faults¹⁶⁰ and are then flagged to be corrected (i.e. not automatically reconciled).
185. This is a significant number of transactions on a weekly basis – albeit a very small proportion of the 47 million or so transactions per week.¹⁶¹
186. On this footing, the chances of a particular transaction both (i) suffering from a system bug or fault, and (ii) being identified as such, are approximately 0.02%.
187. Yet, this does not detract from the fact that there are still over 10,000 transactions per week *identified* as flawed and requiring manual intervention for reconciliation to take place.
188. Nor does the low overall incidence of *identified* system bugs or faults affecting transaction data (compared to the overall transaction volumes) provide any solace for the affected SPMs. Less still does it help to quantify those errors which are *not* so identified.
189. As reconciliation facilitates the core operations of Post Office, there are various different services, departments and processes that comprise the reconciliation process (and these too have developed and evolved over time).¹⁶²

Transaction Corrections

190. Mr Coyne provides an explanation (with which Dr Worden agrees¹⁶³) as to how TCs are raised, recorded and processed on Horizon.¹⁶⁴ The Court will be familiar with the detail of this following the Common Issues Trial (and this section may be overtaken by findings in the Common Issues Judgment).

¹⁵⁹ Post Office's response to Jason Coyne's Request for Further Information (26.06.19) {C5/21/6}

¹⁶⁰ As the Reconciliation and Incident Management Joint Working Document explains: "Each and every Reconciliation error is the result of some system fault. That fault might, for example, be a software bug fault (introduced through either design or coding), a system crash, or a telephone line being dug up." {F/1697/10}

¹⁶¹ *The Post Office, An Insight* – Angela van den Bogerd {F/1755/11}

¹⁶² See Coyne 1, §6.21 to 6.26 {D2/1/114}

¹⁶³ Worden 1, §905 {D3/1/201}

¹⁶⁴ Coyne 1, §6.51 to 6.59 {D2/1/121}

191. However, in summary:-

- 191.1. When the central accounting function decides that it is necessary to make some adjustment to a branch account, as the branch transaction data does not align with client or supplier data, such adjustment is made by the issuing of a TC. The allocation of responsibility leading to a TC, is a manual process with no requirement for input from the Subpostmaster.
- 191.2. Along with defining the necessary changes to the branch account (i.e. an amount to be transacted in respect of a given Product and a corresponding settlement Product), the TC should define a list of possible actions that the Subpostmaster can take.
- 191.3. A daily file of TCs is generated from POLFS and passes to TPS overnight. Upon receipt of this file, TPS then validates the data and performs the required translations using Reference Data (converting a SAP article ID into a Horizon Product).
- 191.4. TPS then sends messages for the TCs to the specified branches. A single electronic message is written for the appropriate branch for each TC.
- 191.5. The result of a Subpostmaster processing a TC will normally be the creation of the specified transaction, which will then be returned to POLFS as part of the normal flow of summarised transaction data at the end of the trading day.
- 191.6. TCs can be dealt with by the Subpostmaster at the moment they log on to the system, or it can be left until a more convenient time. However, all TCs must be processed before the last stock unit in a branch is balanced, otherwise the Branch Trading Period cannot occur.
- 191.7. When the TC is presented on screen, it is accompanied by some details of the transaction to which it relates. In terms of the options available to Subpostmasters, the relevant options for present purposes are:

- a. 'Seek Evidence' – only when available (sometimes/for some transactions), Post Office Product and Branch Accounting in Chesterfield (“**PB&A**”) would provide additional evidence and issue a new TC that did not include the ‘Seek Evidence option’ (regardless of the amount of evidence provided).
- b. Cancel – This option can be selected if a Subpostmaster did not want to process the TC immediately. However, as stated above, all TCs would need to be dealt with before the branch rolled over into a new trading period.
- c. Accept now – This option led to a list of further settlement options: (i) Make Good – Cash; (ii) Make Good – Cheque; and (iii) Settle Centrally.

191.8. The ‘Settle Centrally’ option was only available for TCs with a value exceeding £150. As an alternative to making good by cheque or cash in Branch, it allowed Subpostmasters to make good a misbalance through the debt recovery process.

191.9. Where the TC is processed successfully on Horizon, a message will be displayed confirming the same. Horizon Online includes a check to see whether TCs fail due to discrepancies between the validation of the transaction at the counter and the values held within the TC message. Where this happens, a failed warning message appears and Subpostmasters are advised to contact the Helpline. Once the Subpostmaster has got through to the Helpline, the Helpline should then inform PB&A who should then investigate the failure and issue a new TC.

191.10. The experts agree that Post Office does not inspect Audit Data before issuing a TC, and there are typically more than 100,000 TCs per annum.¹⁶⁵

192. If a dispute was raised in respect of a TC, this was done outside of Horizon (by way of calling the Helpline). The dispute was not recorded in any way on Horizon itself. If a dispute is successful, then a compensating TC is issued.

193. There is evidence of Post Office itself creating incorrect TCs and sending them to Subpostmasters. Mr Coyne references the example of a TC being issued for 800 sheets of

¹⁶⁵ Joint 2, §15.3 {D1/2/43}

100 stamps, rather than 8 sheets of 100 stamps.¹⁶⁶ Mr Coyne also describes the evidence of Mrs Burke and Mr Latif and their issues with TCs,¹⁶⁷ and provides an analysis of figures found in Post Office documents which include:-

193.1. 84,217 TCs were issued between 26 March 2012 and 28 March 2013. The largest of these in terms of value was one for £810,000 – which then appears to have been reversed. Of these TCs, 22,567 (27%) were associated with Camelot (lottery service).¹⁶⁸

193.2. Figures presented at the Post Office Operations board of 22 March 2018¹⁶⁹ showed that 3,546 branches had more than 1 TC per month.

Post Office's Position

194. Dr Worden's view is that **Issues 5 and 15** *"are, on the face of it, factual issues, which can be addressed by factual evidence."*¹⁷⁰

195. As an overview, Dr Worden states:

"For most of Post Office's clients (for whom Post Office branches carry out agency business) there is a regular automated process of comparing (reconciling) the transactions as recorded by Post Office, with the transactions as recorded by the client organisation.

These comparisons might or might not be carried out within Horizon 'itself'; but in any event, because of the large volume of transactions, the comparison had to be automated.

Whenever the comparison revealed any discrepancy, there appeared to be a human process of deciding where to allocate responsibility for the discrepancy. This had to be a human process and was therefore subject to errors.

If responsibility was allocated to a branch, it results in a TC, which the branch might accept or query before it entered the branch accounts.

¹⁶⁶ Coyne 1, §6.64 {D2/1/127}

¹⁶⁷ Coyne 1, §6.65 {D2/1/127} and §6.69 {D2/1/128}

¹⁶⁸ Coyne 1, §6.66 to 6.67 {D2/1/128}

¹⁶⁹ {F/1780/64}

¹⁷⁰ Worden 1, §887 {D3/1/198}

There was also reconciliation of cash remmed from branches to Post Office cash management, or in the reverse direction.”¹⁷¹

196. Mr Coyne confirms that this overview accords with his understanding of the system in place.¹⁷²
197. Dr Worden further agrees with Mr Coyne’s description of how TCs are raised, processed and recorded on Horizon (as set out above at paragraph 190).¹⁷³
198. Although Dr Worden states that **Issues 5** and **15** do not invite an opinion on the quality, adequacy, sufficiency or other similar judgment on the processes described,¹⁷⁴ as noted above, he does proceed to calculate an ‘upper limit’ on the magnitude of discrepancies in Claimants’ accounts arising from erroneous TCs. He does so in large part by reference to various statistics (in particular those contained in Smith 1¹⁷⁵ on the number of TCs disputed in a year across different products), and by applying several assumptions. The basis and safety of those assumptions will be challenged during the trial.
199. In his Worden 1, Dr Worden took approximately £400m of TCs over a 14-year period and spread it out equally across 13,600 branches,¹⁷⁶ resulting in about one TC per branch, per month, at a value of around £290.¹⁷⁷ Following this, he extrapolated the figures on successfully disputed TCs from Smith 1 to arrive at an approximate upper limit on the level of erroneous TCs that were likely issued to each branch.
200. His conclusion was that the net effect of erroneous TCs on branches would be £6 per month but, as the Claimants’ branches are said to be on average three times smaller than

¹⁷¹ Worden 1, §892 {D3/1/199}

¹⁷² Coyne 2, §5.367 {D2/4/222}

¹⁷³ Worden 1, §905 {D3/1/201}

¹⁷⁴ Worden 1, §889 {D3/1/198}

¹⁷⁵ {E2/9/1}

¹⁷⁶ Said to be the average number over the relevant period.

¹⁷⁷ Worden 1, §930 {D3/1/206}

a typical branch, the net effect is approximately £2 per month. This was said to be a “conservative upper limit”.¹⁷⁸

201. In Worden 2, Dr Worden concedes that his calculation “was not presented as clearly as it could have been”,¹⁷⁹ and he provides further clarification in Appendix C.¹⁸⁰ Following this clarification, and by reference to further investigation, Dr Worden also revises his maximum average effect of errors down, from £2 per branch per month to £1.50 per branch per month.¹⁸¹
202. The Claimants will be challenging the basis, validity and utility of this calculation, and the assumptions upon which it is based, at trial.

Horizon Alerting & Reporting Facilities for SPMs (2 & 14)

Issues

203. The experts agree that issues 2 and 14 should be considered together (but Dr Worden also considers issue 9 in this group). **Issues 2 and 14** are:

Alerting

(2) *Did the Horizon IT system itself alert Subpostmasters of such bugs, errors or defects as described in (1) above and if so how.*

Reporting Facilities for SPMs

(14) *How (if at all) does the Horizon system and its functionality:*

- a. *enable Subpostmasters to compare the stock and cash in a branch against the stock and cash indicated on Horizon?*
- b. *enable or require Subpostmasters to decide how to deal with, dispute, accept or make good an alleged discrepancy by (i) providing his or her own personal funds or (ii) settling centrally?*

¹⁷⁸ Worden 1, §943 {D3/1/209}

¹⁷⁹ Worden 2, §175 {D3/6/46}

¹⁸⁰ {D3/7/93}

¹⁸¹ Worden 2, Appendix C §32 {D3/7/98}

- c. *record and reflect the consequence of raising a dispute on an alleged discrepancy, on Horizon Branch account data and, in particular:*
 - i. *does raising a dispute with the Helpline cause a block to be placed on the value of an alleged shortfall; and*
 - ii. *is that recorded on the Horizon system as a debt due to Post Office?*
- d. *enable Subpostmasters to produce (i) Cash Account before 2005 and (ii) Branch Trading Statement after 2005?*
- e. *enable or require Subpostmasters to continue to trade if they did not complete a Branch Trading Statement; and, if so, on what basis and with what consequences on the Horizon system?*

Expert Report	§	Fact Witness	Esp. §
Joint 1	2.5, 2.15 {D1/1/11}	Henderson {E1/5/1}	2.11 to 2.13 {E1/5/5}
Coyne 1	6.1 to 6.78 {D2/1/109}	Roll 2 {E1/10/1}	12 to 14 {E1/10/4}
Worden 1	884 to 948 {D3/1/198}	Phillips 1 {E2/3/2}	
Coyne 2	5.351 to 5.378 {D2/4/219}	Bogerd 2 {E2/5/1}	96 to 102 {E2/5/24}
Worden 2	172 to 177 {D3/6/46}	Mather 1 {E2/8/1}	
Joint 2	2.1 {D1/2/38}	Smith 1 {E2/9/1}	
	14.1 to 14.7 {D1/2/40}		
		Parker 2 {E2/12/1}	16 to 23 {E2/12/6}

204. There is little disagreement between the parties' experts on these issues.

205. As to **Issue 2**, the consensus would appear to be that Horizon did not itself alert Subpostmasters of the types of bugs, errors or defects described in issue 1. To the extent it is relevant, Dr Worden's view is nor should it have done.

