

Witness Name: Naranker Dulay

Statement No.: WITN11070100

Dated: 12 September 2024

POST OFFICE HORIZON IT INQUIRY

FIRST WITNESS STATEMENT OF NARANKER DULAY

I, Naranker Dulay, will say as follows:

INTRODUCTION

1. I am an employee of Imperial College London and hold the position of Reader in Computing Science.
2. This witness statement is made to assist the Post Office Horizon IT Inquiry (the "**Inquiry**") with the matters set out in the Rule 9 request dated 22 February 2024 (the "**Request**").
3. I have been asked to submit a written statement addressing the questions set out in paragraphs numbered 3 to 16 of the Annex of the letter headed "Request for information pursuant to Rule 9 of the Inquiry Rules 2006 – Request number 1, regarding Dr Naranker Dulay" dated 22 February 2024.
4. I hold a BSc in Computer Science from the University of Manchester and a PhD from the University of London. My research has focused on the design and engineering of distributed systems. I have over 150 peer-reviewed

publications and have served on many international program committees in computer science. My teaching has included courses on Distributed Algorithms, Compilers, Privacy Engineering, Databases, Computer Architecture, and Network Security.

INITIAL APPROACH

5. Imperial Consultants (a wholly owned subsidiary of Imperial College London that facilitates consultancy services to third parties by employees of Imperial College) approached me on the 29 August 2013 to ask if I would be interested in a consultancy for them with a client that was seeking an expert to produce a report in connection with a criminal matter. The focus of the report was to examine the integrity of the software and its associated data. I expressed my interest and later learned that the client was Cartwright King Solicitors who were acting on behalf of Post Office Limited.
6. Professor Jeff Kramer was also approached and also expressed interest.
7. I believe that Professor Alexander Wolf was also approached by Imperial Consultants but was away at the time and did not conduct any work or offer any opinion on the Horizon IT System.
8. Professor Kramer and I subsequently worked together on the consultancy for Imperial Consultants with the Post Office.

FIRST MEETING WITH CARTWRIGHT KING

9. A meeting was held at Imperial College on the 23 September 2013. Attendees included one or more people from Imperial Consultants likely including Business Development Executive Rosemary Paxman (later

Rosemary Stevenson) and Business Development Manager Paul Cray, one or more people from Cartwright King likely Martin Smith and Simon Clarke, and me. Professor Kramer was away and did not attend the meeting. The meeting is referred to in POL00327062.

10. I do not recollect the discussion at this first meeting. It would likely have focused on the scope and the timeline of the work and the contents of the document "Draft Scope for computer experts" (POL00040040) by Simon Clarke of Cartwright King dated 17 September 2013.

SECOND MEETING WITH CARTWRIGHT KING

11. The second meeting between Imperial Consultants and Cartwright King was held on the 13 January 2014 to further discuss the scope and timeline of the work. This meeting was held at Imperial College London. Attendees included one or more people from Imperial Consultants likely including Rosemary Paxman (later Rosemary Stevenson) and Paul Cray, one or more people from Cartwright King likely including Martin Smith and Simon Clarke, and me. Professor Kramer was away and did not attend the meeting.
12. Following the second meeting Professor Kramer and I concluded that we did not have sufficient knowledge about the Horizon system to scope and cost the work as proposed so asked for the work to be separated into an initial review that would produce a proposal for subsequent work.
13. An agreement (POL00210444) between the Post Office and Imperial College Consultants was signed on the 28 April 2014 to cover the initial review. Any subsequent work would require a new agreement.

