ENGPRAX

The Dark Side of Software Development

Wrongdoing in Software Development and Retaliation Targeting Software Engineers

Updated: 24th January 2024

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Study Information

Professional Services

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Disclosures

Survation is a member of the British Polling Council and abides by its rules.

Survation is a Market Research Society (MRS) Company Partner. All MRS Company Partners and their employees agree to adhere to the MRS Code of Conduct and MRS Company Partner Quality Commitment whilst undertaking research.

Cover photo "*Woman working with a MacBook Pro at a tech company*", with thanks to Luca Nicoletti.

The management team and staff of the client commissioning this study did not have advance sight of any polling questionnaire or investigation plan prior to any results being returned.

Introduction

1. (This report is summarised in the associated press release on the Engprax website: *"75% of Software Engineers Faced Retaliation Last Time They Reported Wrongdoing"*.)

2. As AI continued to bring public concerns about computer systems to the forefront, earlier this year FTX's former Director of Engineering pleaded guilty to his role in wrongdoing at the now-defunct cryptocurrency exchange.[1] Meanwhile, the Post Office Horizon IT Inquiry continues to investigate how faulty accounting software has been blamed for multiple suicides and what has been described as "the most widespread miscarriage of justice in UK history", with those wrongly imprisoned including a pregnant woman.[2] [3]

3. I have been commissioned to investigate:

    a. What concerns the general public most when using software systems?

    b. What matters most to software engineers when building software systems?

    c. With some software teams using subjective surveys to quantify improvement areas, are software engineers able to identify issues purely subjectively and speak up when they have concerns?

4. With these general terms of reference, I was given complete autonomy in conducting this study. The client who requested this study did not have sight of my study design until after data collection was completed.

5. To conduct this study, I have used a combination of three different methods:

    a. Public perception was measured using national UK opinion polling via Survation (1,989 nationally representative sample, providing 95% confidence the 'true' result will fall within 2.20% of the sample result - fieldwork from 29th September 2023 to 8th October 2023).

    b. Software engineer perception was measured using opinion polling of purely software engineers via Survation (n = 280, providing 95% confidence the 'true' result will fall within 5.85% of the sample result - fieldwork done on the 25th of October 2023). (In 2021, research I led pioneered the usage of opinion polling amongst software engineers. Historically, large 'snowball' samples of thousands of participants were used by teams doing State of DevOps reports. For a previous study I was commissioned to do on the impact of COVID-19 on software engineers[4], including developer burnout, I utilised opinion polling techniques. As

[1] *"FTX's Singh pleads guilty as pressure mounts on Bankman-Fried"* - Reuters
[2] *"Post Office lawyer bragged how team 'destroyed attack on the Horizon system' and put woman in prison"* - ComputerWeekly
[3] *"Post Office scandal: What the Horizon saga is all about"* - BBC
[4] *"83% of Developers Suffer From Burnout, Haystack Analytics Study Finds"* - Haystack Analytics

evidenced in a subsequent EngProd 2021 review[5], once others followed in releasing their research findings, our findings were consistent with theirs.)

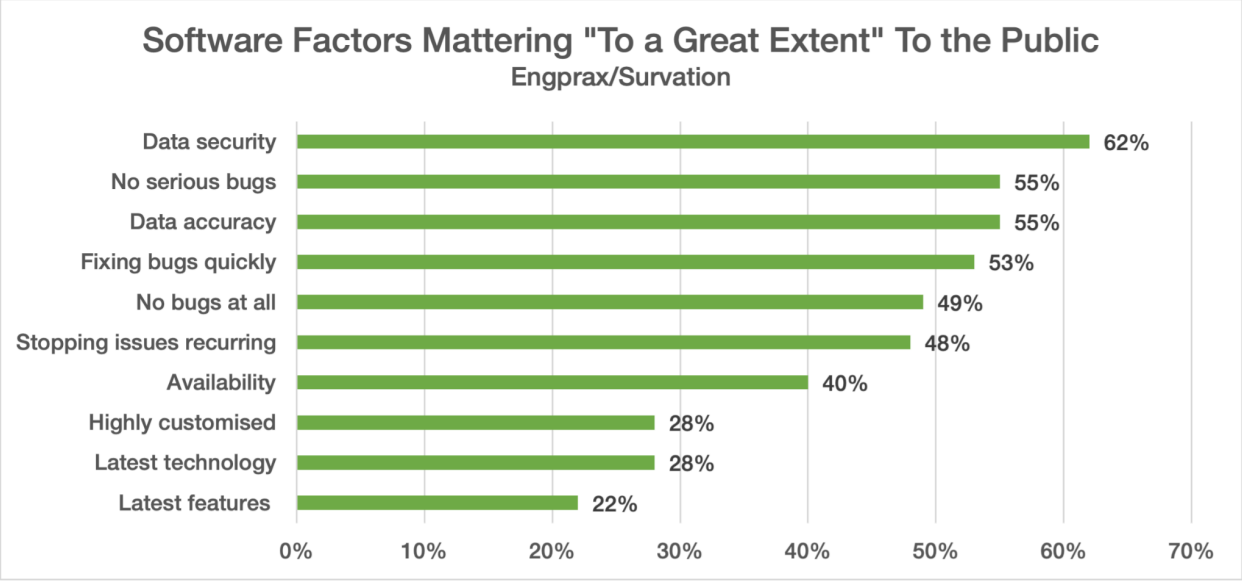
c. Investigative journalistic techniques (including confidential human sources, Freedom of Information Act Requests and open-source intelligence).

Public Perception of Software

6. Google's DORA team, in their 2023 State of DevOps Report, continued to use their "Four Key Metrics" which revolve around using speed (and volume) to measure software delivery performance - speed to deploy a change, speed to recover from failed deployments, frequency of deployments and change failure rate as a percentage of all deployments.

7. I note that Engineering Council UK's Guidance on Risk[6] states that *"it is important for engineering professionals to understand the level of risk that is acceptable in pursuit of objectives – **the risk appetite**."* However, it remains an open question as to whether the reliability metrics that are captured by the DORA "Four Key Metrics" actually match public expectations.

8. Using a representative sample of 1,989 UK adults, I've asked the public what matters most to them when using software. Of the 10 different dimensions measured, the public was most likely to agree "to a great extent" that data security (62%), data accuracy (55%) and ensuring there are no serious bugs (55%) mattered to them.



[5] "*EngProd 2021: A Review on the State of Developer Productivity*" - Haystack Analytics
[6] "*Guidance on Risk*" - Engineering Council UK