206. As to **Issue 14**:

206.1. Horizon's functionality was such that Subpostmasters were able to check cash and stock by counting the same and inputting those figures onto Horizon.

206.2. The experts generally agree on the steps and processes involved in dealing with discrepancies on Horizon and creating different types of account statement. It was not possible to record a dispute on Horizon.¹⁸²

206.3. There are minor disagreements as to whether: (i) discrepancies settled centrally were recorded as debts / credits on Horizon; and (ii) Subpostmasters were able to continue trading in a new trading period without provision of a Branch Trading Statement. Albeit, both these points may be taken as settled following the agreements reached in Joint 2.¹⁸³

Claimants' Position

Issue 2 – Alerting of bugs / errors / defects by Horizon

207. The Claimants position in respect of **Issue 2** is that, while Horizon did alert Subpostmasters to certain errors that occurred at the Horizon counter, it would not in itself notify Subpostmasters of the full extent of the potential implications of such errors, namely the existence of bugs or other defects within the system as described in **Issue 1**.¹⁸⁴ In other words, at most, Horizon may alert Subpostmasters as to the symptoms of a bug or other defect.

208. To take the example of the 'Receipts and Payments mismatch' bug:

208.1. As stated in the report by Gareth Jenkins dated 29 September 2010 – 'Correcting Accounts for "lost" Discrepancies':¹⁸⁵

¹⁸² Joint 2, §14.6 {D1/2/42}

¹⁸³ Joint 2, §14.5 {D1/2/42} records that the agreement reached between the parties during the CIT in relation to how the 'settle centrally' function operates, as reflected in flowcharts filed at the Court's request {C8.11/19/1}, accords with the experts' own understanding of the process. Joint 2, §14.4 {D1/2/42} records the experts' agreement that no "technical controls" have been identified which indicates that Subpostmasters were prevented from trading if they did not complete a Branch Trading Statement. Mr Coyne's point is that the restriction is imposed by a business process: Coyne 2, §5.404.e {D2/4/234}

¹⁸⁴ Coyne 1, §§7.4 to 7.5 {D2/1/132} and 7.8 {D2/1/133}

¹⁸⁵ {F/720/2}

“This has the following consequences: There will be a receipts and payments mismatch corresponding to the value of discrepancies that were “lost”. Note that if the user doesn’t check their final balance report carefully they may be unaware of the issue since there is no explicit message when a receipts and payment mismatch is found on the final balance (the user is only prompted when one is just detected during a trial balance).” [Emphasis added]

208.2. Mr Coyne further explains:¹⁸⁶

“If the Subpostmaster chose to cancel the rollover prompt message (MSG31316) this could trigger a receipts/payments mismatch due to a bug in the code when “cancel” is pressed against this message. The workaround to avoid the bug was to press cancel a second time. However, it is unclear how widely this workaround was communicated. Subpostmasters would not be aware from the error message shown that this was indeed a bug affecting a wide variety of branches.”¹⁸⁷ [Emphasis added]

209. The experts agree that the extent to which any IT system can automatically alert its users to bugs within the system is itself necessarily limited.¹⁸⁸

210. It follows that the process was such that the Defendant was reliant upon Subpostmasters noticing any anomalies, *without the system alerting them to the fact that they were symptoms of underlying errors*, and communicating the same to the Helpline and Helpline correctly recording, responding and escalating these, so that the Defendant and/or Fujitsu would then correctly analyse these errors in a timely manner and determine whether they were the symptoms of a bug, error or defect. (The Claimants do not accept that this was a reliable countermeasure – particularly given the possibility for

¹⁸⁶ Coyne 1, §7.10 {D2/1/134}

¹⁸⁷ See also KEL wrightm33145j {F/1450/1} for further information on the Receipts and Payments Mismatch bug.

¹⁸⁸ See Joint 1, section 2.2 {D1/1/7}

other uncertainties compounding the difficulty faced by Subpostmasters in identifying such anomalies with any confidence or at all.)

Issue 14 – Horizon functionality

211. The levels of stock and cash in a branch can only be determined when the Subpostmasters physically counts them. That information is then entered onto Horizon and the system makes a comparison between the values entered and the corresponding ones derived from data in the system. This may take place during:

211.1. Daily Cash Declarations;¹⁸⁹

211.2. Weekly Balances;¹⁹⁰ and

211.3. Monthly Trading Period Rollover.¹⁹¹

212. Mr Coyne explains how trading periods and rolling over operate, along with the options to make good or settle centrally discrepancies¹⁹² (addressed above). As is now well-established, it is not possible to record a dispute on Horizon, with all disputes needing to be raised and recognised as such by the Helpline.

213. Further, the Claimants' position is that:

213.1. discrepancies settled centrally on Horizon are recorded as a debt owing to the Defendant – unless Post Office records that a dispute has been raised and places a (usually temporary) block on the amount in issue; and

213.2. Subpostmasters are not able to continue trading in a new trading period until Branch Trading Statements have been completed, and Post Office well knew that

¹⁸⁹ Coyne 1, §7.21-7.23 {D2/1/135}

¹⁹⁰ Coyne 1, §7.24-7.25 {D2/1/136}

¹⁹¹ Coyne 1, §7.21-7.26 {D2/1/135}

¹⁹² A process with which the Court will be familiar following the Common Issues Trial, and in respect of which the parties filed an agreed flowchart explaining the relevant sequence of events {C8.11/19/1}.

Subpostmasters were effectively forced to accept the stated account on Horizon at the end of a branch trading period.

Post Office's Position

Assumptions referred to in Worden 1

214. The assumptions adopted by Dr Worden are one of the main qualifications to the broad agreement between the experts. The difference in approach of Dr Worden is found in the prefacing of his analysis, by reference to these various 'assumptions' that are, in his view, inherent in the **Issues** themselves and / or Mr Coyne's opinion on those **Issues**. Dr Worden takes this position despite recognising that these issues turn, for the most part, on factual evidence rather than expert opinion.¹⁹³

215. His purported assumptions are set out in Worden 1 at §954¹⁹⁴; section 10.2 of that report¹⁹⁵ is then spent responding to these assumptions. The Claimants contend that Dr Worden's analysis on these **Issues** proceed, to a significant extent, on a basis not warranted by the **Issues** as formulated for this Trial and appears to set up straw men.¹⁹⁶ For example, he states:

215.1. *"Issue 2 appears to be asking - could Post Office have given its Subpostmasters automated support in Horizon, in the place of human support?"*¹⁹⁷

215.2. *"Similarly, there seems to be an assumption behind Issues 9 and 14 that, given enough automated information, Subpostmasters could somehow identify the causes of shortfalls (deep inside Horizon), and might have the knowledge and persistence to 'dispute' them*

¹⁹³ See, e.g., Worden 1, §953 {D3/1/213} and §1042 {D3/1/231}

¹⁹⁴ {D3/1/213}

¹⁹⁵ §961 to 979 {D3/1/215}

¹⁹⁶ Cf. the Court's appraisal Mr Kitt's expert report *ICI v Merit Merrell Technology* [2018] EWHC 1577 (TCC); 178 Con. L.R. 89 at §197: "Other passages of his report demonstrated a failure to grasp the essential requirement of his task, namely to perform an independent valuation of the works, and not to argue the case for ICL, or adopt points in a partisan fashion..."

¹⁹⁷ Worden 1, §968 {D3/1/216}

with Fujitsu support staff, whose job it is to look at such issues, and who would have a deep knowledge of Horizon internals.”¹⁹⁸

216. Mr Coyne has responded to Dr Worden’s view that the issues or his analysis proceed on the basis of these assumptions,¹⁹⁹ and confirmed that he has sought to respond to the **Issues** as formulated for this Trial and to answer the questions posed by those Issues.²⁰⁰
217. Ultimately, the Claimants say that these supposed assumptions are a red herring and a distraction from a proper analysis of **Issues** 2 and 14. No more is said about them at this stage.

Issue 2 – Alerting of bugs / errors / defects by Horizon

218. As noted above, there is a measure of agreement, as Dr Worden’s view aligns with that of Mr Coyne on this issue:

“To summarise my opinion on this issue, Horizon did not in general alert Subpostmasters to any significant bugs or other defects in the system itself. Nor should it have done.”²⁰¹

219. Dr Worden confirms the same point in relation to error messages at most alerting Subpostmasters to conditions that may be indicative of the presence of bugs or other defects.²⁰² In relation to the ‘Receipts and Payments mismatch’ bug, the way in which this was identified was through logs, but Dr Worden’s opinion appears confirm that appropriate analysis of these logs could only plausibly be applied by specialist IT staff and not Subpostmasters.²⁰³

¹⁹⁸ Worden 1, §969 {D3/1/216}

¹⁹⁹ See Coyne 2 and table at §5.380 {D2/4/226}

²⁰⁰ Coyne 2 §5.387 {D2/4/230}

²⁰¹ Worden 1, §986 {D3/1/219}

²⁰² Worden 1, §981 {D3/1/219}

²⁰³ Worden 1, §984 to 985 {D3/1/219}

Issue 14 – Horizon functionality

220. Dr Worden appears to disagree with Mr Coyne on two relatively minor points under this issue, namely:

220.1. whether a discrepancy, settled centrally, is recorded as a debt or a credit on Horizon (Dr Worden says not)²⁰⁴; and

220.2. whether Subpostmasters are able to continue trading without producing a branch trading statement (Dr Worden says they are not so prevented by the Horizon system itself).²⁰⁵

221. As to the recording of discrepancies as debts / credits: Mr Coyne has confirmed that his understanding of this point is bolstered by the parties' own agreed position following the Common Issues Trial, represented in an agreed flowchart provided to the Court,²⁰⁶ which states under the heading 'Settle Centrally':

“(1) A credit or debit entry for value of the TC is made in the SPM’s branch account; and

(2) A corresponding debit or credit is made in the SPM’s customer account with Post Office. If a debit, this will be treated as a debt by Post Office unless the SPM contacts NBSC to lodge a dispute, which should suspend collection until the dispute is resolved.

SPM may phone NBSC to lodge a dispute.” [Emphasis added]

222. It is understood that Dr Worden may not have been provided with these documents until recently. In any event, during the drafting of this Written Opening, the experts have both confirmed their agreement to the flowchart above and the process set out within it. This may dispose of any disagreement in relation to these process issues.

223. As to the ability to continue trading: Mr Coyne confirmed in Coyne 2 that he agrees that there is no specific evidence of a technical nature that would suggest that the Horizon

²⁰⁴ Worden 1, §1027 {D3/1/229}

²⁰⁵ Worden 1, §1039 {D3/1/230}

²⁰⁶ {C8.11/19/1}

system prevented Subpostmasters from trading until they produced a Branch Trading Statement. Instead, Mr Coyne's opinion on this point is based on restrictions imposed by business process, that such Branch Trading Statement at the end of the relevant period.²⁰⁷

224. With this clarification, it may be that this point is no longer in dispute between the experts.

²⁰⁷ Coyne 2, §5.404.e {D2/4/234}. See also GDef at §43(6) {C3/3/17} and §70(3) {C3/3/34}, which confirm that: (i) the requirement to roll over into a new trading period was contractual, and contained in various documents; and (ii) while Subpostmasters can continue to trade within the previous trading period and not produce a Branch Trading Statement, "*Post Office does not allow them to do so indefinitely*" (GDef, §43(6){C3/3/17}).

