

An Analysis of the Prevalence of Game Consoles in Criminal Investigations in the United Kingdom.

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Abstract: There is a body of current research on the technical analysis of computer games consoles to determine if information present might be of value in a criminal investigation. This research has highlighted the potential forensic value of the various consoles depending on the type of crime and the capabilities of the console. There is also anecdotal information, presented in the media, on various crimes that have been prosecuted using evidence obtained from games consoles. However, there appears to be no recent study examining the degree of involvement of games consoles in actual criminal activity, cases being investigated or their use in court cases. This paper presents the results of a Freedom of Information request using the UK Freedom of Information Act (2000) and the Freedom of Information (Scotland) Act 2002. The Freedom of Information Act request was aimed at obtaining an overview of the criminal misuse of game consoles during 2020. This request was sent to the 49 Police forces that cover England, Scotland, Wales and Northern Ireland, seeking details on games consoles included in cases that they have investigated. Current results provide limited information on the involvement of game consoles in cybercrime in the United Kingdom. In examining the prevalence of different types of games consoles in police investigations, the potential need for further work on game console forensics is discussed along with possible factors affecting both the data collection and the patterns observed in the study.

Keywords: games consoles, digital forensics, FOIA request

1. Introduction

There has been considerable work to date (Conrad 2010, Davies 2015, Moore 2014, Read 2016, Pessolano 2019, Barr-Smith 2021) highlighting the possible evidence sources that can be found in computer games consoles and best practices for extracting, analysing and presenting this information in a forensically sound manner. This previous research has shown that for a number of these systems the functionality of these game consoles makes them a potentially useful source of evidence, one that may be overlooked. There is also a body of anecdotal evidence (Urquhart 2012, Telegraph 2012, Holmes 2020, BBC News 2021) where specific cases reported in the news media, have highlighted prosecutions supported by evidence sourced from game consoles. However there appears to be no information on actual numbers of cases and the types of information and devices encountered by police forces. This presents several potential challenges:

- No clear indication of the significance of game consoles as a useful field of study, or whether further research efforts should be continued in this field.
- No clear indication of which consoles should be the focus of investigative research, i.e. where is the greatest need for additional research.

This paper outlines the results of a Freedom of Information Act 2000 (FOIA) request for the 49 police forces in England, Wales and Northern Ireland and Freedom of information (Scotland) Act 2002 (FOISA) request for Police Scotland. The objective is to obtain a snapshot of game consoles' involvement in cases that the forces have investigated within the UK.

2. Capability and misuse of games consoles

Modern games consoles include capabilities beyond simple game play. These types of devices now incorporate network communication between various parties, as well as sharing and downloading of information. Unfortunately, this has the potential for misuse and so maybe a potential evidence source. There are a number of media examples: A 14-year-old boy from Austria used a PlayStation to download bomb-making plans (Nasralla, 2015). The FBI applied for a search warrant to compel Sony for data concerning a PlayStation 4 user, who was suspected of using the messaging application in the PlayStation to communicate and arrange cocaine transactions (Brousil, 2019). Emails released by the Anonymous hacking group in 2012 identified how US police

were using Xbox and PlayStation consoles in investigations (Urquhart, 2012). There are various examples in the media where even less capable consoles have provided useful evidence (BBC News 2021, Holmes 2020). In 2012, a paedophile was caught after the 10-year-old victim took pictures of the abuse using her Nintendo DSi (Telegraph, 2012). Nintendo deactivated their popular “Swapnote” email-like service on the Nintendo 3DS globally as child predators were allegedly using this feature to send offensive material (Ashcraft, 2013).

3. UK Freedom of Information Act

The Freedom of Information Act (2000) is United Kingdom legislation that enables members of the public to request information from public authorities. The Act covers information held in England, Wales and Northern Ireland. A comparable piece of legislation, the Freedom of Information (Scotland) Act 2002, provides the same legal right of access in Scotland. Recorded information includes computer records, emails and printed documents (Information Commissioner 2021a). Detailed criteria defining the operation of the Act can be found in the Information Commissioner Office Code of practice (Information Commissioner's Office, 2021b). The definition of public authorities also includes the territorial police forces. There are several organisations in the UK that are exempt from responding to the Freedom of Information Act requests, including some national law enforcement bodies (Freedom of Information Act, 2000). The National Crime Agency (NCA) (NCA, 2021) and various commands of the NCA, for example the Child Exploitation Online Protection Command (CEOP) are exempt from the FOIA. Due to the role and function of these agencies, it is likely that they may encounter evidence of criminal activities on computer game consoles, although it would be impossible to know since they would not respond positively to information requests.