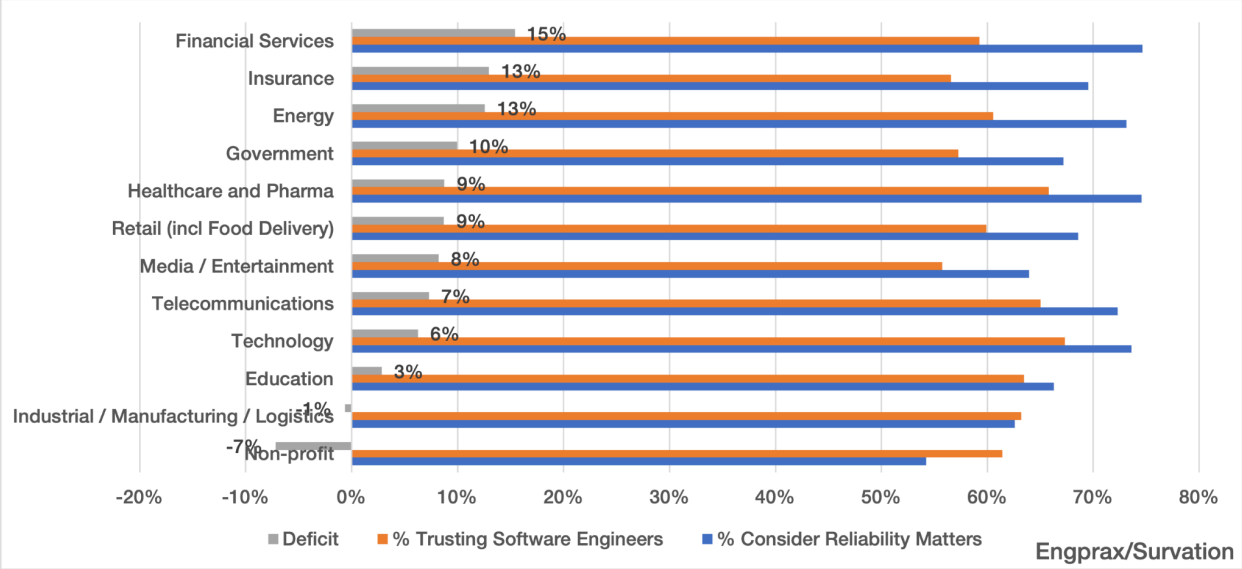
9. “Getting the latest features as quickly as possible” ranked lowest (22%), even below “being able to use a system which uses all the latest technology behind the scenes” (28%).

10. I further note that user expectations of software reliability vary by industry. 46% of the public thought software reliability mattered “to a great extent” in financial services, 44% in healthcare/pharma and 42% in telecommunications. This fell to 27% in media/entertainment and just 22% in non-profit.

11. In the IPSOS Mori Veracity Index 2022, engineers generally were the second most highly trusted profession (only behind nurses).[7] Similarly, our data showed that 64% of the public would trust software engineers to a “great” or “moderate” extent.

12. We also asked the public whether they would trust software engineers depending on the industry they worked in. Across all professions, a majority of the public would trust software engineers to a “great” or “moderate” extent. However, there were some differences by industry - those working in technology (67%), healthcare/pharma (66%) and telecommunications (65%) saw the highest levels of trust, whilst those in Government (57%), insurance (57%) and media/entertainment (56%) saw slightly lower levels of trust.

13. It is interesting to note that the public considering that software reliability was important in that industry did not necessarily correlate with the trust in a software engineer by a specific industry ($r = 0.26$, $r^2 = 0.07$). I calculated the difference between the percentage of the population who thought that reliability mattered to a “great”/“moderate” extent in a given industry and the percentage who thought that would trust a software engineer in that industry to a “great”/“moderate” extent. Our research showed that the greatest trust deficit exists in those in financial services (15%) and insurance (13%).



[7] "*Ipsos Veracity Index 2022*" - Ipsos MORI

14. Note the following caveats with the above chart in paragraph 13:

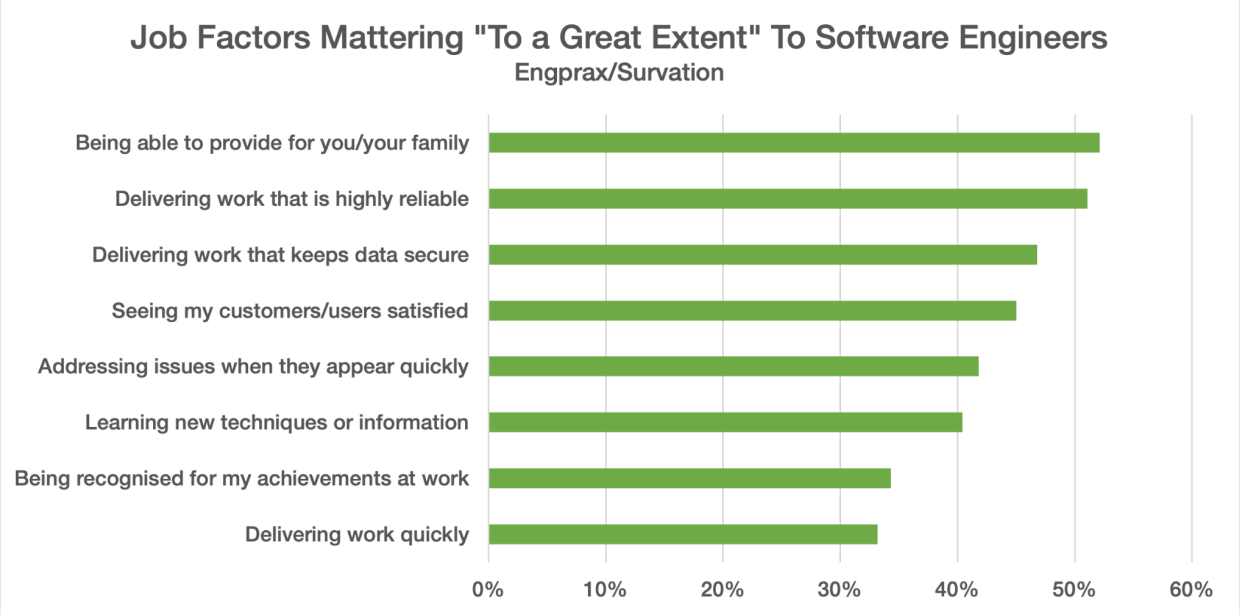
    a. The trust data for “technology” asked respondents about “technology or telecommunications” rather than just “technology”, so the deficit and trust data there use slightly different questions. However, the ordering of questions was randomised and “telecommunications” trust was also asked independently.

    b. A negative deficit indicates a higher percentage of trust in software engineers than the percentage that considers reliability important, for that industry. The reverse indicates the opposite.

Software Engineers Perception

15. Software engineers are concerned about reliability. 71% agree to a great/moderate extent that software reliability at their workplace concerns them. When I polled this in June 2021, the result was 57%.[8] 34% agreed to a great extent, up from 20% in 2021, a 68% increase.

16. Turning next to what matters most for software engineers. Software engineers were most likely to say what mattered “to a great extent” about their jobs was being able to provide for them/their families (52%), delivering work that is highly reliable (51%) and keeping data secure (47%). Over 8 dimensions, software engineers were least likely to say this of “delivering work quickly” (33%).



17. Whilst the DORA “Four Key Metrics” do measure some form of performance, and therefore may find some correlation with competence, they do not measure what the

[8] *“83% of Developers Suffer From Burnout, Haystack Analytics Study Finds”* - Haystack Analytics

public think is most important when it comes to computer systems or what software engineers, in their professional judgement, think is most important. Additionally, it doesn't take due regard for the changing tolerance in the balance of risk and reward in different industries or particular settings. Overoptimising against these metrics, particularly when at the cost of what matters to society or where the professional judgement of software engineers directs, can introduce significant harm.

18. **It is, therefore, my recommendation that the use of the DORA "Four Key Metrics" as a blanket measure of software delivery performance be discontinued, instead using measures and risk indicators which are suitable for the risk/reward appetite in a given environment.**

Wrongdoing & Whistleblowing

19. Newer software delivery metrics frameworks are using subjective surveys within team settings to provide insights. They depend on engineers being able to express their opinions to their peers.

20. These methodologies bring profound concerns about whether employees feel they are able to speak up, whether they expose themselves to risk for voicing their opinions and whether sampling engineers at a team or company level biases the results based on the selection process for that team.

21. In the kick-off call when I was commissioned to do this study, I was told me that engineering managers who were attempting do so would often notice that employees would say everything was fine originally but when things improved they would become more critical as they developed psychological safety.

22. Prior research has indicated that skill plays a part too in whether software engineers can predict software delivery performance[9]: "The lowest and most over-optimistic effort estimates for the larger tasks were given by those with the lowest programming skill, which is in accordance with the well-known Dunning-Kruger effect. For the smaller tasks, however, those with the lowest programming skill had the highest and most over-pessimistic estimates."