Horizon Shortfalls – Data and Reporting for Subpostmasters and Post Office (8 & 9)

Issues

225. **Issues 8 and 9** issues are considered together by Mr Coyne (but not Dr Worden). They concern the availability of information to Subpostmasters and Post Office respectively, to identify alleged shortfalls and their causes, as follows:

Shortfall Data and Reporting available to Post Office

- (8) *What transaction data and reporting functions were available through Horizon to Post Office for identifying the occurrence of alleged shortfalls and the causes of alleged shortfalls in branches, including whether they were caused by bugs, errors and/or defects in the Horizon system?*

Shortfall Data and Reporting available to SPMs

- (9) *At all material times, what transaction data and reporting functions (if any) were available through Horizon to Subpostmasters for:*
- a. identifying apparent or alleged discrepancies and shortfalls and/or the causes of the same; and*
 - b. accessing and identifying transactions recorded on Horizon?*

Expert Report	§	Fact Witness	Esp. §
Joint 1	2.8 to 2.9 {D1/1/15}	Latif {E1/1/1}	
Coyne 1	8.1 to 8.22 {D2/1/140}	Burke {E1/4/1}	10 to 26 {E1/4/2}
Worden 1	949 to 979 {D3/1/212} 987 to 1012 {D3/1/220} 1043 to 1048 {D3/1/231} 1081 to 1088 {D3/1/238} 1184 to 1192 {D3/1/256}	Henderson {E1/5/1}	2.8 to 2.10 {E1/5/5} 2.14 to 2.16 {E1/5/6}
Coyne 2	5.392 to 5.403 {D2/4/231} 5.409 to 5.414 {D2/4/236}	Tank 1 {E1/6/1}	
Worden 2	N/A	Johnson 1 {E2/4/1}	
Joint 2	9.1 to 9.8 {D1/2/39}	Bogerd 2 {E2/5/1}	112 to 152 {E2/5/27}
Joint 3	8.1 to 8.3 {D1/4/10}	Johnson 2 {E2/6/1}	19 to 23 {E2/6/4}
		Dunks {E2/10/1}	

226. The experts agree on the factual question of what transaction data and reporting functions *were* available to Subpostmasters and Post Office respectively for the purposes of identifying the occurrence and causes of shortfalls.²⁰⁸ The experts also agree that Post Office had access to several sources of information to which Subpostmasters were not privy.²⁰⁹

227. The disagreement between the experts appears to centre around:-

227.1. The effectiveness of the available information to Subpostmasters in identifying the causes of discrepancies in branch accounts:-

- a. Mr Coyne states that the information available to Subpostmasters enables them, at best, to identify and decipher basic discrepancies that appear at counter level, but not beyond.
- b. Dr Worden's view is that; (i) given his analysis on the likelihood of counter errors in comparison to software errors / other bugs; and (ii) a Subpostmaster's first-hand knowledge as to matters taking place at the counter, the Subpostmaster has the necessary functions available to them which, in conjunction with following Post Office guidance and procedures, enables them properly to identify the cause of discrepancies.

227.2. Whether there is certain information to which Subpostmasters have access that Post Office do not:-

- a. Dr Worden is of the view that they do, on the basis of the first-hand knowledge of what occurred in the branch from day-to-day.²¹⁰
- b. Whilst agreeing that Subpostmasters may be in the branch and Post Office is usually not (so that first-hand knowledge of events is usually with Subpostmasters), Mr Coyne disagrees as to the effect of this, suggesting that

²⁰⁸ Joint 3 at §8.2 {D1/4/10}

²⁰⁹ Joint 3 at §8.1 {D1/4/10}

²¹⁰ See, e.g., Joint 2 at §9.7 {D1/2/40}

this does not provide a complete picture because Post Office could have access to that same information by virtue of either (i) simply communicating with the Subpostmaster or (ii) accessing full audit logs from Fujitsu (although it now transpires that these logs were rarely consulted at all). It also should be borne in mind that transactions in branch may have been handled by someone else (e.g., an assistant) when a Subpostmaster was not present.

- c. It is also clear that in Horizon Online, Post Office can remotely examine the data held in the BRDB, such as monitoring the levels of cash held in branches.²¹¹ Post Office also access data derived from BRDB in systems such as HORice and Credence. HORice was introduced in 2014 and was a real time data tool which will enable quicker intervention for branches demonstrating unusual patterns of behaviour, by creating visibility of previously un-seen data streams which were known to be linked to non-conformance and fraudulent activity. In this way, both Fujitsu and Post Office have been able to read the data remotely through Credence and HORice. Post Office could also have compared this data to the data in the audit logs, although it normally did not do so.²¹²

Claimants' Position

Issue 8 – Data and reporting available to Post Office

228. Mr Coyne classifies the data and reporting functions available to Post Office into two categories:

228.1. official sources of information; and

228.2. additional sources of information.

²¹¹ Parker 1, §14 {E2/11/3}; see also: Worden 1, §1078 {D3/1/238}

²¹² E.g. Coyne 2, §1.2c {D2/4/6}

229. As to ‘official sources of information’, these include several reports:²¹³

229.1. TPS Report Set – Consisting of 3 reports which were designed to enable the reconciliation of transactions using branch infrastructure. They are all daily reports showing information relating to whether transaction outputs at branches matched transaction outputs at Post Office.

229.2. APS Report Set – Consisting of 10 reports designed to reconcile those transactions that were sent to both the POLSAP system and APS clients. These reports confirm that APS transaction accounts balance and gives a summary of the transactions that have and have not flowed through the APS host and TPS host. They also confirm that all branches have harvested.

229.3. DRS Report Set – Consists of 3 reports designed to enable network banking transactions completed in Post Office branches to allow settlement to be made with Post Office clients (such as Santander and Link).

229.4. Business Incident Management (“BIM”) Process: Reports and data may be obtained from the BIM system, which was designed to report progress from the resolution of Business Incidents²¹⁴ to allow Post Office to complete reconciliation or settlement with its internal systems, clients and banks. A “System Incident” describes the underlying cause of a Business Incident and is created to track the root cause of the same. A BIM Report is issued for each Business Incident and communicates information in relation to the resolution of an issue.

229.5. Problem Management Procedure: Reports and data may also be obtained from the Problem Management Procedure, which contains information regarding the root cause of issues (e.g. System Incidents).

230. As to ‘additional sources of information’:

²¹³ As to which, further information is provided in Coyne 1, §8.1 to 8.7 {D2/1/140} and Appendix E {D2/1/201}

²¹⁴ A “Business Incident” describes the effect of a system fault and can relate to any of the exceptions from the various reports or a settlement error discovered by Post Office: Coyne 1, §8.6 {D2/1/141}

230.1. Fujitsu: Much of the information above will involve significant involvement from Fujitsu and, indeed, some sources such as the TPS Report are only available to Post Office if requested from Fujitsu. However, there was nothing preventing Post Office (beyond commercial or contractual considerations) from obtaining further information directly from Fujitsu (for example, from the full audit logs) if the above official sources of information proved incomplete or invited further enquiry.

230.2. Subpostmasters: Of course, Post Office could also communicate with Subpostmasters to the extent that further information was needed from them about activities taking place in the branch.

231. Mr Coyne's conclusion is that Post Office had available to it a "*comprehensive suite of reports*" which allowed it to identify the occurrence of alleged shortfalls and best identify further information as to the underlying cause and potential resolution of discrepancies and shortfalls in branches.²¹⁵

Issue 9 – Data and reporting available to Subpostmasters

232. Conversely, Subpostmasters had access to a much smaller pool of information. Post Office's own internal documents reflect its reticence to provide Subpostmasters with data from which the root cause of a discrepancy could be established, as was readily apparent at the Common Issues Trial, from the email concerning Mrs Stubbs in 2010:

" ... we don't hand over Horizon logs to an SPMR. [...]

*Is this for our benefit , as there is a cost attached to ARQ requests, we do get a supply free of charge as part of the contract but we usually don't have enough, therefore we usually charge the defence lawyers."*²¹⁶

233. While Subpostmasters did have access to many reports relating to different aspects of running a branch (such as currency exchange, stock etc.),²¹⁷ the information provided by

²¹⁵ Coyne 1, §8.10 {D2/4/143}

²¹⁶ {F/687/4} (also in chain at {F/728/9}); see Transcript of Common Issues Trial, Day 1, {C8.11/21/18}

²¹⁷ Set out in Horizon OPS Reports and Receipts – Pathway – Horizon Office Platform Service, 23 January 2003 (Version: 12.2) {F/137/1}

those reports was limited to day-to-day transactions over the counter; so, when it came to trying to identify or trace a discrepancy, such reports were often of very limited assistance, if any. The Court will remember the evidence of Lead Claimants who found themselves with several meters of narrow till roll and calculator, trying to trace a shortfall.

234. Mr Coyne points out that Subpostmasters did have some access to information about individual transactions (e.g. in the transaction data available for 42 then 60 days). The Subpostmasters did not, however, have access to information beyond this and, therefore, would have been unable to determine the cause of an issue that arose beyond counter level (or possible even at counter level).

235. Mr Coyne provides the following example:²¹⁸

235.1. If an APS²¹⁹ transaction reversal²²⁰ is carried out for £5, the Subpostmaster receives a receipt which provides enough information to understand that transaction, such as the APS No., the client, the amount, the date and the time.

235.2. The Subpostmaster's understanding of this transaction and ability to balance at the counter, however, proceeds on an assumption that all other factors are in order. The Subpostmaster would have no information as to whether the transaction was reconciled at the APS host or at any other level (such as the harvester or the client).

235.3. A failure with the harvester to process the £5 reversal would mean that there would appear to be a shortfall at the APS Host (and potentially every level above the harvester). The Subpostmaster would have no way of identifying this error as

²¹⁸ Coyne 1, §8.15 to 8.16 {D2/1/144}

²¹⁹ Automated Payments System

²²⁰ Horizon reversals are transactions that are effectively 'undone' either initiated by a Subpostmaster or electronically through the system. If a transaction has been entered and the customer session completed, the transaction can be reversed (for example, if the transaction has been entered incorrectly, or if a customer requests a refund). Reversals are also initiated following system failures. A reversal does not result in transaction information in the journal being amended, but causes the insertion of additional, compensating and correcting transactions: see Coyne 1, §4.61 to 4.64 {D2/1/45}

because, at counter level, everything would appear to have balanced and they have no information beyond this.

236. Any wider uncertainties as to the status of particular transactions or remitting of cash or cheques, would make it even harder for Subpostmasters to trace any problems.

Post Office’s Position

Issue 8 – Data and reporting available to Post Office

237. Dr Worden acknowledges Post Office has access to all branch transaction data,²²¹ as well as various other sources of data sources, such as that referred to above by Mr Coyne.

238. Dr Worden confirms that in investigating anomalies, Post Office uses Credence and their other management information systems (from 2014, including HORice). When necessary, Post Office is also able to ask Fujitsu to retrieve corresponding data from the audit store.²²² Further, Horizon’s systems software generates events whenever something unexpected happens. These events detected by the System Management Centre, and information contained therein is available to Fujitsu and could be shared with Post Office as required.²²³

239. Dr Worden’s conclusion on this issue is:²²⁴

“Thus, the information required to investigate alleged shortfalls is available to Post Office from several sources. Their perspective is to look into branch accounts from the outside, with no first-hand knowledge of what has occurred from day to day. On the other hand, they look out to their external clients on whose behalf they are brokering business based on those clients’ services and products. By virtue of their role in the end-to-end business, Post Office has access to information not available to Subpostmasters and vice versa.”

²²¹ Worden 1, §1083 {D3/1/239}

²²² Worden 1, §1084 {D3/1/239}. Horizon ensures that a record of all transactions is secured in the audit store.

