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Can Lessons Learned from Software Development Improve the Intelligibility of UK Legislation?

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Abstract

The scope of legislation continues to increase, with a related increase in the (already large) costs of administering justice. While many countries have taken significant steps to improve the quality and accessibility of their legislation, legislation can still be difficult and time consuming to understand. This paper investigates where lessons learned in the development of software might be applied at low cost to improve the drafting and intelligibility of legislation in the United Kingdom (UK).

Keywords

Drafting, Legislation, Software

1. Introduction

Legislation has been drafted for hundreds of years by people who are diligent and meticulous in ensuring the accuracy of their products as they affect millions of people. However, they are constrained by the language (English for UK legislation) in which they work and there are relatively few people (for example, the UK Office of the Parliamentary Counsel (OPC) currently employs only about 50 lawyers) who do this work. Comparing this to software development, about 25 million people (Developer Nation Report, 2021) develop software across the world and software is written in relatively formal languages using text editors that contain many checks and constraints to help a software developer produce accurate code. Software is used in complex banking, military, space, safety critical and security critical systems, where the quality of the solution has the highest priority. For example, the NASA shuttle software had 420,000 lines of software code and just one error was found (Fishman, 1996), while aircraft control sys-

tems have millions of lines of software code and have an excellent safety record. Contrast that with legislation where the key challenge is that it has become far too complex and time consuming to understand for those that use it (for example, see UK's Office of the Parliamentary Counsel, 2013a). As software developers have faced similar problems and software needs to be easily and quickly maintained as well as accurate, this paper looks specifically at how the lessons learned from software development might be applied to the drafting of UK legislation. UK legislation has a large, complex statute book, but some of the lessons may apply to the legislation of other countries.

Guidelines for drafting legislation have existed since Lord Thring's book (Thring, 1877), plus there has been research and guidance since then that make similar recommendations (for example, UK's Office of the Parliamentary Counsel, 2020, UK House of Commons Political and Constitutional Reform Committee, 2013-14, UK Government, 2010, UK Cabinet Office, 2017) to some made in this paper, with the aim to achieve "good law" (UK's Office of Parliamentary Counsel, 2013b). The quality of UK legislation affects:

- court services that had, for example, an annual gross expenditure of £2.0 billion in the UK in 2018/19;
- expenses relating to training and research in legislation (and the impact of poor understanding of legislation) required by the police (overall UK policing budget is over £10Bn) and other organisations, and
- costs of legal services sector which, in 2018, are about £60bn gross value in the UK.

In November 2019, the Public Accounts Committee in the UK warned of potential "downstream impacts" for courts, prisons and probation services if extra police officers (20,000 recruits were proposed) were recruited. It concluded that it was "far from certain" that these services were sufficiently resourced to cope if caseloads increased. The UK House of Commons Justice Committee, 2018 noted that "there is compelling evidence of the fragility of the Criminal Bar and criminal defence solicitors' firms". It said that underfunding of the criminal justice system not only threatens its effectiveness but "undermines the rule of law and tarnishes the reputation of the justice system as a whole." In summary, the UK Justice System is seen as expensive, so investigating techniques to improve the legislation that underlies our justice system, with potential savings to the economy of over £1Bn to be gained, deserves significant attention.

For a long time, recommendations have been made to government about improving access to legislation through better use of technology. For example, the Hansard Society, 2014 states:

Parliament's text materials could also be better displayed using the latest digital tools and standards. Better search functions, improved mark-up on reports and transcripts, a greater use of pictures and hyperlinks in reports, and a more responsive website would all improve the offering to the public and the potential for greater dissemination and engagement.

While great strides have been made in making UK legislation more accessible

(see https://www.legislation.gov.uk/), improvements are possible by applying enhanced drafting guidelines and the greater use of information technology to make legislation clearer, more coherent, and accessible. The approach taken to produce this paper has been to identify areas of UK legislation where intelligibility could be improved and make recommendations based on the techniques used by software developers to tackle similar problems. The aim has been to guide those who draft legislation to meet the aims set by the Law Commission[1] of England and Wales.