4. Methodology and information sought

An FOIA request was formulated based on advice provided on the UK information commissioner's website on making FOIA requests (Information Commissioner's Office, 2021c) and with a list of Police FOIA contacts provided by Burgess (2021). This included the forces responsible for territorial regions in England, Scotland, Wales and Northern Ireland (45) and the (4) non-territorial forces; the Port of Dover Police, The British Transport Police, the Civil Nuclear Constabulary and the Ministry of Defence Police. The FOIA request sought the information outlined in Figure 1.

1. The total number of cases handled by your cybercrime unit for each of the following years: 2018, 2019, and 2020.

2. The number of cases where evidence was sought from game consoles for each of the following years: 2018, 2019, and 2020.

3. For each of the three years the following details on cases:

2018 (example)

Console type seized in case	Relevant Legislation	What type of evidence was sought on the Games console
Playstation	Computer Misuse Act 1990, S1	Email
Nintendo DS	Serious Crime Act 2015 c. 9, s. 67	Photos

Figure 1: Initial FOIA request made to one UK force

The request was sent to a single UK police force initially to determine the response as there are several possibilities within the FOIA that allow for the responding organisations to decline to provide information. This is termed a refusal of request (section 17 of the Act). There are various grounds for refusal, based on exemptions outlined in part II of the Act. These exemptions include; where the cost of compliance exceeds the appropriate limit, (section 12 of the Act); vexatious or repeated requests (section 14 of the Act) or where another exemption applies such as those for law enforcement (section 31 of the Act). The result of the preliminary request contained in Figure 1 was a refusal with section 12 cited, that is the cost to retrieve the requested data exceeded the reasonable limit, a nationally specified threshold currently set at £450 which can be equated to 18 hours of work. (The Freedom of Information and Data Protection (Appropriate Limit and Fees) Regulations 2004).

The FOIA request was then revised to reduce the amount of information requested to a single year, 2020, as outlined in Figure 2. This revised request was then sent out to the remaining 48 police forces listed in Burgess (2021). The revised request was not sent to the force that had received version 1, in Figure 1.

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| <ol style="list-style-type: none"> 1. The total number of cases handled by your Force in 2020. 2. The number of cases (cyber enabled and cyber dependant) where evidence was sought from game consoles. 3. The types of game console (playstation, Xbox, Wii, Switch, DS) involved in these cases |
|--|

Figure 2: FOIA Request made to the 48 Police Forces in England, Scotland and Wales

5. Results

Under the terms of the Freedom of Information Act, all UK public bodies are required to respond within 20 days of receiving the request. However, this period does not include any time spent if the force needs to seek clarification on the wording of the request. Therefore, in practice this can take more than 20 days. Some forces responded immediately with automatic acknowledgements and FOIA reference numbers. The FOIA request had also included a reference to section 16 of the Act, which is the legal obligation to provide guidance and assistance to those requesting information. In all, 20 of the 48 forces that were sent the second modified request, in Figure 2, responded seeking clarification of the word ‘cases’. Others provided responses without any request for clarification. Those forces that requested clarification were provided with a reworded request where the term ‘case’ was clarified as ‘offence’. During the process some forces advised they would be slower in replying due to issues connected with the COVID-19 pandemic. At the time of writing there are 13 requests outstanding and 36 responses have been received, (all from forces in England and Wales). A summary of the FOIA responses is shown in table 1.

Table 1: Responses to FOIA Requests

Type of Response	Reason / Response	Number of Responses
Refusal to provide information	Declined under section 12, exceeding the cost to retrieve and provide the data.	14
	Declined under section 31, Law Enforcement	1
Information not held	This non-territorial force did not hold the type of information requested.	1
Full information provided	Full information on all three questions was provided	13
Partial information provided	Summary figures for question 1 was provided	7
Total number of responses		36

A total of 15 police forces declined to provide the data, of these 14 applying the exemption under section 12 of the Act; excessive cost involved in retrieving and collating the data. Most of the refusals provided a rough calculation on the amount of effort required to demonstrate the point:

*“The cost of providing you with the information requested in respect of your request is above the amount to which we are legally required to respond i.e. the cost of locating and retrieving the information exceeds the “appropriate level” as stated in the Freedom of Information (Fees and Appropriate Limit) Regulations 2004. It is estimated that it would exceed 18 hours (i.e. minimum of **761.8 hours**) to comply with your request. “*

One force cited section 31(3) as a reason for a refusal. Section 31 relates to Law Enforcement and a public interest test is applied to determine if the data can be released. (ICO Law Enforcement (Section 31), 2022). In this case the information was refused as:

“...To confirm or deny information is held would compromise law enforcement tactics in a specific area of policing which includes elements of organised criminality, which would hinder the prevention and detection of crime...”