²²³ Worden 1, §1087 {D3/1/240}

²²⁴ Worden 1, §1088 {D3/1/240}

240. The two principal points on which Mr Coyne disagrees with Dr Worden’s analysis are:

240.1. Subpostmaster information: Joint 2, §9.7²²⁵ makes Dr Worden’s position as to what information Subpostmasters would have had access to that Post Office did not, namely that Post Office does not know at first-hand what happened in the branch. Realistically this gap is usually able to be bridged by simple communication with the Subpostmaster in question. Just as Post Office could obtain further information from Fujitsu by communicating with it, so too Post Office could access the recollection of a Subpostmaster by the same means, and compare this with all the other information available to Post Office.²²⁶

240.2. Assumption of accurate recording of events: Dr Worden’s analysis in relation to this issue suggests that all events are perfectly accurately recorded and actioned by Post Office at all times. The Claimants do not accept this assumed premise. There is clearly evidence that: (i) bugs, errors and defects occurred which went unnoticed by Post Office and/or Fujitsu until a Subpostmaster reported an issue; and (ii) reports (and TCs) were issued based on erroneous data due to software bugs.²²⁷

Issue 9 – Data and reporting available to Subpostmaster

241. Dr Worden’s analysis in relation to **Issue 9** is prefaced with the same discussion on purported ‘assumptions’ built-in to the question itself and / or Mr Coyne’s opinion as already addressed above in relation to **Issues 2 and 14** (Horizon Reporting – Facilities for SPMs). To the extent relevant, paragraphs 214 to 217 above are repeated.

242. Dr Worden agrees that more than 100 reports are available to Subpostmasters,²²⁸ and gives various examples, including:-

²²⁵ {D1/2/40}

²²⁶ Coyne 2, §5.411 {D2/4/236}

²²⁷ Coyne 2, §5.412 {D2/4/237}

²²⁸ Worden 1, §991 {D3/1/220}

- 242.1. Cash declarations – Entails physically counting the cash held and entering this information into Horizon. Dr Worden opines that regular cash declarations act as an early warning system for discrepancies and likely limit the transactions to be investigated to a single day’s trading.²²⁹
- 242.2. Balances – Entails a manual count of all stock and cash and a comparison between the figures on hand and those derived from Horizon. The Subpostmaster must then correct any surpluses and gains before submitting accounts. Balances were weekly prior to 2005 (with ‘Cash Accounting’) and based on trading periods of four-to-five weeks after 2005 (with ‘Branch Trading Statements’).
- 242.3. Counter and Office reports – These provide details of transactions carried out by a specific Stock Unit, or all Stock Units, within a branch.
- 242.4. Transaction logs – Described by Dr Worden as the “*main tool used*” to find the causes of discrepancies. The log provides a chronological list of the transactions completed in the branch, which is capable of being filtered. Logs were available for a period of up to 42 days (pre-Horizon Online) or 60 days (post-Horizon Online). However, as the Court is already aware, ARQs hold more information than is available on transaction logs.
- 242.5. Balance Snapshot – This showed details of all receipts and payments since the last time a Stock Unit was balanced. It may be produced at any time.
- 242.6. Stock on Hand report – This shows the derived positions of cash, cheques, stock, foreign currency, stamps and other stock on hand.
243. As to the effectiveness of these reporting functions, Dr Worden cites Joint 1 at 2.9²³⁰ (with which Mr Coyne agrees):

“The causes of some types of apparent or alleged discrepancies and shortfalls may be identified from reports or transaction data available to Subpostmasters. Other causes of apparent or alleged

²²⁹ Worden 1, §998 {D3/1/222}

²³⁰ {D1/1/16}

discrepancies and shortfalls may be more difficult or impossible to identify from reports or transaction data available to Subpostmasters, because of their limited knowledge of the complex back-end systems. Identification requires cooperation of Post Office staff and Subpostmasters.”²³¹

244. Mr Coyne accepts that the majority of Dr Worden’s analysis on this issue is uncontroversial.²³²

245. Mr Coyne disagrees, however, with Dr Worden’s view that the functions described above, when utilised in conjunction with Post Office guidance and procedures, enables Subpostmasters to identify the causes of most discrepancies. Dr Worden’s opinion on this point is predicated on his assumption that most discrepancies are caused by human error rather than software or system error; therefore, counter-focused functions are appropriate for identifying counter-based errors.²³³ In response to this, Mr Coyne highlights the following in Coyne 2:-

245.1. Risk analysis – Dr Worden’s approach in relation to the risk of software error rates (including the underlying assumption that bugs affect all users equally) is flawed.

245.2. Multiple other factors – Dr Worden’s focus on software errors, in comparison with human errors at the counter, ignores the possibility of several other errors away from the counter in respect of which Subpostmasters would have no visibility. These include issues caused by third parties (which could include human errors and the sort of client data integrity issues that were internally acknowledged by Post Office in relation to Lottery data).²³⁴

246. Mr Coyne also disagrees with the notion that Subpostmasters had access to certain information that Post Office did not, beyond any first-hand knowledge (which itself is

²³¹ Worden 1, §1011 {D3/1/26}

²³² Coyne 2, §5.392 {D2/4/231}

²³³ See, e.g., Worden 1 at §958 {D3/1/214}

²³⁴ See also Coyne 1, §5.23 {D2/1/60} for an example of a further issue (in relation to cash declaration discrepancies) not captured by Dr Worden’s dichotomy of human errors at the counter and software errors.

already addressed above). In any event, a Subpostmaster may be in no better a position than Post Office if the transaction was carried out by an assistant in their absence.

247. This aside, Post Office had access to all the same reports and information as Subpostmasters, plus the additional information referred to in respect of **Issue 8** above.

Remote Access and Editing of Transactions (7, 10, 11, 12 and 13)

Issues

248. The experts agree that issues 7 and 10 to 13 should be considered together (although Dr Worden also considers issue 8 in this group). **Issues 7 and 10 to 13** are:

Remote to Access Horizon Transaction Data

(7) *Were Post Office and/or Fujitsu able to access transaction data recorded by Horizon remotely (i.e. not from within a branch)?*

Remote Alteration of Branch Transaction Data

(10) *Whether the Defendant and/or Fujitsu have had the ability/facility to: (i) insert, inject, edit or delete transaction data or data in branch accounts; (ii) implement fixes in Horizon that had the potential to affect transaction data or data in branch accounts; or (iii) rebuild branch transaction data:*

- a. *at all;*
- b. *without the knowledge of the Subpostmaster in question; and*
- c. *without the consent of the Subpostmaster in question.*

Remote Access/Alteration: Permission Controls

(11) *If they did, did the Horizon system have any permission controls upon the use of the above facility, and did the system maintain a log of such actions and such permission controls?*

Remote Access/Alteration: Frequency of Use

(12) *If the Defendant and/or Fujitsu did have such ability, how often was that used, if at all?*

Remote Access/Alteration: Impact on Reliability of Accounts

(13) *To what extent did use of any such facility have the potential to affect the reliability of Branches' accounting positions?*

Expert Report	§	Fact Witness	Esp. §
Joint 1	2.7, 2.10 to 2.13 {D1/1/13}	Henderson {E1/5/1}	2.2 to 2.3 {E1/5/3}
Coyne 1	9.1 to 9.74 {D2/1/148}	Roll 1 {E1/7/1}	
Worden 1	1049 to 1080 {D3/1/234} 1089 to 1192 {D3/1/240}	Roll 2 {E1/10/1}	20 to 24 {E1/10/6}
Coyne 2	3.316 to 3.328 {D2/4/91} 5.406 to 5.495 {D2/4/235}	Godeseth 1 {E2/1/1}	47 to 61 {E2/1/13}
Worden 2	46 to 97 {D3/6/12}	Bogerd 2 {E2/5/1}	12 to 18 {E2/5/3}
Joint 3	7.1 to 7.2 {D1/4/10}	Godeseth 2 {E2/7/1}	30 to 33 {E2/7/9}
		Parker 1 {E2/11/1}	8 to 59 {E2/11/2}
		Parker 2 {E2/12/1}	27 to 35 {E2/12/9}

249. In relation to these issues, the parties agree that:-

249.1. Post Office had, at a minimum, read-only access to all branch transaction data.

249.2. Fujitsu had the ability to insert transactions via:

- a. the BRDB Balancing Transaction Tool – used by Fujitsu's System Support Centre Third Line Support ('SSC'); and
- b. global users.

249.3. Fujitsu also had a team of Privileged Users with the capability to edit or delete transactional data.

249.4. Changes to a Subpostmaster's branch transaction data can be made without the Subpostmaster's consent.

249.5. Branch transaction data is rebuilt on occasion.

250. The parties disagree on several points, including:-

250.1. Whether global users must be physically inside a branch in order to inject transactions.

250.2. The extent to which one can state that transactions altered remotely were readily identifiable (particularly by Subpostmasters).

250.3. Whether alterations to branch transaction data could be made without the knowledge of Subpostmasters.

250.4. The frequency with which these facilities, in particular the BRDB Balancing Transaction Tool, were utilised.

250.5. The degree to which it can be said that Post Office and Fujitsu's use of these facilities was subject to appropriate permission controls and auditing.

250.6. The manner in which one should approach the question of the potential of these facilities to affect the reliability of branches' accounting positions.

Claimants' Position

251. The Claimants have already addressed this extensively above under the heading Remote Access & Editing of Transactions, on p.21. During the course of finalising this Written Opening, the Claimants have received two further witness statements from two Fujitsu witnesses, touching upon remote access. (The Claimants have not been able fully to consider and take instructions upon these – there may be more to be said at trial.)

252. The Claimants provide some additional observations below.

Remote access to data

253. Multiple technical documents describing the high-level design of Horizon confirm that Fujitsu had access to the servers which make up the Horizon estate, so as to access

counters within a branch.²³⁵ This access was necessary in order to enable Fujitsu to provide support and maintenance. This level of access meant that Fujitsu could practically access all elements of data recorded within Horizon.²³⁶

254. In addition to this access, helpdesk logs identify that Tivoli Enterprise Manager (“TEM”) and Tivoli Remote Control tools were specifically used for accessing branch accounts across the Horizon estate.²³⁷

255. Witness statements originally filed by Post Office and by the Claimants confirm that Fujitsu were able to, and did, insert transaction data into branch accounts remotely:-

255.1. Mr Godeseth, Fujitsu chief architect, states that Fujitsu can insert and have inserted a balancing transaction into a branch account, and in Legacy Horizon could inject transactions into branch accounts (which, at the time, would have been stored locally on the branch counter hard drive).²³⁸

255.2. Mr Roll, a former Fujitsu employee, confirmed that Fujitsu could and did remotely access branch accounts to perform modifications – he says frequently.²³⁹

Rebuilding branch transaction data

256. Mr Coyne states that branch transaction data rebuilds did take place across and the estate. He forms this view by reference to Post Office documents²⁴⁰ and the statement of Mr Roll

²³⁵ See HNG-X Technical Network Architecture, Mark Jarosz {F/840/1}. See also HNG-X Wide Area Network HLD, Stephen Wisedale {F/1027/1} which describes the Horizon Wide Area Network High Level Design.

²³⁶ Coyne 1, §9.4 {D2/1/149}

²³⁷ Horizon KEL RKing5147Q, 8 August 2006 {F/350/1}

²³⁸ Godaseth 1, §17.2(d) {E2/1/5}

²³⁹ Roll 2, §20 {E1/10/6}

²⁴⁰ Engineer Handbook Base Units, 20 June 2008 {F/460}; Mr Coyne also confirms that he has identified PEAKs which suggest that manual rebuilding of data did indeed take place: Coyne 2, §5.462 {D2/4/252}

confirms that it was relatively common to re-create branch databases in an effort to fix corruptions.²⁴¹

Transaction Correction Tools – Modification of Transaction Data

257. In Mr Coyne’s opinion, there are various identified points within the Horizon architecture where Fujitsu may need to perform data correction activities. This involves manually correcting data where it has become corrupted or is harvested in an ‘error’ or ‘exception’ state. There are several different tools available to Fujitsu to remotely access and alter branch accounts. These are summarised below.

Global users

258. Fujitsu operate the Horizon Online Help Desk located at two sites – Bracknell and Stevenage. These sites contain what are known as ‘global branches’, which exist as virtual branches. There are, however, physical counters that perform within them. They operate with branch codes 999999, counter ID’s 1-6 and 999998, counter IDs 7-12.²⁴²

259. Global branches allowed Fujitsu to create ‘*global users*’, who were capable of inputting transactions within Core Horizon systems as though they had been entered from a physical branch.