Software Engineer Experiences

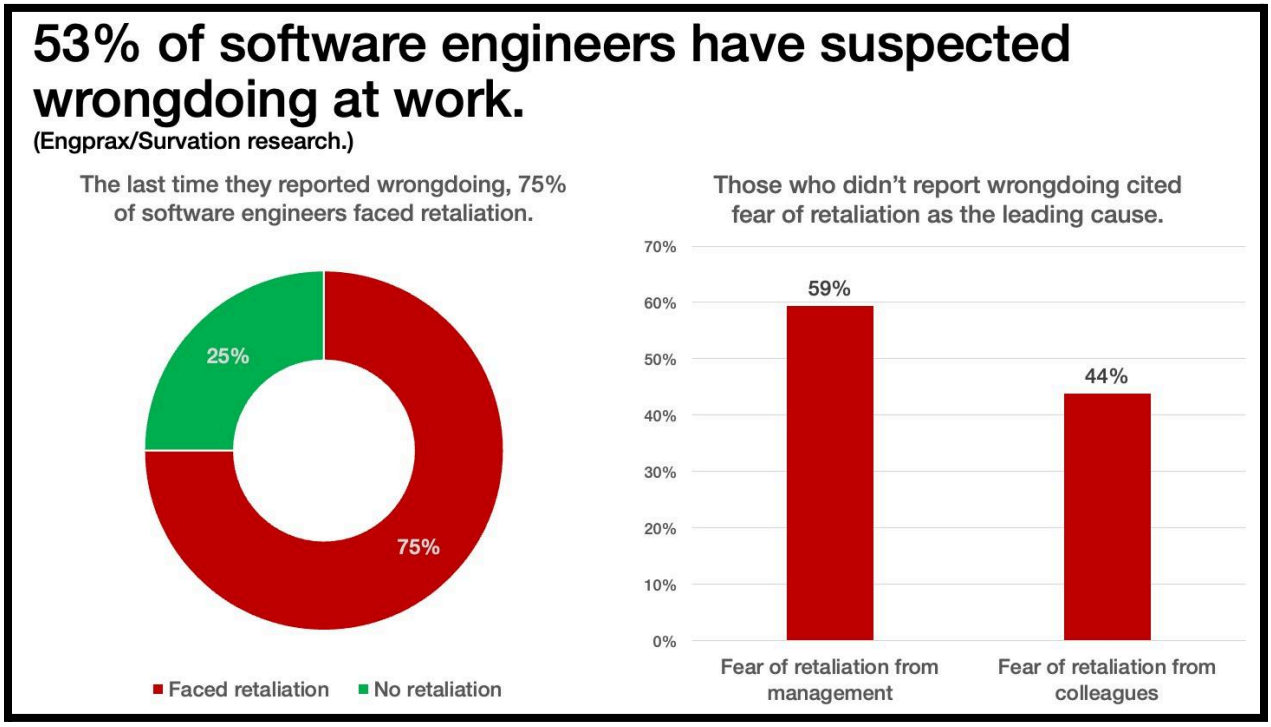
23. As part of our opinion polling of software engineers, we asked software engineers about their experiences when encountering wrongdoing and whether they spoke up or not.

[9] Jørgensen, M., Bergersen, G.R. and Liestøl, K., 2020. Relations between effort estimates, skill indicators, and measured programming skill. *IEEE Transactions on Software Engineering*, *47*(12), pp.2892-2906.

24. Asking software engineers if they had suspected wrongdoing at work, 53% of software engineers responded they had. (Examples of this provided to respondents were specifically breaching professional standards, negligence, bribery, fraud, criminal activity, miscarriages of justice, health and safety risks, damage to the environment or breaching legal obligations, including discrimination - or deliberately concealing such matters.)

25. Of this number, we then divided respondents based on whether they reported wrongdoing to their employer or not.

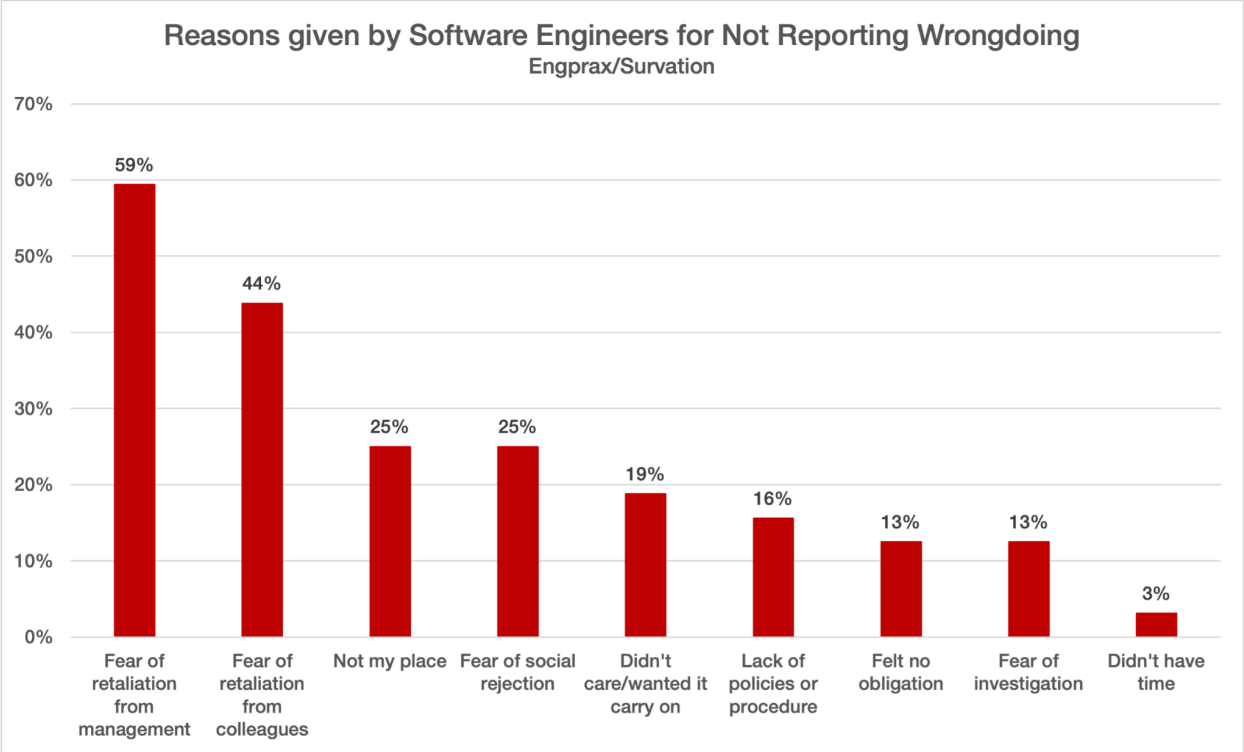
26. Of the 116 who did report wrongdoing to their employers, 75% reported that they faced retaliation (the examples given to participants included “denying you a promotion/raise, harassment/bullying, being treated differently, being fired etc.”).



27. Given estimates put the total number of software engineers in the UK at 466,000 [10]; this amounts to ~145,000 active software engineers in the UK having experienced retaliation the last time they reported wrongdoing to their employers. A number greater than there are UK Regular Forces in the British Army, Royal Air Force and Royal Navy combined.[11]

28. Of those who admitted to not reporting wrongdoing, the top two reasons cited were potential retaliation from management (59%) and potential retaliation from colleagues (44%).