One of the non-territorial forces replied outlining the nature of their work meant that they did not investigate this type of crime, that was rather the jurisdiction of the different territorial forces.

At the point of writing, 12 forces provided data for all three questions. A further 7 forces provided partial information. The majority of forces that provided partial information provided some information on question 1 and then refused to provide more information on questions 2 and 3 citing the section 12 cost exemption. Although one force responded with answers to questions 2 and 3 and no data relating to the total number of crimes committed. One force provided some additional data on the types of crime they encountered relating to games consoles in 2020, shown in Table 2. These are offence groups, the types of offence that this might include can be determined by comparing these against the Offence Classification Index (UK Home Office, 2013). It should be stressed that this is from the perspective of one police force, for one year. It is useful to see such detailed information, in comparison to the majority of other forces that have refused to provide information due to the estimated cost and time taken. This could be due to the open-ended nature of the questions put forward.

Table 2: Type of crimes relating to games consoles observed by one UK force

Type of crimes relating to Games Consoles in 2020
Sexual Offences
Violence Against The Person
Misc. Crimes Against Society
Theft Offences

There are some interesting conclusions that can be made based on the data returned by the various forces.

- 1. Question 1, in Figure 2, has clearly been interpreted in several different ways. We have seen figures in excess of 100,000 records spanning a whole force, to specific actions taken by the cyber crime unit (e.g., 287 for one force).
- 2. In question 2, cases/offences where information was sought from games consoles; for the 13 forces that provided data this totalled to 1379 cases/offences for 2020. It should be noted that for two of the 13 forces responding, 2 were non-territorial forces and had no cases involving game consoles. Therefore, the figures above actually reflect 1379 occasions where evidence was sought from games consoles from 11 forces.
- 3. The response to question 3 included some forces that provided figures according to console types. Other forces provided a more detailed view including versions of the consoles (e.g., more specific models). In figure 3, these have been combined to provide a total for the different types of game consoles.

Some forces that had calculated that the request would exceed the section 12 limitation advised on other additional data sources such as the Office for National Statistics Annual Crime report (Office for National Statistics, 2022a). These crime statistics do provide outline figures on fraud and computer misuse (Office for National Statistics, 2022b). However, these official statistics do not provide the required degree of granularity into specific devices such as game consoles.

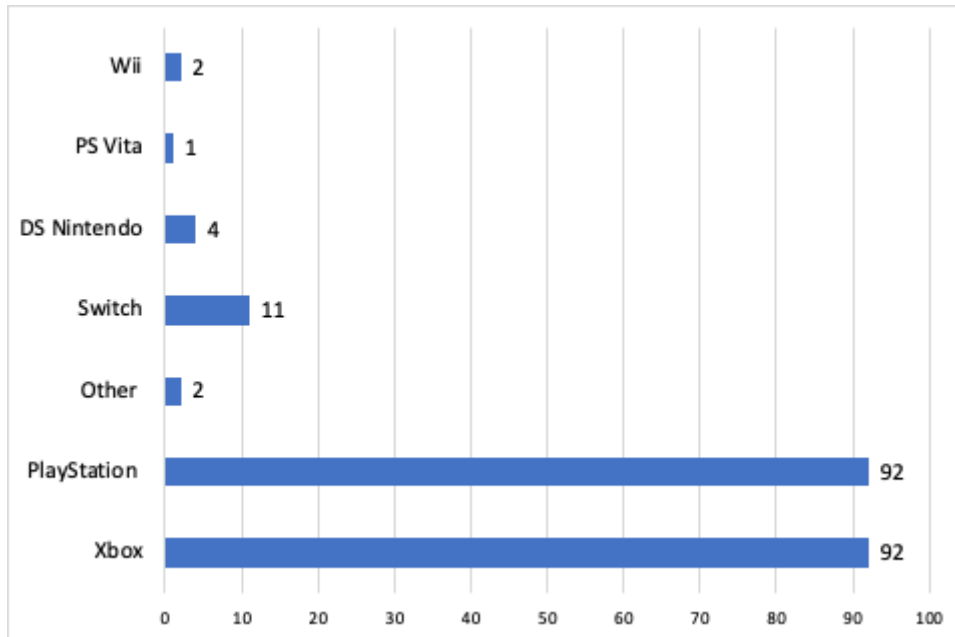


Figure 3: Cases/offences involving games consoles 2020 by console type (from 13 responses)