260. Despite a contrary position being taken by Dr Worden, Mr Coyne remains of the view that global users did not need to be physically present in a branch in order to input transactions.

BRBD Transaction Correction Tool

261. One further tool of data correction is the Branch Database (“**BRBD**”) Transaction Correction Tool. In Coyne 1, Mr Coyne notes the following statement derived from the Host BRDB Transaction Correction Tool Low Level Design document (applicable to Horizon Online):

²⁴¹ Roll 2, §23 to 24 {E1/10/7}

²⁴² Coyne 1, §9.15 {D2/1/151}

*“Warning: The use of this powerful tool has inherent risks. If the SQL statement is incorrect or badly written, it is possible to cause unintended consequences, some of which may cause serious problems to the Branch Database. It is expected that only a small number of skilled staff will run this tool and that they will have detailed guidance as to when and how to use the tool.”*²⁴³

262. The above document does not stipulate which staff within Fujitsu’s SSC have the requisite privilege to run this tool, nor does it state any guidance on specifically when and how the tool should be run. It appears wide open.
263. Users of the BRBD Transaction Correction Tool should be identifiable by its audit table. A Request for Further Information issued to Post Office querying how many times the tool has been used was responded to by Fujitsu, who answered: *“This process has only been used once, in relation to PC0195561, on 11-Mar-2010.”*²⁴⁴
264. Mr Coyne does not agree with this and, following a review of various PEAKs and KELs, is of the view that this tool has been utilised on more than one occasion.²⁴⁵
265. Further, in Mr Coyne’s expert opinion, although a transaction inserted via this tool would be identifiable as having derived from ‘Counter 99’, it would nevertheless not be a straightforward task for someone (particularly a Subpostmaster) to identify when this tool had been used. This is for a number of reasons, not least of which is that a Subpostmaster would need to be aware that something had gone awry in the first instance and the inserted corrective transaction is likely to have taken place on a different day to the initial erroneous transaction in any event.²⁴⁶ The same analysis is true in Legacy Horizon, when injected transactions would include a Counter ID that would be greater than 32.²⁴⁷

²⁴³ Coyne 1, §9.27 {D2/1/153}

²⁴⁴ {C5/21/40}

²⁴⁵ Coyne 2, §5.438 {D2/4/244}

²⁴⁶ Coyne 2, §5.435 to 5.436 {D2/4/243}

²⁴⁷ Coyne 2, §5.440 {D2/4/245}

266. Further, and crucially, Mr Roll's evidence is that the 'Counter 32+' method could be circumvented in its entirety, by using the correspondence server to "piggyback" through the gateway to the individual counters on the branch – thus, injected transactions would appear in the branch records as if they had taken place at the relevant counter position, locally in the branch (e.g. counter 1, or counter 2, in the actual branch Sub Post Office).²⁴⁸
267. Mr Roll's evidence has been accepted by Mr Parker, employed by Fujitsu as Head of Post Office Application Support, in Parker 2,²⁴⁹ (despite initially denying in Parker 1 that it was possible to remotely insert transactions into branch accounts without the Subpostmaster's knowledge).
268. Mr Parker's further supplemental witness statement (i.e. Parker 3) served on the evening of Thursday, 28 February 2019, appears not to resile from this admission.

TIP Transaction Tool

269. A further maintenance tool allowed "SSC to repair EPOSS²⁵⁰ transactions processed at the counter but are unable to copy from BRDB into the TPS (Transaction Processing System) Host."²⁵¹
270. This tool allowed corrective actions to be performed upon data within Core Horizon after the counter has processed the transactions and they are flagged as erroneous as they are sent through the various processing systems.
271. As it pertains to how often this tool was used, Fujitsu have responded:

"There is a master [Managed Service Change procedure ('MSC')] every 12 months, each time such a modification is carried out it is itemised as an MSC related to the master MSC; however master MSCs contain many various types of changes, to determine the number that relate to this particular modification type Fujitsu would have to carry out analysis of all individual tasks on

²⁴⁸ Roll 2, §20 {E1/10/6}

²⁴⁹ Parker 2, §27 {E2/12/9}

²⁵⁰ Electronic Point of Sale System

²⁵¹ TPS – EPOSS Reconciliation – TIP Transaction Repair (11 January 2017) {F/1597/1}

all master MSCs. Whilst this type of action may have been taken by SSC it would have been in the context of an individual incident. All incidents are recorded but the system was designed to manage individual operations not for statistical reporting for when a particular action has been taken by a Support Consultant. Fujitsu will be able to answer questions on individual branch queries where the data is still available."

272. It follows from the above that Fujitsu did have the capability to insert, inject, edit and (potentially) delete transaction data, both without the consent and (potentially) without the knowledge of Subpostmasters.

Effect on branch accounting

273. Mr Coyne's view is that the above tools have the potential to affect transaction data and potentially branch account data by way of incorrectly altering the transactions prior to entering the recipient systems such as POLSAP and external clients (after processing by the counter).²⁵² The end result may be the issuing of a flawed TC by Post Office who may not be aware of the error.
274. Further, Mr Coyne does not consider that effects on transaction data should only be considered by reference to their monetary value. Mr Coyne states:

"Financial account accuracy involves much more than just ensuring the double entry principle is applied. A Subpostmaster's branch account accuracy is dependent upon various other aspects. For example, stock unit records being appropriately measured, transaction dates being accurate, trading and cash account periods being accurate. Consider the scenario where an asset is purchased – whilst the double entry principle might have been applied correctly, if the year of the purchase was recorded incorrectly, the transaction would not feature in the relevant accounting period. Therefore, corrective actions performed by Fujitsu outside of balancing transactions are also vitally important to consider."²⁵³

²⁵² Coyne 1, §9.41 {D2/1/156}

²⁵³ Coyne 2, §5.458 {D2/4/251}

Permission controls and data auditing

275. A 2013 Fujitsu document records:

“If the Reconciliation Service identifies that Transaction data held on the ‘central database’ located at the data Centre is found to be inconsistent when compared to the records of the Transaction that was completed at the Branch, e.g. a receipt, a Transaction log or a branch accounting discrepancy, the Reconciliation Service shall obtain authorisation from Post Office prior to the insertion of the corrective Transactions.”²⁵⁴

276. Mr Coyne understands that the request for authorisation referred to above may be that documented within the Customer Service Operational Change Procedure;²⁵⁵ that document sets out the process requirements in respect of operational changes where changes are made to the live environment.

Operational Change Proposal

277. An Operational Change Proposal (“OCP”) is raised in order to make a change to the live system. It is administered by Post Office Account Operations.²⁵⁶

278. Throughout Mr Coyne’s review of PEAK records, he has noticed that the procedure for Fujitsu to perform modifications to branch data was often subject to an OCP request, sent to Post Office for approval. He has requested, on several occasions, the OCPs in relation to financial accounting corrective fixes applied within Horizon. This was eventually provided on 24 January 2019; however Mr Coyne did not have sufficient time to consider this before he produced Coyne 2, which was required to be filed on 1 February 2019 (after the Claimants agreed to an extension of 7 days requested by the Defendant).²⁵⁷

Operational Correction Request

279. The Operational Correctional Request (“OCR”) process involves the correction of customer data on the live system and, because user data is involved, requires different

²⁵⁴ Reconciliation Service: Service Description (3 December 2013) {F/1160/1}

²⁵⁵ Coyne 1, §9.58 {D2/1/160}

²⁵⁶ Coyne 1, §9.59 {D2/1/161}

²⁵⁷ Coyne 2, §5.407.a {D2/4/235}

approvals and auditing. Ultimately, Fujitsu could approve and action the OCR independently.²⁵⁸

280. As to how often facilities were used in relation to the access and modification of transaction data, Post Office's response to an RFI stated:

"... there are in excess of 36,000 MSCs and OCPs combined; and

- *OCRs would not be used for any such change (OCRs were used for minor support changes that did not require the full approval process that was needed for OCPs)..."*²⁵⁹

281. Mr Coyne's view is that this is inconsistent with documents that he has seen in Post Office's disclosure.²⁶⁰

Internal controls

282. Mr Coyne refers to Ernst & Young's review in March 2011 of Post Office's systems of internal control, which indicates that there were weak user account management controls, including those relating to the granting and monitoring of user access.²⁶¹ It was found that users at Fujitsu had access to environments which were not appropriate for their job function. This carried with it the risk that users may inappropriately or accidentally use the access, leading to loss of application or data integrity.²⁶²

Privileged User Logs

283. On 21 December 2018, following a request by Mr Coyne, Post Office provided the Claimants' expert with 81,958,608 lines of Privileged User Logs. The purpose of the request was to assist the experts in answering **Issue 12** (i.e. how often facilities were used that could alter branch accounts). Post Office confirmed in correspondence that

²⁵⁸ Coyne 1, §9.60 to 9.61 {D2/1/161}

²⁵⁹ {C5/22/2}

²⁶⁰ Coyne 1, §9.60 to 9.63 {D2/1/161}

²⁶¹ Coyne 1, §9.65 to 9.67 {D2/1/162}

²⁶² Management letter for the year ended 27 March 2011 {F/869/16}

Privileged User Logs have only been provided back to 2009, as Fujitsu could not provide data prior to that time.²⁶³

284. Mr Coyne has commented on these logs to the extent possible given the limited time afforded to him to analyse the same prior to filing Coyne 2.²⁶⁴

Conclusion on permission controls and data auditing

285. Mr Coyne concludes that SSC users (whether privileged users or not) were not as restricted as they should have been (or as averred by Mr Godeseth and Dr Worden for Post Office). In addition to Mr Coyne's analysis of MSC records, PEAK evidence and external audit reports conducted by Ernst & Young, he notes that:

285.1. prior to July 2015, SSC privileged usage was only auditable by record of a log on and log off and contained no detail with regards to what actions were performed; and

285.2. Dr Worden has not reviewed the OCP process applicable to Legacy Horizon or performed any analysis of contemporaneous documentation to identify where there might have been failures in control.²⁶⁵

Post Office's Position

286. Dr Worden relies to a significant degree on the evidence of both Mr Godeseth and Mr Parker on the factual matters raised by these issues.

287. A summary of his opinions is contained in a table that appears in Worden 1 at paragraph 1136.²⁶⁶

²⁶³ Letter from Womble Bond Dickinson, 21 December 2018 {H/155/1}

²⁶⁴ Coyne 2, §3.316 to 3.328 {D2/4/91} and §5.453 to 5.454 {D2/4/250}

²⁶⁵ Coyne 2, §5.484 to 5.486 {D2/4/258}

²⁶⁶ {D3/1/248}

Remote access to data

288. Dr Worden approaches **Issue 7** on the basis that ‘access’ refers to ‘read-only access’ as, otherwise, **Issue 7** would be a subset of **Issue 10**.²⁶⁷ Dr Worden’s conclusion is that both Post Office and Fujitsu are able to read all transaction data from every branch remotely.²⁶⁸

Rebuilding branch transaction data

289. Dr Worden states that rebuilding of branch transaction data was an automated process, using a redundantly stored copy of the transaction data. In Legacy Horizon this would have involved replicating the correct data from another counter in the affected branch or from the data centre copy. In Horizon Online, BRDB is maintained centrally and so rebuilding is not needed for hardware changes.²⁶⁹

290. Contrary to the view formed by Mr Coyne, Dr Worden stresses that this process did not involve discretionary manual rebuilding.²⁷⁰

Transaction Correction Tools – Modification of Transaction data

Global Users

291. Contrary to the evidence of Mr Coyne, Dr Worden opines that global users:

291.1. can only make changes *from within* a branch;²⁷¹ and

291.2. are readily identifiable in transaction logs by virtue of their user codes.²⁷²

292. Dr Worden states that global users can only add new transactions and cannot change or remove any existing ones.²⁷³

²⁶⁷ Worden 1, §1056 {D3/1/235}

²⁶⁸ Worden 1, §1078 {D3/1/238}

²⁶⁹ Worden 1, §1131 to 1132 {D3/1/247}

²⁷⁰ Worden 1, §1059 {D3/1/235}

²⁷¹ Worden 1, §1098 {D3/1/241}

²⁷² Worden 1, §1099 to 1100 {D3/1/242}

²⁷³ Worden 1, §1101 {D3/1/242}

BRBD Transaction Correction Tool

293. The key points of distinction in Dr Worden's evidence are:

293.1. SSC users are only able to inject additional transactions into branch accounts in Horizon Online using the BRBD Transaction Correction Tool, and cannot amend or delete any transactions;²⁷⁴ and

293.2. whilst the powerful risks associated with this tool are acknowledged, Dr Worden relies on Mr Godeseth's evidence that usage was limited to a small group of SSC users who were fully aware of the risks.²⁷⁵

Injection of transactions in Legacy Horizon

294. Dr Worden cites Mr Godeseth's evidence which attests to the SSC's ability to also inject transactions in Legacy Horizon, however he maintains that they would have been clearly visible as having derived from a counter position greater than 32.²⁷⁶ Thus, he maintains that whilst transactions could be injected without a Subpostmaster's consent, they could not be injected without a Subpostmaster's knowledge.