[10] *“Total numbers of programmers and software development professionals in the United Kingdom (UK) from 2011 to 2021”* - Statista Research Department
[11] *“Quarterly service personnel statistics”* - GOV.UK



Silencing Techniques

29. In the UK, there exist legal protections that protect employees from suffering detriment or dismissal from making “protected disclosures”, speaking up about issues when it’s in the public interest to do so and related to criminality, failure to comply with legal obligations, miscarriages of justice, health and safety dangers, or environmental damage. Such disclosures can be made to employers and regulators but can be made more widely in certain circumstances (with requirements stipulating as part of the conditions things like if the employee reasonably believes they will be subject to detriment, if they’ve already reported to their employer or if it’s an exceptionally serious failure).

30. Given employers are evidently subjecting employees to detriment regardless of the legal footing, I sought to investigate how employers nevertheless gag employees who report wrongdoing using the law.

31. Section 43J of the Employment Rights Act 1996 (as amended by the Public Interest Disclosure Act 1998, also known as PIDA) voids any contract term which attempts to stop a worker from making a protected disclosure - including severance/settlement agreements:

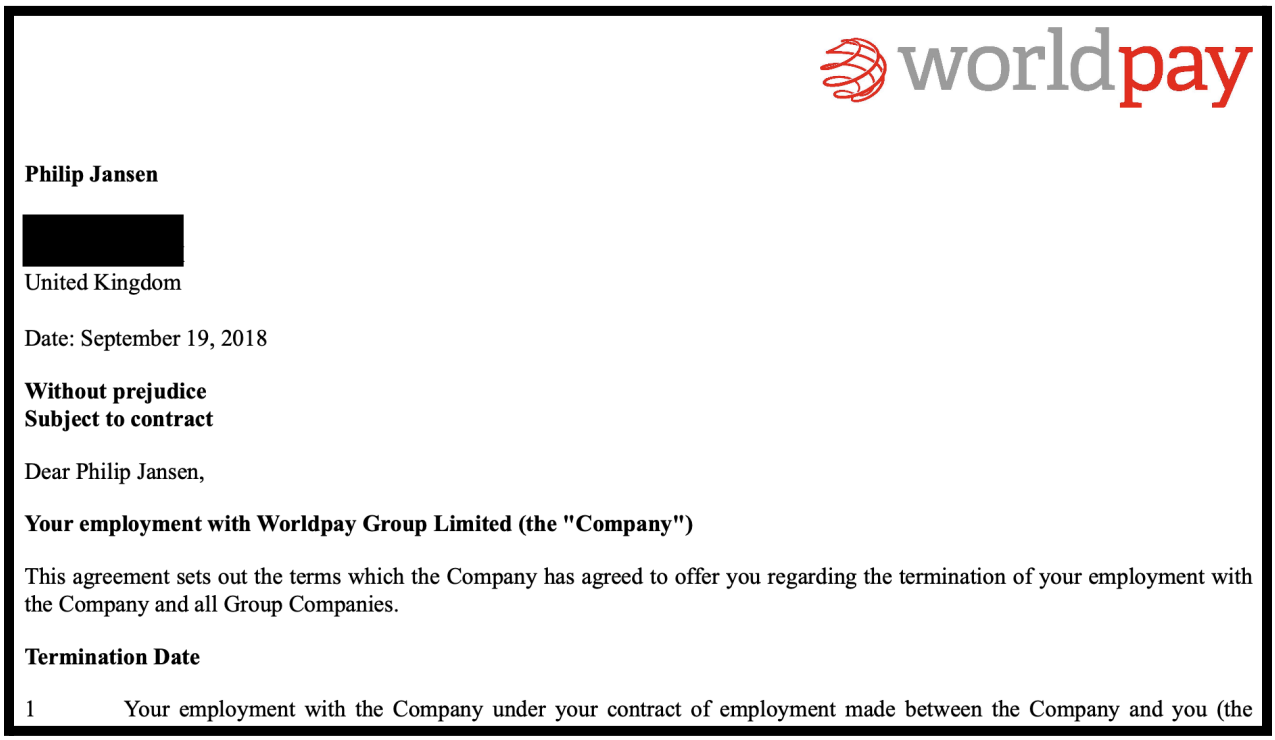
> *“(1) Any provision in an agreement to which this section applies is void in so far as it purports to preclude the worker from making a protected disclosure.*

(2) This section applies to any agreement between a worker and his employer (whether a worker's contract or not), including an agreement to refrain from instituting or continuing any proceedings under this Act or any proceedings for breach of contract."

32. Richard Moorhead, Professor of Law and Professional Ethics at the University of Exeter, described PIDA to me as follows: *"This is the UK's whistleblowing law. It is part of good governance in the UK, it provides limited protection for employees to report misconduct, in the public interest."*

33. Companies have sought to 'workaround' these protections by instead requesting employees warrant that they know of no information which could form the basis of a protected disclosure. As a result, the Financial Conduct Authority banned this practice amongst regulated financial institutions effective from the 7th September 2016.[12] *(Please see the update of the 9th February 2024 on page 22 for an update on the limitations of this rule.)*

34. Nevertheless, we now have evidence that at least one financial institution continued to use such clauses even after the ban. I have obtained a copy of a settlement agreement between Worldpay (now owned by FIS) and their then-CEO, Philip Jansen (now CEO of BT) via the United States Securities and Exchange Commission.



worldpay

Philip Jansen

[redacted]
United Kingdom

Date: September 19, 2018

Without prejudice
Subject to contract

Dear Philip Jansen,

Your employment with Worldpay Group Limited (the "Company")

This agreement sets out the terms which the Company has agreed to offer you regarding the termination of your employment with the Company and all Group Companies.

Termination Date

1 Your employment with the Company under your contract of employment made between the Company and you (the

35. The agreement stipulates that in exchange for signing the agreement, Mr Jansen was paid £251,282 as a severance payment, the first £30,000 of which was tax-free, in

[12] *"SYSC 18.5 Settlement agreements with workers"* - Financial Conduct Authority

addition to a £20,000 plus VAT contribution to legal fees, £3,700 plus VAT in counselling services and £100 for agreeing to post-termination restrictions.

36. The agreement does appear to bind subsidiary companies:

    a. Clause 30 of the agreement states: *"The Company is entering into this agreement for itself and as agent for and trustee of all Group Companies. Any Group Company or any director, officer or shareholder of the Company or any Group Company may enforce the terms of this agreement..."*

    b. Sub-clause 31.1 defines Group Company as follows: *'"Group Company" means Worldpay, Inc., and any company which is from time to time a holding company of the Company or Worldpay, Inc., a subsidiary of the Company or Worldpay, Inc., or a subsidiary of a holding company of the Company or Worldpay, Inc... The words "holding company" and "subsidiary" have the meanings given to them by s.1159 Companies Act 2006 and a company shall be treated, for the purposes only of the membership requirement contained in subsections 1159(b) and (c), as a member of another company even if its shares in that other company are registered in the name of (a) another person (or its nominee), whether by way of security or in connection with the taking of security, or (b) a nominee;'*

37. Subsidiary companies for WorldPay are on The Financial Services Register:

    a. A search on The Financial Services Register indicates there are 5 subsidiary organisations of WorldPay on the register (across 6 entries). All appear to have been added to the register before the settlement agreement with Mr Jansen was signed (perhaps save Worldpay B.V. which had temporary permission in another EEA country until temporary permission was granted on 31/12/2020).

    b. WorldPay (UK) Limited entered the register on 13/10/2015 (and Worldpay B.V. gained temporary status in 30/01/2015), all other child firms of WorldPay appear to have entered the register less than a year before the settlement agreement with Mr Jansen was signed and whilst the FCA rules on protected disclosures were in place.

    c. Both the 31 December 2017 and the 31 December 2018 accounts of Worldpay Group Limited show all these are fully held subsidiaries of the business save Worldpay Sweden AB which was sold for £1 on 31 May 2017 according to the 2017 accounts.