As the examples of legislation used in this paper originate from the UK, some recommendations are not applicable to all nations around the world, or all nations within the UK. To be clear, this paper does not discuss drafting of legislation for computer analysis or using software to draft legislation; the focus of this paper is on the techniques that software developers would recommend be employed by the drafters to improve the intelligibility of legislation for its users. Several recommendations are not new; they are given here to add weight to the proposal that these recommendations will benefit the drafters of legislation and its users.

2. Comparing Software Development with Drafting of Legislation

2.1. Definition of Terms

Software: When writing a software program, it is seen as good practice to define "up front" all the terms used in a program, so that the reader will have been introduced to the terms and their definitions before coming across them in context. If the meaning of a term needs to be ascertained, readers know that it can be quickly found at the front of a program.

Some software editing tools assist the writers of software by highlighting key terms in the software language as well as key terms defined by the writer.

Legislation: In a typical UK Act, some terms are defined for the whole Act, and some are defined for use in a specific part, chapter, or section. Terms are sometimes defined at the start, and sometimes at the end of an Act, a section, a part etc. In the UK and many other countries, there is no easy way of knowing if a term is a defined term or not, requiring the reader to search backwards and forwards through the whole Act to determine if a term is defined or not (some countries do print a defined term in bold font to help overcome this situation). For example, the Consumer Rights Act 2015 contains over 100 defined terms,

[1]The Law Commission was set up in 1965 as an independent body to keep the law of England and Wales under review and recommend reform where needed. While the Law Commission has made some progress in reforming the law, the low level of investment in its resources means there is still much to be done (note that the Northern Ireland Law Commission http://www.nilawcommission.gov.uk/ has not been operating since April 2015). Law Commission reports are available from http://www.lawcom.gov.uk/. The Law Commission's aims (which are supported by the office of Parliamentary Council, Government and Parliament) include: • ensure that the law is as fair, modern, simple and as cost-effective as possible; • codify the law, eliminate anomalies, repeal obsolete and unnecessary enactments and reduce the number of separate statutes.

spread throughout the Act. While, in paper-based legislation, there may be some advantages in having a term defined within the only section in which it is used, now that most users access legislation through computer screens, there are benefits in having terms defined in one place within a document. For example, a user may have two screens, or employ a split-screen view of a document so that definitions are visible on part of the screen while the contents of the document are reviewed on another part of a screen.

Recommendation 1a: Record all definitions of terminology in one place in a legislative document.

The Criminal Justice Act 2003 uses the term "child" 209 times, but there are three sections where the word child is a defined term for that section alone (e.g. "in this section 'child' means a person under 18 years"), while the rest of the document does not have a defined term for "child". This approach to drafting legislation increases the risk that readers of an Act will incorrectly assume that the word "child" has the same meaning in the whole Act because there is no mechanism to highlight that "child" has different definitions in different parts of the Act.

Recommendation 1b: Highlight each use of a defined term within a legislative document using, for example, bold font, colour, italics, or underlines.

Recommendation 1c: Where a word needs to be used in a legislative document with two definitions, make it clear that there is more than one definition by, for example, adding a suffix to the word as in child[1] and child[2].

As legislation is written in natural language, there are few opportunities for text editing tools to help writers of legislation, although some do exist. As much legislation is now available on-line, the simple addition of a hypertext link from a defined term to its definition has been recommended in legislative circles for many years, but this mechanism has not been widely adopted in the drafting of legislation (for an example from the USA, look at: https://www.law.cornell.edu/uscode/text/18/1111).

As legislation is increasingly viewed online, most users now expect screen tips (sometimes referred to as "Tool tips" or "rollover text") to be provided. These are frequently used, for example, in Wikipedia (https://en.wikipedia.org/wiki/Main_Page) and give readers quick access to a definition, without the need to flip back and forth between the use of a word and its definition. Most text editing software supports the implementation of the following recommendations for legislative drafting with minimal manual intervention.