295. Dr Worden, therefore, disagrees with the evidence of Mr Roll in this respect. Even when faced with the detail provided in Roll 2 (in relation to circumventing the 'counter 32' process by using the correspondence server to piggyback through the gateway) and, indeed, the confirmation of the accuracy of those details in Parker 2,²⁷⁷ Dr Worden remains unconvinced:

²⁷⁴ Worden 1, §1111 {D3/1/243}

²⁷⁵ Worden 1, §1112 {D3/1/243}

²⁷⁶ Worden 1, §1114 {D3/1/244}

²⁷⁷ Parker 2, §27 {E2/12/9} : *"In paragraph 20 of Roll 2, Mr Roll describes a process by which transactions could be inserted via individual branch counters by using the correspondence server to piggy back through the gateway. He has not previously made this point clear. Now that he has, following a discussion with colleagues who performed such actions I can confirm that this was possible. I did not mention it in my first witness statement because, when faced with a less clear account in Mr Roll's first statement, my recollection was that if it was necessary for the SSC to inject a transaction data into a branch's accounts, it would have been injected into the correspondence server (injecting via the server was the default option which was followed in the vast majority of cases)."*

“It seems to me that I require further factual information before I can comment on this evidence. Which ‘specific person’? Under what circumstances? How frequently? Until I have that information, it remains possible in my view that any transaction which ‘would appear to the subpostmaster as though it had been carried out through the counter in branch’ might only be a transaction that he had given his consent for, as the ‘specific person’ - and which had in effect been made on his behalf.”

Privileged Users

296. Dr Worden states that under Horizon Online, certain Fujitsu staff (“**Privileged Users**”) have access privileges that could be used to edit or delete transaction in the BRDB. This level of access is needed for system maintenance purposes. However, as Fujitsu is said to have no process that requires transaction data to be amended or deleted, Dr Worden says there is little need to use privileged access to manipulate transaction data to resolve an error.²⁷⁸

297. Further, Dr Worden states that any change to a transaction performed by a Privileged User would be visible to branch staff as it would appear in reports and logs that can be viewed in branch, *“although it would not be flagged as a change by a Privileged User”*.²⁷⁹ Dr Worden goes on to say:

*“Theoretically this is a problem, but Privileged Users cannot change the audit record and so the changed record in the BRDB would no longer match an audit extract. This means that a Subpostmaster could always find out about changes made by SSC, via a request to the helpdesk.”*²⁸⁰

Frequency of use

298. Dr Worden reiterates Mr Godeseth’s evidence that the BRDB Transaction Correction Tool was only used once, and that Fujitsu has never used its privileged access to edit or delete transaction data.²⁸¹

²⁷⁸ Worden 1, §1122 {D3/1/245}

²⁷⁹ Worden 1, §1123 {D3/1/246}

²⁸⁰ Worden 1, §1123 {D3/1/246}

²⁸¹ Worden 1, §1164 {D3/1/253}

299. Dr Worden also references the combined 36,000 MSC and OCP records that have been created, which amounts to 5-10 per business day on average. There have also been 20,000 release notes, equating to approximately 5 releases per working day – including reference data.²⁸²
300. Dr Worden has not, however, seen evidence to confirm how often the following capabilities were used:
- 300.1. transaction changes;
 - 300.2. Global Users;
 - 300.3. SSC;
 - 300.4. Legacy;
 - 300.5. Privileged Users; and
 - 300.6. Database rebuilds.²⁸³

Potential to affect reliability of branch accounts

301. Dr Worden approaches **Issue 13** differently to Mr Coyne, in that he asks himself:

“I shall ask the question with reference to the accounts for a specific Claimant in a specific month. If a Claimant were to assert that the use of any such facility had introduced a discrepancy into his accounts in any specific month, what is the probability of that account being correct?”²⁸⁴

302. He then applies a statistical analysis and arrives at the following probabilities of errors being introduced through use of possible methods of changing transactional data:-

- 302.1. BRDB Balance Transaction Tool: For one branch in one month, probability in the order of one in ten million.²⁸⁵

²⁸² Worden 1, §1165 {D3/1/253}

²⁸³ Worden 1, §1167 {D3/1/253}

²⁸⁴ Worden 1, §1170 {D3/1/254}

²⁸⁵ Worden 1, §1175 {D3/1/254}

302.2. Changes to reference data: “*Extremely small*”.²⁸⁶

302.3. Global users or SSC: “*Perhaps one in ten million*”.²⁸⁷

303. With regards the implementation of fixes in Horizon, and their potential to affect transaction data or data in branch accounts, Dr Worden states that fixes would only have such potential if they introduced bugs. As this ties in with his analysis on bugs, errors and robustness, Dr Worden states that the facilities relating to fixes are not capable of introducing discrepancies in Claimants’ branch accounts, with any significant probability.²⁸⁸

304. Dr Worden reaches a similar conclusion in relation to the question of whether the rebuilding of transaction data is capable of introducing discrepancies, finding that more than 10,000 rebuilds would be required, which he considers “*extremely unlikely to have happened*”.²⁸⁹

Permission controls and data auditing

305. Dr Worden states that any alterations of branch transaction data are necessarily subject to the constraint of double entry accounting and, further, any central user who made any such change would leave many traces of their activity, “*like footprints in fresh snow*”.²⁹⁰

306. Relying on the evidence of Mr Godeseth, Dr Worden asserts that the SSC group is small, amounting to 30 people, and the number of Privileged Users, who can edit or delete transaction data in BRDB, is limited to 45 people.²⁹¹ Having said that, Dr Worden also opines that “*the number of Privileged Users and SSC users who can create a BT*²⁹² *seems high*”.²⁹³

²⁸⁶ Worden 1, §1177 {D3/1/255}

²⁸⁷ Worden 1, §1178 {D3/1/255}

²⁸⁸ Worden 1, §1181 {D3/1/255}

²⁸⁹ Worden 1, §1183 {D3/1/256}

²⁹⁰ Worden 1, §1060 {D3/1/235}

²⁹¹ Worden 1, §1140 {D3/1/249}

²⁹² BRDB Branch Transaction Correction Tool

²⁹³ Worden 1, §1149 {D3/1/251}

307. Dr Worden also relies on the following in support of his opinion that sufficient permission controls and auditing were / are in place:-

307.1. Strict control of SSC access to counters: Dr Worden relies on the statement in Parker 1 that: *“Some members of the SSC were (and some remain) able to insert transaction data. SSC access privilege gave the ability to inject transactions, but appropriate change controls were in place and no such insertion would have happened without complying with those controls.”*²⁹⁴

307.2. Audit store: Each transaction is associated with a particular user, so it is clear in the records who was responsible for its creation. All transactions are recorded in the audit store, so Subpostmasters could, in principle, find out if any had been performed without their consent or knowledge.²⁹⁵

307.3. Logging Privileged Usage: Relying on Mr Godeseth, Dr Worden refers to the fact that privileged usage has been logged since July 2015, with log-ons and log-offs recorded prior to then.²⁹⁶

307.4. MSC (and, prior to 2014, the OCP) process: This process details roles and accountability, and records actions performed, i.e. changes in Horizon.²⁹⁷

308. The evidence does not support the reassuring picture painted by Dr Worden.

²⁹⁴ Worden 1, §1144 {D3/1/250}

²⁹⁵ Worden 1, §1151 {D3/1/251}

²⁹⁶ Worden 1, §1152 {D3/1/251}

²⁹⁷ Worden 1, §1159 to 1161 {D3/1/252}

Section C. CONCLUSION

309. Post Office's repeated refrains that Horizon is "*robust*" ring increasingly hollow the more the truth is uncovered on key issues, such as the extent and effect of bugs in Horizon, and the ability for Post Office and Fujitsu to remotely access branch accounts.
310. Post Office has previously given accounts of these crucial issues to the Claimants and to others, when these matters have (rightly) been the subject of prior public scrutiny, and raised for the defence in prior criminal and civil cases.
311. However, it has taken the process of this group litigation, and this Horizon Issues Trial in particular, to establish that Post Office has not been truthful about e.g. the Callendar Square bug (affecting not 1 branch, but 30 branches), the existence and extent of the problem affecting Dalmellington (occurring on 112 occasions over 5 years), and the ability for remote access – contrary to Post Office's previous claims this is impossible, in fact, it is very much possible, including by a recently admitted route which would leave no audit trail visible to the affected SPM (Parker 2, 29 January 2019).
312. The Claimants anticipate that an even fuller picture will emerge during the course of the trial. The Claimants are however concerned that Post Office's approach to both disclosure and witness evidence may prevent the full truth from being uncovered – noting e.g. the choice for Mr Godeseth to give hearsay evidence on important matters where he had no direct involvement, and the absence of Mr Gareth Jenkins as a witness – despite his being the author of many important contemporaneous documents and apparently the person to whom Mr Godeseth has recently been speaking. Post Office have declined to give any explanation for Mr Jenkins' absence and have claimed privilege over whether he is even *available* during the trial period.²⁹⁸
313. Mr Coyne's expert evidence has already provided significant insight into the real potential for undiscovered bugs to exist within Horizon, and ineffectiveness of the

²⁹⁸ Letters dated 30 January 2019 {H/184/1}, 12 February 2019 {H/201/1} and 13 February {H/203/1}. The Claimants will make submissions as to weight of hearsay evidence and inferences as may be appropriate in closing.

“countermeasures” which Dr Worden relies upon to support Post Office’s case. The Claimants will invite the Court to find that Dr Worden is not an impartial expert in this matter (his response to Parker 2 on remote access was particularly telling), and carefully to scrutinise the statistical analysis he has adopted and his reasons for adopting it.

PATRICK GREEN QC
KATHLEEN DONNELLY
OGNJEN MILETIC
REANNE MACKENZIE

4 March 2019

Appendix 1

Known Error Log (“KELs”)

314. The Claimants first sought disclosure of the Known Error Logs in their 28 April 2016 Letter of Claim (emphasis added):²⁹⁹

(c) Disclosure/retention of data

124. It is assumed that Fujitsu retain documentation relevant to its contractual arrangement with Post Office and, in particular, records of errors within the Horizon system. We understand that Fujitsu maintained a 'Known Error Log' for Horizon and that such reports will have been provided to Post Office. Please see the list of the categories of documents relating to Fujitsu referred to below, that we request disclosure of.