38. Clause 26.4 states: *'You warrant to the Company and each Group Company as a condition of this agreement that to the best of your knowledge and belief:' ... 'you are not aware of any grounds on which you may make (or, to the best of your knowledge, any other employee of the Company or any Group Company is intending to make) a "protected disclosure" or a "qualifying disclosure" within the meaning of Part IVA Employment Rights Act 1996 in relation to the Company or any Group Company;'*

Warranties

26 You warrant to the Company and each Group Company as a condition of this agreement that to the best of your knowledge and belief:

26.1 the Claims and Particular Claims are all of the claims (whether statutory or otherwise) that you consider you have, or may have, against the Company, any Group Company, its or their employees, officers or shareholders arising out of or in connection with your employment with the Company, or any Group, or its termination;

26.2 you are not aware of any condition, mental or physical, or any other facts or circumstances, which could constitute the basis for a claim against the Company or any Group Company for personal injury (whether at the date of signing this agreement or at any time in the future);

26.3 all grievances that have been raised by you are hereby withdrawn and that you further warrant that you have no other grievance with the Company or any Group Company in respect of or in connection with your employment with the Company or any Group Company, its termination or any other matter;

26.4 you are not aware of any grounds on which you may make (or, to the best of your knowledge, any other employee of the Company or any Group Company is intending to make) a "protected disclosure" or a "qualifying disclosure" within the meaning of Part IVA Employment Rights Act 1996 in relation to the Company or any Group Company;

26.5 save as provided in this agreement, there is no payment due to you under any contractual agreement with the Company or any Group Company;

26.6 that you have not committed any act or any omission which would have legally entitled the Company to summarily

39. Asked what the purpose of such warranty clauses was, Professor Moorhead said: *'These warranty clauses serve two purposes. One is they encourage the exiting employee to fully disclose concerns they have about their company they are leaving so that settlement is on a full and frank basis and deals with all the allegations an employee has. The second is that they discourage employees with allegations which could form the basis of a report to a regulator from making that report. They can be used to seek repayment of compensation under an exit package ("you breached the warranty so you owe us the money") or discrediting the report ("well when they left us they told us there was no allegation that could be reported"). If the clause is designed for this second set of purposes it is deeply problematic.'*

40. However, in Mr Jansen's case, the agreement outlined a "particular claim" related to protected disclosures - despite the fact in the agreement Mr Jansen warrants he does not have any grounds for making a protected disclosure:

    a. Clause 17 of the agreement lists some "particular claims" - a limited set of well-defined claims which are waived before other claims generally are settled, these are defined as claims that Mr Jansen may have which he *"therefore could bring proceedings against the Company or any Group Company (or any of its or their directors, officers, employees or shareholders in that capacity) for"*.

    b. The clause contained a note to Mr Jansen's solicitor *"to confirm if there are further particular claims and/or proceedings on which he/she has advised the Employee"*.

c. After “unfair dismissal”, the second claim in the list of six was for *“automatic unfair dismissal” … “and protection from suffering detriment”* for making a protected disclosure.

d. Seeing the screenshot associated with my paragraph 38 above, it is also interesting to note that in the agreement there is no line break between 26.4 and 26.5, unlike every other sub-clause in clause 26. In two parts of the agreement (clauses 11.2 and 11.3), the sub-clauses change to having no line spacing - however, in every clause I see in the agreement, the line spacing is consistent for all sub-clauses in the same clause. Therefore, I wonder if this indicates that this clause was specifically inserted into this template agreement. (I asked Professor Moorhead in general whether he thought this was a standard clause or if any other employees could have signed it, and he replied by saying “I would not say either way on the basis of the agreement.”)

41. In Parliamentary evidence, Professor Moorhead described such warranty clauses as a “workaround” of whistleblowing law[13], asked if it was a workaround in this case, Professor Moorhead said: “... If the purpose was, in part, to discourage a report then I would say it was a workaround. Given FCA rules, my starting point would be it probably should not be in the agreement.”

42. Professor Moorhead went on to say: *“If the clause is in breach of the FCA rules then this is a serious matter that I would expect them to look into, identify the senior people responsible, and take appropriate action. Any lawyers on top of their brief and involved in drafting such a clause would, I think, be expected to advise their clients that such clauses were inappropriate under FCA rules. There is potentially a beach of the SRA rules. SRA guidance on professional rules is that an NDA which prevents, seeks to impede or deter, a report to a regulator or the exercise of whistleblowing rights is improper. Whilst the guidance does not appear to have been in place at the time, it seeks to explain professional obligations that were in existence at the time.”*

43. When these comments were put to the Solicitors Regulation Authority, they responded: *“It’s not clear that any solicitors were involved in this matter. The FCA as Worldpay’s regulator will investigate this matter and if they felt that any solicitors were involved in drafting agreements that breach our rules, they would refer them to us through our agreed channels.” … “We were made aware in 2018 that solicitors potentially could be forgetting their legal obligations when drawing up settlement agreements and were including NDAs that were not compliant with the law. That led to us putting out a warning notice in 2018 that we updated in 2020 to make sure the profession did not breach its obligations. Solicitors should uphold the rule of law and proper administration of justice, after all.”*

44. The SRA also directed me to comments made by Juliet Oliver, General Counsel of the SRA, when they published a report into NDAs in August 2023: *"From employees having*

[13] *“Written submission from Professor Richard Moorhead (NDA0069)”* - Parliament

insufficient access to independent legal advice, to employers imposing tight time limits and a sense of urgency to complete settlements, the report also found significant imbalances in power between parties signing NDAs."

45. On what employees should do if they're asked to sign such a clause, Professor Moorhead says: *"Get proper advice on the legality of the clause. If their lawyer agrees it is an unlawful clause, they could decline and get the clause removed; they could sign and ignore (this is risky if the clause might be legal); they could report the employer to their regulator (if they have one) and the lawyers involved to their regulator (the SRA) at the point at which the clause is signed. Of course all these strategies have risks and so most would just sign and keep quiet; this is why they are included."*

46. I do wonder if by employers subjecting employees to detriment for whistleblowing, an irony is that this may strengthen software engineers' legal footing if they take evidence of wrongdoing directly to the press instead of disclosing it to their employers. (Of course, employees should take independent professional legal advice in relation to any of these matters.)

47. Longer responses from Professor Moorhead and the Solicitors Regulation Authority are in appendices C and D. The Financial Conduct Authority, FIS (for Worldpay) and Phillip Jansen did not respond to my requests for comment.

Post Office Settlement Agreement Clauses

48. Using the Freedom of Information Act 2000 (FOIA), I sought to obtain from the Post Office clauses related to protected disclosures from their settlement agreements.

49. The Post Office Horizon IT Inquiry I mentioned at the start of this report (in paragraph 2) relates to accounting software used by the Post Office, with the development outsourced to Fujitsu. Miscarriages of justice occurred after the Post Office used data from the Horizon system to run private criminal prosecutions of the postmasters running Post Office branches for false accounting and theft despite flaws in the Horizon IT system.[14] [15] Recently the Post Office has been subject to scrutiny over failures when disclosing information to the Inquiry.[16]

50. I originally made a FOIA request to the Post Office on the 16th of September 2023 to inquire about the terms of settlement agreements used by the Post Office relating to public interest disclosure laws in any employee settlement agreements.

51. The Post Office responded on the day the legal deadline was due to expire, the 13th of October 2023, claiming the request was excessive due to the amount of information that it would be required to search. (See Appendix G for their full response.)