THIRD MEETING WITH CARTWRIGHT KING

14. Following the agreement (POL00210444) between Imperial Consultants and the Post Office a meeting was held between Imperial Consultants and Cartwright King on the 16 May 2014. Attendees at the meeting likely included Rosemary Stevenson and Paul Cray from Imperial Consultants, Martin Smith from Cartwright King, Professor Kramer, and me.
15. I do not recollect the discussion at the meeting. It likely discussed the information and documentation that would help Professor Kramer and me prepare the Initial Review.
16. The following documents were forwarded to Professor Kramer and me on the 9 May 2014 by Imperial Consultants:
 - "Draft Scope for Computer experts" (POL00040040) by Simon Clarke of Cartwright King dated 17 September 2013.
 - "draft Instructions – IC Consultants Ltd" (WITN11070101) by Simon Clarke dated 9 May 2014.
 - "Interim Report into alleged problems with the Horizon system (POL00099063)" by Second Sight dated 7 July 2013.
17. The following documents were forwarded to Professor Kramer and me on the 4 June 2014 by Imperial Consultants:
 - "DES/SEC/HLD/0002, HNG-X Crypto Services High Level Design" (POL00398766).
 - "Description of Fujitsu's System of IT Infrastructure Services supporting Post Office Limited's POLSAP and HNG-X applications, Throughout the Period 1 April 2012 to 31 December 2012" (FUJ00237007).

- "PSO/HNG/FRNF/REQ/001, Horizon Next Generation Conceptual Design v2.1" (WITN11070102).
 - "IT Organisation" (WITN11070103) slides.
 - "Process management Systems Diagram (Version 14)" (POL00398970).
 - "ARC/NET/ARC/0001, HNG-X Technical Network Architecture" (POL00140236)
 - "DES/APP/IFS/0018, XML Message Audit between Counter and BAL/OSR" (WITN11070104).
 - "DES/NET/HLD/0016, Network Security High Level Design" (POL00140237).
18. I do not recall any further meetings with Cartwright King, nor any meetings with the Post Office or Fujitsu or their representatives prior to completion of the Initial Review.
19. The Initial Review (POL00125569) was titled "Initial Review: Proposal for investigation into the integrity of the Post Office Online accounting system" and is dated 26 June 2014. It would have been forwarded by Imperial Consultants to Cartwright King shortly after this date.

FOLLOWING THE INITIAL REVIEW

20. Following completion of the Initial Review (POL00125569) no new agreement was signed between Cartwright King and Imperial Consultants.
21. The following four events were held following the Initial Review (POL00125569) and in the belief that a new agreement would be signed:

- 19 August 2014. A general meeting at the Post Office's premises in Old Street, London. Attendees likely included Martin Smith and Simon Clarke from Cartwright King, Julie George and Jarnail Singh from the Post Office, likely someone from Imperial Consultants, Professor Kramer, and me. I do not recollect the discussions at this meeting.
 - 22 September 2014. A demonstration of the operation of a Horizon branch terminal at the Post Office's premises in Old Street, London. Professor Kramer and I attended.
 - 15 October 2014. A visit to Fujitsu's premises in Bracknell. The visit included technical presentations and discussions with the staff from the Post Office and from Fujitsu. Attendees likely included Andy Holt and Steve Bansel from the Post Office, Steve Bembury, and Torstein Godeseth from Fujitsu, James Davidson who may have been a contractor, Professor Kramer, and me. I do not recollect the details of the technical presentations or discussions with staff.
 - 27 November 2014. A meeting at the Fujitsu's premises in Bracknell. People at the meeting likely included Torstein Godeseth from Fujitsu, Professor Kramer, and me. I do not recollect the discussions at this meeting.
22. The following documents were emailed to Imperial Consultants, Professor Kramer, and to me on the 25 November 2014 by Martin Smith at Cartwright King:
- "Horizon Core Audit Process" (FUJ00210312).
 - "ARC/APP/ARC/0001, HNG-X Architecture - Reference Data" (WITN11070105).

- "ARC/APP/ARC/0003, HNG-X Counter Architecture" (WITN11070106).
 - "ARC/APP/ARC/0004, HNG-X Architecture - Branch Access Layer" (POL00140245).
 - "ARC/APP/ARC/0008, HNG-X - Branch Database" (WITN11070107).
 - "ARC/APP/ARC/0009, HNG-X Architecture - Counter Business Application" (WITN11070108).
 - "ARC/SOL/ARC/0001, Horizon Solution Architecture Outline" (WITN11070109).
 - "SVM/SDM/PLA/0031, HNG-X Security Business Continuity Plan" (WITN11070110).
23. Following a cursory examination of these documents and from the information garnered from the four events enumerated in paragraph 21 above, Professor Kramer and I concluded that we would need access to many more documents, possibly all available documents to form any opinion or view on the integrity of the Horizon IT System.
24. We requested that the Post Office and/or Fujitsu set up a secure means to let us to view or download all available digital documents and if feasible provide an index of all available paper documents. The request was disregarded.