315. In their Letter of Response, Post Office not only refused to provide these documents, but (1) denied their relevance and (2) cast doubt over whether such documents even existed, stating as follows (emphasis added):³⁰⁰

“In circumstances where you have not particularised any factual basis on which Horizon is defective, disclosure of these documents (if they exist) is not relevant, reasonable or proportionate.”

316. This was obviously wrong and the Claimants did not accept this³⁰¹ and wrote again stating:

“There is no good reason to refuse disclosure of the Fujitsu Known Error Log, which is plainly relevant to the issues”

²⁹⁹ Paragraph 124 {H/1/32}, and 169 (22) {H/1/43}

³⁰⁰ Schedule 1, point 22 {H/2/62}

³⁰¹ Post Office’s Letter of Response had also qualified its admission of the three acknowledged bugs as follows: “Post Office does not claim that these have been the only defects in Horizon” – see Letter of Response, Sch 6 at § 1.8 {H/2/95}; Cf. Letter of Reply at §115 {H/2/34}. Yet Post Office made no mention of the PEAK system, so the Claimants’ focus at that time was on KELs.

317. Post Office's response on 13 October 2016 was - and remains - difficult to understand, but Post Office continued to deny the relevance of the Known Error Log, this time as follows (emphasis added) {H/3/27}:

"The claims which you have particularised concern the Core Audit Log. Following a review of the Known Error Log, Fujitsu have confirmed that there have been no logs in respect of Core Audit Log. The remainder of the Known Error Log does not relate to the claim which you have particularised and as such disclosure of this document is not relevant."

318. The Claimants raised the central importance of the Known Error Log at the GLO hearing itself³⁰² – at this time Post Office's position was not only that the Known Error Log should not be disclosed but, at the same time, Post Office was seeking to insist that onerous steps should be taken by the Claimants. (For example, Post Office contended that all of the Claimants should in effect each serve individual Particulars of Claim, albeit by a form of proposed schedules to group particulars, which in substance would have amounted to the same costly exercise.³⁰³)

319. Following the making of the GLO, the Claimants then pleaded the GPOC (6 July 2017) without access to the Known Error Log, although they pleaded to its existence and relevance at §23 (emphasis added) {C3/1/8}:

"However, the Claimants aver that there were a large number of software coding errors, bugs or defects which required fixes to be developed and implemented. There were also data or data packet errors. There was a frequent need for Fujitsu to rebuild

³⁰² GLO Hearing Transcript §299 {C8.1/3/7}, and §1199 {C8.1/3/22}

³⁰³ GLO Hearing Transcript §1274 – 1276: **Senior Master Fontaine:** *Everything you are suggesting seems to be. ... I am getting ... was wondering why you're agreeing to a GLO. In a sense because you seem to think it would be much better just to have lots of individual particulars or claim. Mr de Garr Robinson: Well Master I'm sorry, I'm sorry that I've given you that impression. Senior Master Fontaine: Well that's certainly the impression in the skeleton and I was very unclear until I got to the paragraph where you said yes you agree that there should be a particulars of claim and schedules of information but I have to say that the point of a GLO is equal and can to try and save costs for individual claimants claim, particularly in cases where the individual claims maybe not be that much and it would be disproportionate to spend the amounts of money one needs to, to get to the, to get them to trial and it gives them access to justice. But its, the ... it's planned in a certain way so that costs can be saved and so that individual two hundred or three hundred and whatever amount they end up being cases don't have to be pleaded out and only sufficient information is given so that categories can be identified.*

branch transaction data from backups, giving rise to the further risk of error being introduced into the branch transaction records. The Claimants understand that Fujitsu maintained a 'Known Error Log' relating to some or all of these issues which was provided to the Defendant but which has not been disclosed."

320. In response, at §50 of the GDef, Post Office again complained about an absence of particularity at §50(1):

"Paragraph 23 is embarrassing for its lack of particularity, in that (amongst other things) it does not identify the errors, bugs or defects on which the Claimants rely ..."

321. However, Post Office now: (1) admitted the existence of the Known Error Log but denied it was in Post Office's control; and (2) denied the relevance of the Known Error Log on a new basis, pleading as follows at paragraph 50(4) (emphasis added) {C3/3/22}:

(4) It is admitted that Fujitsu maintain a "Known Error Log". This is not used by Post Office and nor is it in Post Office's control. To the best of Post Office's information and belief, the Known Error Log is a knowledge base document used by Fujitsu which explains how to deal with, or work around, minor issues that can sometimes arise in Horizon for which (often because of their triviality) system-wide fixes have not been developed and implemented. It is not a record of software coding errors or bugs for which system-wide fixes have been developed and implemented. To the best of Post Office's knowledge and belief, there is no issue in the Known Error Log that could affect the accuracy of a branch's accounts or the secure transmission and storage of transaction data.

322. The Claimants were forced to spend further time and energy pursuing the Known Error Log in further correspondence and by a Request for Further Information of the paragraph above (RFI dated 31 July 2017, §30-33 {C4/2/12}), which was in substance refused.³⁰⁴

323. Post Office's position eventually shifted slightly, in at least agreeing to *consider* providing the KEL, but again excuses were provided. As at 1 September 2017 (emphasis added)³⁰⁵:

³⁰⁴ Save that, Post Office's response did state *"the source of Post Office's information and belief as to the contents of the Known Error Log is Fujitsu."*

³⁰⁵ {Trial bundle references not yet available}

“Access to the Known Error Log (KEL) can also be considered as part of these wider disclosure issues. The KEL is not a document, but a live and proprietary database with approximately 4,000 entries. Since the KEL is a constantly rolling document, the current version in use has evolved over time and may not reflect the version in place at time (sic) which is relevant to the Claimants’ claims. Providing “disclosure” of it is therefore not easy to do and prone to being a disproportionately expensive exercise if not handled carefully. Addressing whether and, if so, how your client should have access to the KEL therefore needs to be considered in the context of any wider directions that are made.”

324. At the CMC on 19 October 2017, Post Office maintained both that it did not have control of the Known Error Log and that it was irrelevant. As to its contents, the Court was told:

“MR. DE GARR ROBINSON: It contains things like there’s a problem with printers. There’s a printer. You have to kick it on the left-hand side to make the printer work. I mean there’s a vast range of hardware problems of that sort and maybe some software problems (inaudible) but not the kind of bugs, errors and defects that the claimants are wishing to pursue in their particulars of claim so far as Post Office is aware.”

325. The Court was not sympathetic to Post Office’s approach to disclosure and ordered focused disclosure at that stage. The Court’s reasons for doing so included the following (found in the Transcript of the First CMC at p.100E-H {C8.2/3/26}):

“Just in case it is thought I am implying a disclosure principle that is not included in the rules I would like to make it clear I am not but the third reason is there is such an obstructive attitude that has been taken by Post Office during the pre-action stage to disclosure requests that it seems to me this attitude has to be nipped in the bud and that is what I am doing today. For example, the regular recitation in the schedule that went with the letter of response to the requests for disclosure at that stage of the action which simply says in many, many cases: there has been no particularisation of what the category is; simply, there are too many documents; the documents will not all be in one place; a full disclosure exercise would be necessary, leads me to conclude that the attitude to disclosure that has been adopted by Post Office before today is somewhat less than ideal.”

326. Ultimately, the outcome of that hearing was that: (i) Post Office agreed to Mr Coyne being permitted to attend Fujitsu’s premises to inspect the Known Error Log; and (ii) Mr Coyne inspected them and made clear that he considered the contents very relevant.

327. Thereafter:

327.1. **10 May 2018:** It was only after that extremely drawn out process that Post Office provided most (but not all) of the Known Error Logs or “KELs” on 10 May 2018, some two years after the Claimants’ initial request.

327.2. **16 November 2018:** Some further KELs, which related to particular bugs were only provided together with Post Office’s responsive evidence, on 16 November 2018.³⁰⁶

327.3. **17 January 2019:** Further KELs, which had apparently been deleted by Fujitsu, but remained available, were recently disclosed on 17 January 2019.³⁰⁷

328. As set out at paragraphs 31 to 33, the relevance and importance of the KELs is beyond question, they clearly do include evidence of the impact of bugs on branch accounts, and they are relied on by both Mr Coyne and Post Office’s own expert, Dr Worden, who describes them as a “rich source of evidence”.

PEAKs

329. PEAK is not an acronym; it is a term used by Post Office/Fujitsu by which incidents are reported apparently because ‘PinICL’ was the old name for the PEAK system. According to Mr Godeseth, “PEAK is browser-based software incident and problem management system used by Post Office Account which enables details of the incident and diagnostic progress to be captured in a searchable format and allows the tracking of problems from detection through to resolution”.³⁰⁸ Mr Coyne explains that “By 2010, the 1st and 2nd line support Powerhelp system had been replaced by a system called Triole for Service (TfS) to record incidents and PinICL

³⁰⁶ Coyne 2, §4.3(c) {D2/4/95} – KELS relating to Callendar Square bug, exhibited to Godeseth 2.

³⁰⁷ Coyne 2, §2.1(g) {D2/4/10}

³⁰⁸ Godeseth 2, §16 {E2/7/6}

*had been replaced by PEAK, an in-house developed Fujitsu services incident and release management system. An individual incident so recorded is referred to as a PEAK”.*³⁰⁹

330. The Claimants did not know about PEAKs at the date of their Letter of Claim, and only became aware of this term and the significance of these records at a later stage.
331. When Mr Coyne saw PEAKs referred to in KELs, on 18 May 2018, he requested access to the PEAK system(s) for inspection with the capability to extract specific requested bugs/issues/peaks from the system(s) for later review {C5/4/5}, this was included in Mr Coyne’s request for directions from the Court dated 29 May 2018 {C5/8/5}, and the matter was dealt with by the Fourth CMC Order, dated 5 June 2018, whereby paragraph 6 ordered, “By 15 June 2018 the Defendant shall use reasonable endeavours to arrange for both parties’ appointed IT experts to jointly be given 2 days access to inspect at the offices of Fujitsu in Bracknell the systems known as (i) PEAK and (ii) TFS” {C7/18/2}.
332. However, the Claimants meet with resistance from Post Office in trying to arrange proper access for Mr Coyne, for example, email 28 June 2018 from Womble Bond Dickinson to Freeths {H/76/1} (emphasis added):

“For the record, the Order requires Post Office to use reasonable endeavours to arrange for both parties’ appointed IT experts to jointly be given 2 days’ access to inspect the Peak and TFS systems. It is not an absolute obligation to provide 2 days’ access and, as explained in my email of 14 June below, Fujitsu’s view is that two hours for each system should be sufficient. As such, they were reluctant to tie up the relevant resource for two consecutive days, but I can confirm that Fujitsu is prepared to provide access for a second day if that proves necessary.

333. Mr Coyne attended for one day as permitted by Post Office and Fujitsu and following this visit requested various relevant documents, including “(v) PEAK and/or TfS records where the error or issue resulted in financial impact to either Post Office or a Subpostmaster”.³¹⁰ Post Office were characteristically obstructive in response to Mr

³⁰⁹ Coyne 1 § 4.84 {D2/1/51}

³¹⁰ Email dated 20 July 2018 {C5/16/1}

Coyne's requests, and again, the Claimants were required to obtain an Order for disclosure.³¹¹

334. Post Office's position at that point was to deny there was any way of searching the PEAK system for errors or issues which had resulted in financial impact as requested by Mr Coyne:

"These systems were designed to manage individual operations rather than for statistical reporting. As such, the systems cannot be searched in the way envisaged by this request."