Recommendation 1d: For every use of a defined term, provide a hypertext link to the source definition.

Recommendation 1e: For every use of a defined term, enable a screen-tip to appear if the user moves their cursor over the defined term.

I believe recommendations 1d and 1e could be implemented and maintained without parliamentary involvement, although appropriate checks and tests

should be performed to ensure they are implemented correctly.

Recommendation 1f: Expand the current legislation maintenance services (people and tools) to enable hypertext links and screen tips to be added and maintained in legislation.

Note that hypertext links could be treated as providing help to a reader and not forming part of the legislation. For example, Acts could include the following phrase, which is similar to ones used in other jurisdictions for similar material: "Hypertext links and screen tips are provided for the convenience of users of this Act and are not part of the Act".

2.2. Understanding

Software: In general, in spoken and written English, different words are used to mean the same thing, or one word can be used to mean different things. However, software developers soon found that, when different words are used to mean the same thing, or when one word is used to mean different things, confusion, errors, and costs rise, so it is standard practice to recognise this risk and aim to avoid such situations. One technique that software developers often use to overcome this situation is to collate a dictionary of all definitions from all elements of the software.

Legislation: Drafters of legislation have also recognised this problem and do try to ensure consistent use of terms. However, the definitions and use of terminology in legislation can vary with time such that one word can have a different meaning in different legislative documents, especially as some legislative documents are hundreds of years old! As mentioned in Recommendation 1c above, the adoption of suffixes to defined terms would help readers to recognise where these differences occur.

Acts are self-contained and are dependent only on provisions in other Acts if so stated. Hence, terms can mean different things in different Acts, which has advantages (e.g. "inspector" can mean a "food inspector" in one Act and an "health inspector" in another Act). However, some terms could be expected to mean the same thing in many Acts (e.g. "child"), but sometimes they don't, which can lead to confusion for the readers. For example,

- the word "rape" is used 52 times in the Sexual Offences Act 2003, without the word being formally defined, although it is defined by implication in Section 1.
- the word "rape" is a defined term in the Sexual Offences (Amendment) Act 1976, but the definition is slightly different to the description given in Section 1 of the 2003 Act.

The Interpretation Act of 1978 brings some clarity and consistency to the use of a few terms. While there are books and databases of legal terms available, I believe the users of legislation will see significant benefits if only one authorised and maintained source of defined terms is created and maintained.

Recommendation 2a: Create and maintain a list of defined terms used in legislation and case law. Store the defined terms, including alternative definitions

where applicable, in a government authorised, public database that can be used to find the legislation in which a term is used.

Reducing duplication of terms will improve consistency and understanding of legislation and enable the volume of documentation to be reduced as standard terms will be used instead of space being taken within a new legislative document to define how a term is used in that legislative document.

Recommendation 2b: Using the database created under Recommendation 2a, identify where:

- one term is used to mean *different* things,
- many terms are used to mean the same thing.

Recommendation 2c: Using the research performed under Recommendation 2b, initiate corrective action to bring consistency across the statute book, where and when appropriate.

2.3. Complexity

Software: One technique that minimises complexity in software is to keep the steps in a software program sequential, allowing the reader to build on an understanding of previous steps. The "KISS principle" (Keep it simple) also applies i.e. don't overload the reader with lots of detail, but give a clear overview of the purpose of the software at the start, allowing readers to understand the whole, then use independent software subroutines to define each detail, as required.

While it may be thought that such an approach will force the reader to jump back and forth across pages of documentation, it has been found to be very productive as it ensures clarity of each module of software. Also, modern screen-based editing techniques allow a reader to view several related sections of software on the same screen.

Legislation: While legislative documents often record each element of the legislation in a separate section or subsection, readers are required to read the whole legislative document in order to fully understand the legislative document e.g. later sections often define clarifications and caveats that apply to earlier sections. For example, Sexual Offences Act 2003 section 62 defines a particular offence, but section 73 defines when a person is not guilty of that offence.