CONCLUSION

25. Imperial Consultants made several requests to Cartwright King for a new agreement in the months following the Initial Review (POL00125569) to refine and carry out the work proposed in the Initial Review. A new agreement

was never reached and communication between Cartwright King and Imperial Consultants petered out.

26. Neither the Post Office, Cartwright King, Fujitsu or their representatives expressed any dissatisfaction with the work that Professor Kramer and I carried out nor challenged our independence.
27. At the time I assumed that the Post Office no longer wished Imperial Consultants to carry out the work proposed in the Initial Review (POL00125569) due to its complexity and cost.
28. On reflection the reason may have been that the Post Office decided that Professor Kramer and I were likely to reach a negative opinion on the integrity of the Horizon IT system if they acceded to our request for access to a more comprehensive set of documents and that this was not something that they desired.

Statement of Truth

I believe the content of this statement to be true.

Signed: **GRO** _____

12 September 2024

Dated: _____

Index to Dr Dulay's Written Statement

Item	URN	Document Description	Document Date	Control number
1	POL00327062	Email from Laura Pinkey to Simon Clarke and Martin Smith	16/09/2013	POL-0173565
2	POL00040040	DraE Scope for computer experts	17/09/2013	POL-0036522
3	POL00210444	Agreement to Appoint an Expert between Post Office Limited and I C Consultants Limited	28/04/2014	POL-BSFF-0048507
4	WITN11070101	draE Instructions – IC Consultants Ltd	09/05/2014	WITN11070101
5	POL00099063	Interim Report into alleged problems with the Horizon system	08/07/2013	POL-0098646
6	POL00398766	DES/SEC/HLD/0002, HNG-X Crypto Services High Level Design	21/02/2014	POL-BSFF-0225436
7	FUJ00237007	Description of Fujitsu's System of IT Infrastructure Services supporting Post Office Limited's POLSAP and HNG-X applications, Throughout the Period 1 April 2012 to 31 December 2012	31/12/2012	POINQ0243112F
8	WITN11070102	PSO/HNG/FRNF/REQ/001, Horizon Next Generation Conceptual Design v2.1	undated	WITN11070102
9	WITN11070103	IT Organisation slides, April 2014	01/01/2014	WITN11070103

10	POL00398970	Process management Systems Diagram (Version 14), 20/10/2011	24/10/2011	POL-BSFF-0225640
11	POL00140236	ARC/NET/ARC/0001, HNG-X Technical Network Architecture	04/10/2007	POL-0141472
12	WITN11070104	DES/APP/IFS/0018, XML Message Audit between Counter and BAL/OSR	23/06/2010	WITN11070104
13	POL00140237	DES/NET/HLD/0016, Network Security High Level Design	06/09/2007	POL-0141473
14	POL00125569	Initial Review: Proposal for investigation into the integrity of the Post Office Online accounting system	26/06/2014	POL-0130687
15	FUJ00210312	Horizon Core Audit Process	30/01/2014	POINQ0216034F
16	WITN11070105	ARC/APP/ARC/0001, HNG-X Architecture - Reference Data	23/08/2011	WITN11070105
17	WITN11070106	ARC/APP/ARC/0003, HNG-X Counter Architecture	19/08/2011	WITN11070106
18	POL00140245	ARC/APP/ARC/0004, HNG-X Architecture - Branch Access Layer	16/10/2009	POL-0141481
19	WITN11070107	ARC/APP/ARC/0008, HNG-X - Branch Database	17/08/2011	WITN11070107
20	WITN11070108	ARC/APP/ARC/0009, HNG-X Architecture - Counter Business Application	26/08/2011	WITN11070108
21	WITN11070109	ARC/SOL/ARC/0001, Horizon Solution Architecture Outline	30/07/2013	WITN11070109

22	WITN11070110	SVM/SDM/PLA/0031, HNG-X Security Business Continuity Plan	22/08/2014	WITN11070110
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