335. Post Office also professed it was not possible to export the records at all.³¹²
336. As set out at paragraph 37 - 38 above, it was not until 27 September 2018, that 220,000 PEAK entries were disclosed, just two weeks before Mr Coyne's expert report was due to be filed and not until 25 October 2018, that a further 3,866 PEAKs (which Post Office had withheld for privilege review), were disclosed - this was two weeks after Mr Coyne's report.³¹³
337. Further, following disclosure of Operational Change Process documents on 24 January 2019, Mr Coyne identified further relevant PEAKs that had not been disclosed, during the course preparing his Second Report (eventually dated 1 February 2019). Subsequently,

³¹¹ Paragraph 1 of the Fifth CMC Order dated 24 July 2018: *"The Defendant shall, by 8 August 2018, provide to both experts the information requested by Mr Coyne ...(ii) in relation to the PEAK system, by email on 20 July 2018, save in respect of any requests to which the Defendant serves an objection (stating reasons) in writing, by the same date."*

³¹² Response to Mr Coyne's Requests, 8 August 2018 {C5/22/2} *"The PEAK system contains 222,000 entries from the last 18 years and there is no mechanism for exporting those entries. Post Office is working with Fujitsu to establish whether such a mechanism could be created". See also letter from WBD to Freeths dated 8 August 2018 {C5/20/2} *"You will see in our client's responses that it is working with Fujitsu to establish whether a mechanism could be created to export or provide Mr Coyne with direct access to the 220,000 PEAK entries or at least some /part of them. We believe that this may assist Mr Coyne but there are serious technical barriers to doing this which are currently not possible to overcome. We will revert when we are able to do so, but in the meantime we remind you that there is an open offer for the experts to inspect the PEAK system at Fujitsu's offices for a second day."**

³¹³ See Coyne 2, §2.1 {D2/4/9}

on 18 February 2019 Post Office agreed to provide disclosure of those identified PEAKs that Fujitsu was able to locate.³¹⁴

Release Notes

338. On 12 July 2018 Mr Coyne expert sought “a consolidated complete release/version chronology available for Horizon/Horizon Online with accompanying Release Notes at final Version.”³¹⁵

339. After being ordered to respond to Mr Coyne’s RFI by paragraph 1 of the Fifth CMC Order,³¹⁶ Post Office confirmed that Release Notes do exist stating:

“Fujitsu has provided a list of Release Notes. Although this list does not contain the accompanying Release Notes (of which there are 19,842 at final version), if there are any in particular that you would like to see Post Office will request these”³¹⁷

340. Both experts agree that the spreadsheet list of Release Notes indicates that there have been substantial changes and updates to Horizon. Mr Coyne estimates that the existence of 19,842 release notes indicates that there were approximately 19 changes per week to Horizon.³¹⁸ Dr Worden estimates that there have been 5 changes to Horizon per working day.³¹⁹ The experts’ estimates are therefore of the same order of magnitude.

341. The Claimants’ expert has indicated that without the detail of these Release Notes, it is impossible to know the impact of each change on the Horizon system throughout its lifetime.³²⁰ This is concerning given that one of the named bugs (Local Suspense Account), which was seen at the Common Issues Trial and forms an important part of the Horizon

³¹⁴ Letter from WBD to Freeths dated 18 February 2019 {H/206/1}

³¹⁵ Mr Coyne’s RFI dated 12 July 2018 at paragraph 1.1(c) {C5/21/14}

³¹⁶ {C7/22/1}

³¹⁷ PO’s Response to Mr Coyne’s RFI dated 8 August 2018 {C5/21/14}

³¹⁸ Coyne 1 at §5.90 ~~{D2/2/78}~~ {D2/1/78}

³¹⁹ Worden 1 at §1166 {D3/1/253}

³²⁰ Coyne 2 at §5.13(c) ~~{D2/5/124}~~ {D2/4/124}

Issues Trial, was an unintended consequence of updates to the Horizon system, in this case the archiving strategy.³²¹

342. The spreadsheet list of Release Notes disclosed by Post Office³²² is difficult to navigate. It is a PEAK focused document indicating where there have been specific “fixes” or releases of software in relation to PEAKs that have been raised (either by branches or internally and collected into Master PEAKs). It does not appear to list out the software updates and/or releases and/or fixes that were made as part of general maintenance and/or updating to the system that were not driven by PEAKs. There are also many columns that have been left blank (such as “business impact” where there is just one entry for all 19,842 rows).
343. Post Office have failed to provide any guidance on which of the 19,842 rows within the spreadsheet are the software releases relating to any named bugs. They have failed to disclose a single specific Release Note that may be adverse to their case. This is despite the fact that, as detailed above, Post Office have considerable assistance from Fujitsu in this litigation who, as makers and keepers of this document, must be able to quickly ascertain which row entries relate to which release (as well as assistance from Post Office’s shadow experts). Instead, Post Office have adopted the approach that it is for the Claimants to identify, from the list of 19,842 entries which underlying and detailed Release Notes they would like to see. The scale and difficulty of this task is obvious.
344. Accordingly, the Claimants have recently identified, as a minimum, the Release Notes they believe correlate to the fixes and/or releases for each of the named bugs, namely: Callendar Square; Payments Mismatch; Suspense Account; and Dalmellington/Branch Outreach and sought focused disclosure of these specific Release Notes from Post Office³²³.

³²¹ Local Suspense Problem v 5 by Gareth Jenkins dated 15 May 2013 {F/1075/2}.

³²² {F/1813}

³²³ Letter from Freeths to WBD dated 14 February 2019 {H/204}

345. The Claimants maintain that the contemporaneous Release Notes would be likely to provide important evidence regarding bugs or errors in Horizon and how these were fixed over time, as well as documenting other enhancements and changes made to the system which could have also had an adverse impact on the Horizon system overtime and/or on Branch accounts. Given that the experts agree that KELs and PEAKs only provide an incomplete picture, this serves to accentuate the relevance of the Release Notes.
346. Solicitors for Post Office provided a holding response on 20 February 2019,³²⁴ stating they needed to “*take instructions*” despite Post Office having already agreed to provide any Release Notes that the Claimant’s request to see. This is indicative of an unhelpful approach.
347. The Claimants are not confident that they will be able to review in any detail any Release Notes prior to the start of the trial. This is a further example of the Post Office’s approach to disclosure, impeding the Claimants from obtaining a full view of the documents and the totality of the Horizon system

³²⁴ Letter from WBD to Freeths dated 20 February 2019 {H/214}

THE POST OFFICE GROUP LITIGATION

Claim No. HQ16X01238, HQ17X02637 & HQ17X04248

IN THE HIGH COURT OF JUSTICE

QUEEN'S BENCH DIVISION

Before The Hon. Mr Justice Fraser

B E T W E E N:-

ALAN BATES & OTHERS

Claimants

- and -

POST OFFICE LIMITED

Defendant

**CLAIMANTS' WRITTEN OPENING
FOR TRIAL OF HORIZON ISSUES**

PATRICK GREEN QC
KATHLEEN DONNELLY
OGNJEN MILETIC
REANNE MACKENZIE
Henderson Chambers
2 Harcourt Buildings
Temple
London EC4Y 9DB

Freeths LLP

Floor 3, 100 Wellington Street
Leeds LS1 4LT
DX: 310016, Leeds Park Square
Telephone: 0845 077 9570

Solicitors for the Claimants

**CLAIMANTS’ WRITTEN OPENING
FOR TRIAL OF HORIZON ISSUES**

TABLE OF CONTENTS

INTRODUCTION & BACKGROUND	5
Overview	5
Benefits from this Trial.....	6
Procedural Background and Horizon Issues	8
Horizon as a GLO Issue.....	8
Formulation of Horizon Issues.....	9
Provision of Information and Disclosure by Post Office.....	11
Post Office’s Shadow Experts	11
Known Error Logs (“KELs”).....	12
PEAKs	14
Release Notes	16
Candour & Dispelling Myths – Bugs.....	17
Remote Access & Editing of Transactions	21
Section A. EVIDENCE	27
Fact Witnesses	27
Claimants’ Fact Witnesses.....	27
Mr Jayesh Tank	27
Mr Latif	27
Mr Anup Patny	28
Mr Aakash Patny	28
Mrs Angela Burke.....	28
Mr Richard Roll.....	28
Mr Ian Henderson	28
Defendant’s Fact Witnesses	29
Mrs Angela van den Bogerd	29
Ms Dawn Phillips	30

Ms Tracy Mather..... 30

Mr Paul Smith 30

Mr David Johnson 30

Mr Andy Dunks..... 30

Mr William Membery 31

Mr Torsten Godeseth 31

Mr Stephen Parker..... 31

Expert Evidence.....31

Section B. ISSUES..... 37

Bugs & Errors, Robustness, Potential for Errors Measures & Controls (1, 3, 4 & 6).....37

 Issues 37

 Bugs & Errors 37

 Robustness..... 37

 Potential for Errors 37

 Measures & Controls..... 38

 Claimants’ Position 41

 Analysis of bugs / errors / defects in Horizon 41

 Callendar Square 42

 Payments Mismatch..... 42

 Suspense Account..... 42

 Further bugs / errors / defects identified..... 43

 Dalmellington 43

 Data Tree Build Failure Discrepancies 43

 Robustness..... 44

 Manual correction and workarounds..... 44

 Reference Data modification..... 45

 Transaction Corrections..... 45

 Procurement & Development Background..... 46

 Extent of errors in data recorded in Horizon 47

 Data entry: 47

 Transfer of data..... 48

Processing of data.....	49
Measures and controls	50
Post Office’s Position	51
Robustness.....	51
Analysis of bugs / errors / defects in Horizon	53
Extent of errors in data recorded in Horizon	56
Measures and controls	56
Reconciliation and TCs (5 & 15).....	57
Issues	57
Reconciliation.....	57
TCs.....	57
Claimants’ Position	59
Setup of Horizon and interactions with other systems.....	60
Reconciliation process.....	61
Transaction Corrections.....	63
Post Office’s Position	66
Horizon Alerting & Reporting Facilities for SPMs (2 & 14).....	68
Issues	68
Alerting	68
Reporting Facilities for SPMs.....	68
Claimants’ Position	70
Issue 2 – Alerting of bugs / errors / defects by Horizon.....	70
Issue 14 – Horizon functionality.....	72
Post Office’s Position	73
Assumptions referred to in Worden 1.....	73
Issue 2 – Alerting of bugs / errors / defects by Horizon.....	74
Issue 14 – Horizon functionality.....	75
Horizon Shortfalls – Data and Reporting for Subpostmasters and Post Office (8 & 9)..	77
Issues	77
Shortfall Data and Reporting available to Post Office.....	77
Shortfall Data and Reporting available to SPMs.....	77
Claimants’ Position	79

Issue 8 – Data and reporting available to Post Office..... 79

Issue 9 – Data and reporting available to Subpostmasters 81

Post Office’s Position 83

Issue 8 – Data and reporting available to Post Office..... 83

Issue 9 – Data and reporting available to Subpostmaster..... 84

Remote Access and Editing of Transactions (7, 10, 11, 12 and 13)87

 Issues 87

 Remote to Access Horizon Transaction Data 87

 Remote Alteration of Branch Transaction Data 87

 Remote Access/Alteration: Permission Controls 87

 Remote Access/Alteration: Frequency of Use..... 87

 Remote Access/Alteration: Impact on Reliability of Accounts 88

 Claimants’ Position 89

 Remote access to data 89

 Rebuilding branch transaction data..... 90

 Transaction Correction Tools – Modification of Transaction Data 91

 Global users..... 91

 BRBD Transaction Correction Tool..... 91

 TIP Transaction Tool..... 93

 Effect on branch accounting..... 94

 Permission controls and data auditing..... 95

 Operational Change Proposal..... 95

 Operational Correction Request..... 95

 Internal controls..... 96

 Post Office’s Position 97

 Remote access to data 98

 Rebuilding branch transaction data..... 98

 Transaction Correction Tools – Modification of Transaction data 98

 BRBD Transaction Correction Tool..... 99

 Injection of transactions in Legacy Horizon 99

 Privileged Users..... 100

 Frequency of use..... 100

Potential to affect reliability of branch accounts 101

Permission controls and data auditing..... 102

Section C. CONCLUSION..... 104

Appendix 1 106

Known Error Log (“KELs”)106

PEAKs110

Release Notes.....113