[14] *"Post Office lawyer bragged how team 'destroyed attack on the Horizon system' and put woman in prison"* - ComputerWeekly
[15] *"Post Office scandal: What the Horizon saga is all about"* - BBC
[16] *"Post Office disclosure failures delay Horizon scandal inquiry again"* - ComputerWeekly

52. However, the Post Office did suggest in their response: *"You could, for example narrow the scope of your request in relation to Post Office's template Settlement Agreements issued between 2017 to date (which would give a period of 6 years)."*

53. Financial Conduct Authority rules on settlement agreements took effect from the 7th of September 2016, which would mean compliant organisations would update their agreements around this date.[17] One such rule (SYSC 18.5.1) requires: *"A firm must include a term in any settlement agreement with a worker that makes clear that nothing in such an agreement prevents a worker from making a protected disclosure."*

54. On the same day, I made a follow-up FOIA request requesting settlement agreements *"issued between January 2014 and September 2017 and from March 2021 to the current date"*. The first date range overlaps with the period when the FCA introduced these rules.

55. The Post Office responded to this request with just under 24 hours remaining before the legal deadline became due. The response outlined that in relation to templates "in use from approximately 2014 - 2017", *'Templates in use in this for a part of this period did not also contain a clause saying: "Nothing in this agreement shall prevent you from making a protected or qualifying disclosure" or similar.'* "Templates in use from approximately 2017" did however contain such a clause. (See Appendix H for their full response.)

> Templates in use in this for a part of this period did not also contain a clause saying: "Nothing in this agreement shall prevent you from making a protected or qualifying disclosure" or similar.

56. Vague words *"for a part of this period"* are curious given my request stated: *"If possible, please provide these clauses alongside when the associated template is dated."*

57. This raises the following questions:

    a. Did the Post Office utilise settlement agreements that were not compliant with FCA rules for a period of time after these rules were brought in? If so, why did the Post Office not immediately update settlement agreements on these rules being brought in?

    b. Given the template in use from 2017 onwards sought to comply with these FCA rules and it's unclear when/if the previous version did - did the Post Office suggest revising the FOIA request to conceal a breach of FCA rules in late 2016?

    Update 24th February 2024: *Via a third-party source we learned that, ironically, as the Post Office offers its financial services through other third-party companies, the rule mentioned in paragraph 53 might not apply to them at all (please see the update of the*

[17] *"SYSC 18.5 Settlement agreements with workers"* - Financial Conduct Authority

9th February 2024 on page 22 for an update on the limitations of SYS 18). There is therefore the possibility that the Post Office misinterpreted that they were subject to this rule by making these changes. Aside from more general guidance in SYS 18, they maybe would not even have had to implement such rules in the first place. This raises the question if through suggesting the FOIA request should only query after 2017, they sought to conceal their non-compliance of a rule that didn't actually apply to them.

58. When I requested comment from the Post Office they responded by saying the Post Office's position is that employees who signed a settlement agreement before the rule coming into effect would be entitled to make a protected disclosure and the Post Office would not alledge that this amounted to a breach of their settlement agreement:

> *"To reiterate, Post Office Limited is strongly committed to transparency and has responded to the two FOIA requests from you within the legal timeframe.*
>
> *"Post Office's position is that any present or former member of staff who signed a settlement agreement after the rule you refer to came into effect would of course be entitled to make a protected disclosure (as defined) and Post Office would not allege that this amounted to a breach of their settlement agreement."*

59. Nevertheless, in their response, the Post Office did not provide any comment as to whether in late 2016, settlement agreements became compliant with FCA rules or why they sought to revise the FOIA request to only starting from 2017 onwards.

60. The Post Office's second response also indicates the templates did not contain attempts for former employees to contract out their rights to make Data Subject Access Requests (under GDPR) or FOIA requests, or contain warranty clauses attempting to workaround public interest disclosure law. However, that does not guarantee they were not used - they could be added to individual settlement agreements rather than in the templates themselves (and at their suggestion my second request only covered templates).

61. However, the news that the Post Office stating that they would not would not allege a breach of a settlement agreement against an employee with a settlement agreement drafted before the FCA rule came in should provide some new assurance to any potential employees who may be affected.

62. During the Post Office Horizon IT Inquiry, terms of a draft settlement agreement (in this particular instance, known as a draft Tomlin Order) in litigation between a sub postmaster and the Post Office were brought to light, with a term described by Richard Morgan KC as "unworkable and a complete waste of space"[18]:

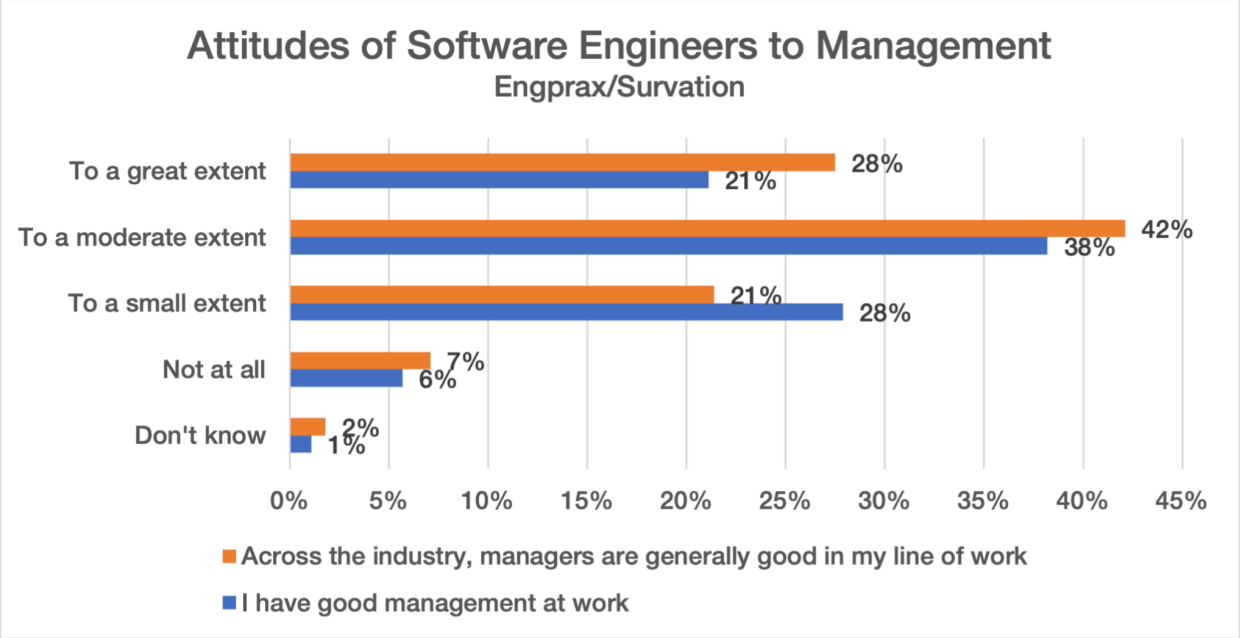
> *"The defendant undertakes to the Claimant that he will neither repeat his allegations about the Horizon System nor make any further allegations about the Horizon System or its functioning and, in the event that the Defendant breaches*

[18] *"Phase 4 - 22 September 2023"* - Post Office Horizon IT Inquiry

this undertaking, he shall both: (i) submit to an injunction restraining him from talking further about the Horizon System; and (ii) pay to the Claimant liquidated damages in the amount of £25,000 being a genuine pre-estimate of (a) the Claimant's costs of having to rebut such statements and (b) its loss of goodwill generally."

On Engineering Management

63. Over 1 in 3 software engineers would say that they either don't have good management at all or the management is only good to a small extent.



64. It is interesting to consider how software engineers' perceptions of their own management differ from their perceptions of engineering management generally. In general, software engineers are far more optimistic about management elsewhere in the industry than their own. They are nearly 17% more likely on average to agree to a great/moderate extent that other managers are generally good compared to their own. They are around 15% more likely to say their own managers are not good or only good to a small extent than others in the industry.