6. Limitations on the data collected

There are several challenges in collecting data in this manner, meaning the following limitations have been identified:

Despite the UK government guidance on the cataloguing and recording of offences the FOIA responses imply that the different police forces in the UK have different local methods for cataloguing the data. Indeed, a number of forces highlighted that information is stored differently with different police forces and information disclosed should not be compared between forces. One force made this very clear in their response.

“However, the systems used for recording these figures are not generic, nor are the procedures used locally in capturing the data. It should be noted that for these reasons this forces response to your questions should not be used for the comparison purposes with any other response you may receive.”

Therefore, at best these figures can provide a rough guide to what is being analysed and should be considered as such. Though the authors endeavoured to obtain comparable results, it is important to highlight to the academic community the challenges in drawing direct comparisons between the data provided by the different forces.

The FOIA request has clearly been interpreted differently by the regional FOIA officers; some have requested clarification on the phrasing of the question (the issue being the word ‘case’ which was clarified to the word ‘offence’) while other forces did not seek any clarification. Some forces provided information on how the data was retrieved and provided additional information extending to several pages of text. Other forces limited their response to just the requested statistics, making it difficult to compare the method of data extraction. There is a suggestion that one force included theft of devices in the figures. These were considered for removal, but it could be argued that the device may still need to be examined to determine the rightful owner. This would also be a subjective decision by the authors. Therefore, from a digital forensics perspective these numbers are useful and have been included.

This study was limited to territorial (45) non-territorial (4) forces that fall under the FOIA. The FOIA does not apply to the National Crime Agency (NCA, 2021) or those under its command, which could be argued that due to the technical nature of the cases these organisations may handle many of these types of investigations/cases. The NCA was contacted as part of this study, but the organisation declined to provide any information citing exemption from the Freedom of Information Act.

One force pointed out that they had reviewed the records to eliminate false positives as searches for 'DS' would also match 'Detective Sergeant' and 'Switch' would match 'light switch', indicating keyword searching was used to retrieve the data. It is not clear if every force examined and checked the information at this level of detail.

7. Discussion and conclusions

The challenges relating to the quality of the data mean that only limited and broad conclusions can be drawn. This is in part to the wording used in the FOIA request, which this work clearly highlights, needs to be unambiguous, tightly focussed with closed ended and specific/targeted questions. We recommend that a review of public court cases involving games consoles would also assist in the formulation of focused questions. Future requests would need to provide targeted questions and example end results/keywords, therefore limiting the amount of data records that need to be reviewed by the officers. This, in turn, would narrow the search or time frame with the aim of avoiding refusals (using section 12).

The picture for the UK is incomplete as the majority of forces refused the request under section 12 of the Act. However, the number of 1379 occasions where games consoles were examined illustrate the situation that these devices are clearly recognized as possible sources of evidence for certain types of cases. The frequency of the different consoles reflects the capability and connectivity of the PlayStation and Xbox consoles. It is interesting however to note that the hand-held devices; the Nintendo Switch and Nintendo DS are also of interest, although the latter is no longer being manufactured. Despite the potential challenges of data quality this study provides a perspective on the relative importance and interest in specific games consoles.

8. Future work

In addition to the response to the FOIA request, forces made suggestions on revising the FOIA scope to provide a more focussed and manageable FOIA request. The aim is to repeat the request in a revised form in future years, to be more specific with the intention of avoiding refusal due to the excessive cost (section 12) and where possible gather more comparable data between forces. Court records could be examined along with FOI legislation in other countries to provide an international perspective. However, in other countries the law enforcement exclusion that applies to the NCA in the UK may be broader and apply to all police agencies, hindering data gathering from that country's police forces. One example is the Freedom of Information Act in Norway (Lovdata 2021) which appears to include law enforcement as an entity subject to the Norwegian Freedom of Information Act which would limit the amount of available information.

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