65. This indicates a trend that software engineers tend to see the "grass as greener", even though it seems like many issues are systematic within the industry.

66. Additionally, a team or company itself does not offer a representative sample of software engineers, given the selection criteria for hiring and retention will inevitably differ by the environment, alongside factors like local geography and culture.

67. The caveats of evaluating performance subjectively rather than empirically have been long known, a 1992 study[19] found that in one company 32% of software engineers rated their performance in the top 5%, in the second company studied this raised to 42%. Of 714 participants, only one rated their performance below average. The variance between the two companies highlights the issues with doing such studies at a team/company level, whilst the clearly “statistically absurd result” [20] highlights the issues with using such surveys for performance metrics.

68. We also polled whether software engineers considered their performance “below average”, “about average” or “better than average”. 55% said they were better than average and 94% said they were either average or better than average.

69. To highlight how the demographics of a team can affect performance rating, we found that men are 26% more likely than women to consider themselves better than average performers.

70. Furthermore, as our research earlier has demonstrated 44% of software engineers who did not report wrongdoing to their employers reported fear of retaliation from colleagues as a concern. If an employee’s performance is largely or solely quantified using measures like 360 feedback (where colleagues rate each other's performance), one can only imagine the effect this has on the ability to speak frankly within an organisation. If employees are fearful of strong, honest and effective two-way communication; this could minimise compassion, honesty and impact. A “good-news-only culture” where problems are suppressed until they reach boiling point, rather than addressed, is neither kind nor compassionate.

71. Conversely, we also asked software engineers if they felt their achievements at work were well-celebrated, nearly one in three (31%) either didn’t feel their achievements were well-celebrated at all or only “to a small extent”. Lasting oversight systems could also help in this area.

72. We also see indications in the data that predictability is more important than speed. As described earlier, both the public and software engineers don’t see delivering features as fast as possible as the most important thing. We also see this when we asked software engineers what the single most important measure of quality on their current project is. Of 13 dimensions measured, whilst only 5% thought delivering features quickly was important, 14% thought delivering work on time was most important. This seemingly indicates that predictability, instead of speed, matters more for many when it comes to software delivery performance. Key to enhancing predictability is gaining visibility over hidden factors which often cannot be found through just subjective analysis and require empirical data.

[19] Zenger, Todd R. "Why do employers only reward extreme performance? Examining the relationships among performance, pay, and turnover." *Administrative Science Quarterly* (1992): 198-219.
[20] Dunning, David. "The Dunning–Kruger effect: On being ignorant of one's own ignorance." In *Advances in experimental social psychology*, vol. 44, pp. 247-296. Academic Press, 2011.

73. **Given the risks engineers face of retaliation, the fear of speaking up, alongside other cognitive biases that operate at a team/company level which we detect at a population-wide level, it is my recommendation that where software delivery performance is measured, it should be done objectively and empirically. At a team or company level, subjective measures like surveys (even where the results are quantified) should not be the sole (or even predominant) source of input as to do so would mean that effective systems of oversight and scrutiny do not exist - particularly in those environments where people are not free to speak up.**

Conclusion

74. This investigation has highlighted a number of significant issues that are relevant to both software engineers and the wider society who use computers. At a UK-wide level, there's clearly a need to strengthen whistleblowing protections, strengthen legislation to void the use of warranty clauses to 'workaround' public interest disclosure laws and ensure that wider society is engaged with ongoing technological developments.

75. I make the following recommendations on the basis of the findings I've discovered over this investigation:

    a. Given that software engineers place priorities elsewhere than speed and given risk tolerance differs by industry; the use of the DORA "Four Key Metrics" as a blanket measure of software delivery performance should be discontinued, instead using metrics which are suitable for the risk/reward appetite in a given environment.

    b. Given that at a population-wide level, we see developers being unable to speak up, risking retaliation and with cognitive biases which could be impacted by the hiring policies of such teams; at a team/organisation level, software delivery performance should be empirically measured and that subjective surveys (even where quantified) cannot solely or independently fulfil this role.

76. UK software engineers affected by the contents of this investigation can find support in the following resources:

    a. Engineering Council UK's Guidance on Whistleblowing

    b. Protect - Speak Up, Stop Harm (whistleblowing charity)

    c. Whistleblowing legal advice - settlement agreements solicitors (Monaco Solicitors)

77. Software engineers in the US might find support at the following resources:

    a. The Tech Worker Handbook

b. National Whistleblower Center

c. Whistleblower Support Organizations and Legal Resources (Office of the Whistleblower Ombuds)

78. No part of this report should be considered legal advice and employees should take professional legal advice where appropriate.

79. As I did when I conducted the study into developer burnout 2 years ago, the polling data tables are available in appendices A and B. I would hope that more of those who conduct similar opinion polling of software engineers would do the same where possible, to ensure there is transparency of the data.

80. Finally, I would like to express my gratitude to the management team of the client who requested this study who gave me vast operational freedom to pursue this investigation wherever it led me. I would also like to profusely thank the numerous people who supported this effort, including those who have done so on a confidential basis.

Junade Ali PhD CEng FIET

Edinburgh, Scotland, United Kingdom

20th November 2023

Updates

9th February 2024

Part of the contents of this report indicated that a gagging clause which has been banned by the Financial Conduct Authority was used in the settlement agreement with Phillip Jansen, in which Mr Jansen warranted he knew of no grounds to make a protected disclosure. The settlement agreement lists automatic unfair dismissal for making a protected disclosure as a "particular claim". According to comments provided to us by Professor Moorhead, this may also be a breach of Solicitors Regulation Authority rules. Additionally, the Solicitors Regulation Authority have previously noted that: "Attempts to discourage or limit disclosure of evidence to criminal or civil processes can amount to perverting the course of justice."[21]

Engprax has recieved information from sources which indicates that the specific FCA rule banning the use of warranty clauses which workaround whistleblowing laws may not apply to Worldpay and we have seen evidence indicating there are no plans to extend such protections for whistleblowers to all firms the FCA regulates. Nevertheless, the information in Mr Jansen's settlement agreement, which indicates dismissal for making a protected disclosure as a particular claim and the use of a clause to workaround whistleblowing law, may still warrant investigation by the Financial Conduct Authority given broader whistleblowing legislation and FCA guidance applicable to all regulated firms. We are sharing this additional information in the interests of transparency.

Engprax has become aware that the definition of "firms" in FCA rules banning the use of workarounds of whistleblowing law (*SYS 18.5*) is more restrictive than all firms the FCA regulates - as such Worldpay may well fall outside the scope of this particular rule.[22]

Engprax is not aware of any work done by the FCA or under consideration to bring payment and electronic money institutions within scope. On the 8th February 2024, the FCA said in response to a Freedom of Information Act request made by Engprax on plans to extent whistleblowing protections (particular those involving contracting out rights under GDPR and the Freedom of Information Act, FOIA) that: "We are not aware however, that any further policy work on settlement agreements in relation to contracting out rights or making warranties under the FOIA or UK GDPR has taken place since SYSC 18 was introduced in 2016."

However, guidance in the FCA handbook that applies to all firms states: "The FCA would regard as a serious matter any evidence that a firm had acted to the detriment of a whistleblower. Such evidence could call into question the fitness and propriety of the firm or relevant members of its staff, and could therefore, if relevant, affect the firm's continuing satisfaction of threshold condition 5 (Suitability) or, for an approved person or a certification employee, their status as such."[23]

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[21] *"Balancing duties in litigation"* - Solicitors Regulation Authority
[22] *"Whistleblowing in deposit-takers, PRA-designated investment firms and insurers"* - Financial Conduct Authority
[23] *"SYSC 18.1 Application and purpose"* - Financial Conduct Authority

As the clause in the settlement agreement could seek to work around UK whistleblower legislation and the settlement agreement lists automatic unfair dismissal for making a protected disclosure as a “particular claim” settled under the agreement, the conduct still seems relevant to the FCA as a regulator. Additionally, the use of such warranty clauses raises concerns about compliance with Solicitors Regulation Authority guidance and potential criminal liability for perverting the course of justice.

16th February 2024

See update on the bottom of page 16 (continued to page 17).

Appendices A & B: Data Tables

Please attribute “Engprax/Survation” if using this data.

a) Engprax Nat Rep Tables October 2023.xlsx

b) Engprax Software Engineers - Tables 3rd November 2023.xlsx

Appendix C: Response from Professor Moorhead

(Professor Moorhead's responses to my questions are in bold, with minor spelling and grammar corrections.)

1. How do you want to be referred to in the media? **Richard Moorhead, Professor of Law and Professional Ethics at the University of Exeter.**
2. What is PIDA and why does it matter? **This is the UK's whistleblowing law. It is part of good governance in the UK, it provides limited protection for employees to report misconduct, in the public interest.**
3. What are the purposes of such warranty clauses? What impact do they have on whistleblowing in the UK? **These warranty clauses serve two purposes. One is they encourage the exiting employee to fully disclose concerns they have about their company they are leaving so that settlement is on a full and frank basis and deals with all the allegations an employee has. The second is that they discourage employees with allegations which could form the basis of a report to a regulator from making that report. They can be used to seek repayment of compensation under an exit package ("you beached the warranty so you owe us the money") or discrediting the report ("well when they left us they told us there was no allegation that could be reported"). If the clause is designed for this second set of purposes it is deeply problematic.**
4. In your evidence to Parliament, you described such warranty clauses as a "work round" of PIDA. In this instance, does sub-clause 26.4 appear to be such a workaround? **Yes, potentially. It depends on the basis and conduct of the negotiations that led to it. If the purpose was, in part, to discourage a report then I would say it was a workaround. Given FCA rules, my starting point would be it probably should not be in the agreement.**
5. Does this appear to be a breach of FCA rules or a breach of any other legal/professional obligations? Does entering the agreement "as agent for and trustee of all Group Companies" put those FCA-regulated entities in breach of the rules? **If the clause is in breach of the FCA rules then this is a serious matter that I would expect them to look into, identify the senior people responsible, and take appropriate action. Any lawyers on top of their brief and involved in drafting such a clause would, I think, be expected to advise their clients that such clauses were inappropriate under FCA rules. There is potentially a breach of the SRA rules. SRA guidance on professional rules is that an NDA which prevents, seeks to impede or deter, a report to a regulator or the exercise of whistleblowing rights is improper. Whilst the guidance does not appear to have been in place at the time, it seeks to explain professional obligations that were in existence at the time.**
6. Does the existence of this clause in Mr Jansen's settlement agreement indicate that this could be a standard clause in WorldPay's settlement agreements or that other employees could have signed this clause? **I would not say either way on the basis of the agreement.**

7. What should employees do if they're asked to agree to such a warranty clause? **Get proper advice on the legality of the clause. If their lawyer agrees it is an unlawful clause, they could decline and get the clause removed; they could sign and ignore (this is risky if the clause might be legal); they could report the employer to their regulator (if they have one) and the lawyers involved to their regulator (the SRA) at the point at which the clause is signed. Of course all these strategies have risks and so most would just sign and keep quiet; this is why they are included.**
8. [REDACTED, OFF-THE-RECORD RESPONSE]
9. Should protection from the use of such clauses be extended to other industries outside those regulated by the FCA? **Yes.**
10. Are there any other comments you have on the story or any other reaction? **No**

Appendix D: Response from SRA

I believe Richard Moorhead's comment about "any lawyers on top of their brief and involved in the drafting of such a clause" is speculative rather an assertion that lawyers were involved. As a professor in law firm ethics, Richard normally looks at issue evolving and then gives observations for mostly students so they can inform themselves of future behaviour.

It's not clear that any solicitors were involved in this matter. The FCA as Worldpay's regulator will investigate this matter and if they felt that any solicitors were involved in drafting agreements that breach our rules, they would refer them to us through our agreed channels.

There's no such referral on our records, so any investigation in this matter must only involve those regulated by the FCA and not us.

I think it's worth pointing out that we don't have specific rules on NDAs – issues covering NDAs and what should or should not be included are covered by common law, for example trying to prevent proper disclosure to relevant authorities. That's because it's not just solicitors that draw up settlement agreements and NDAs, they are not protected legal services so can be delivered by anyone.

We were made aware in 2018 that solicitors potentially could be forgetting their legal obligations when drawing up settlement agreements and were including NDAs that were not compliant with the law. That led to us putting out a warning notice in 2018 that we updated in 2020 to make sure the profession did not breach its obligations. Solicitors should uphold the rule of law and proper administration of justice, after all.

Our Chief Executive said when we published the warning notice: "The public and the profession expects solicitors to act with integrity and uphold the rule of law. And most do. NDAs have a valid use, but not for covering up serious misconduct and in some cases potential crimes."

We looked at how firms were adhering to the points made in the warning notice and reported back on that in August.

Our General Counsel said then: 'While we found no direct evidence of firms intentionally seeking to suppress the reporting of wrongdoing, we did find examples of concerning trends and practices which may inhibit or deter disclosures.

'From employees having insufficient access to independent legal advice, to employers imposing tight time limits and a sense of urgency to complete settlements, the report also found significant imbalances in power between parties signing NDAs."

As direct evidence of wrong-doing is very rare, there have been no cases where action has been taken to tell you about. If disciplinary action was necessary, solicitors could face a range of sanctions, from written rebukes to fines of up to £25,000. If we believe the misconduct is more

serious and warrants greater sanction, we can prosecute at the independent Solicitors Disciplinary Tribunal. The Tribunal has unlimited fining powers and can also prevent a solicitor from practising through suspension or strike off.

We say in the review that we will look at making sure the profession is even more aware of its obligations under the warning notice, and that's what we will continue to do.

Appendix E: Response from the Post Office

To reiterate, Post Office Limited is strongly committed to transparency and has responded to the two FOIA requests from you within the legal timeframe.

Post Office's position is that any present or former member of staff who signed a settlement agreement after the rule you refer to came into effect would of course be entitled to make a protected disclosure (as defined) and Post Office would not allege that this amounted to a breach of their settlement agreement.

If you are dissatisfied with the manner in which the FOIA request was handled, you can request an internal review by emailing information.rights@postoffice.co.uk

Kind regards,

Appendix F: Requests for Comment

The Financial Conduct Authority (FCA)

Request for comment was sent to the FCA at 5:23 PM (GMT) on the 29th of October 2023, asking for a response prior to the 1st of November. At 16:30 on the 31st of October, I called them to check if they had received my email - they confirmed they did and would reply acknowledging my email and hopefully thereafter with a response. No such acknowledgement or response was received as of 1:30 PM on the 4th of November 2023.

Phillip Jansen and BT

Request for comment was sent to Phillip Jansen and BT at 11:28 AM on the 1st November 2023, asking for a response prior to 6 PM on the 3rd November 2023. No response was received as of 1:30 PM on the 4th of November 2023. At 10:18 AM on the 6th of November, BT Group declined to comment.

FIS (for WorldPay)

Request for comment was sent to FIS who own WorldPay at 12:42 PM on the 1st November 2023, asking for a response prior to 6 PM EDT on the 3rd November 2023. No response was received as of 1:30 PM on the 4th of November 2023.

Appendices G & H: Post Office FOIA Responses

g) FOIA Response_FOI2023_00541.pdf

h) FOIA Response_FOI2023_00598.pdf