Thring (Chapter 2, s4) stated "His first step must be…to settle the principle or leading motive…on which he is engaged… If the reader, after mastering the first two or three sections, comprehends the whole drift of the Act…the Act…is well arranged". In my experience of reviewing UK Acts, I rarely find that this objective of Thring is achieved, which is disappointing, especially when legislation is often more complex today and often needs an introduction.

Take, for example, the Consumer Rights Act 2015, Part 1, Chapters 1 and 2. It took me some time to review all the sections and be able to produce the one-page summary shown in Figure 1. Such a summary allows readers to quickly find the section they need. The text in Figure 1 includes references in brackets to the related section numbers in this Act (e.g. "s9" refers to Section 9 in the current Act).

(1) There must be an *appropriate contract* for a *Trader* to supply *Goods* to a *Consumer*. (*s3-7*,*11*, *14*, *17*, *27*, *29*, *30*, *32*, *33*, *34*)
(2) The *Trader* must have the right to supply *Goods* etc (*s16*)
(3) The guarantor and any other person who offers to supply to *Consumer*s *Goods* which are the subject of the *guarantee* must, on request by the *Consumer*, make the *guarantee* available to the *Consumer* within a reasonable time, in writing and in a form accessible to the *Consumer*. (*s31*)
(4) The *Goods* must
    (a) be of satisfactory quality (*s8*)
    (b) be fit for particular purpose (*s9*)
    (c) meet its description (*s10*)
    (d) be of the correct quantity (*s26*)
    (e) be compatible with any previously shown sample, model or demonstration. (*s12*, *13*)
(5) Unless the *Trader* and the *Consumer* come to a different agreement about the time of delivery, the *Trader* must deliver the *Goods* to the *Consumer*. (*s28*)
    (a) without undue delay, and
    (b) in any event, not more than 30 days after the day on which the contract is made.
(6) The *Goods* remain at the *Trader*'s risk (*s29*) until they come into the physical possession of either:
    (a) the *Consumer*, or
    (b) a person identified by the *Consumer* to take possession of the *Goods*, or
    (c) a carrier who:
        i. is commissioned by the *Consumer* to deliver the *Goods*, and
        ii. is not named by the trader for this purpose.
(7) If the *Goods* do not conform to a contract (*s18*), the *Consumer*'s rights are.
    (a) the early right to reject; (*s19*, *20*, *21*, *22*)
    (b) the right to *repair* or replacement; (*s23*) and
    (c) the right to a price reduction or the final right to reject (*s24*).
(8) If *Goods* do not conform to a contract, the *Consumer* may seek remedies for a breach, including (where it is open to the *Consumer* to do so): (*s18*)
    (a) claiming damages,
    (b) claiming interest or special damages,
    (c) seeking specific performance,
    (d) seeking an order for specific implement, or
    (e) relying on the breach against a claim by the trader for the price; but the *Consumer* may not recover twice for the same loss.
(9) Powers of the court (*s25*)

Figure 1. Overview of Consumer Rights Act 2015.

The text in blue italics shows where hypertext links and screen tips could be placed for a reader to quickly access definitions of terms and sections in the legislation (see Recommendations 1b, 1d and 1e). The text in **Figure 1** is presented as an example and is not to be considered "perfect"; it was created to indicate what can be achieved. However, I believe the Act would benefit by being thoroughly reviewed and a formal summary created, with the Act restructured and re-sequenced to reflect a similar summary (the section numbers shown in brackets in **Figure 1** refer to the section numbers from the Consumer Rights Act 2015, Part 1; an update to the Act to follow this example would change the sequence of the Sections in that Act).

As mentioned earlier, the UK Office of the Parliamentary Counsel, 2020 has produced standards that aim to make it as easy as possible for readers to understand UK legislation and some Parliamentary Counsels (e.g. Australian, 2016) have produced a standard for reducing the complexity in legislation, but Lord Justice Haddon-Cave, 2021 recently reported that English law is still becoming increasingly more complex, unclear and inaccessible.

Recommendation 3a: Take great care in preparing the sequence of items in a legislative document and introduce the more complex legislation with an overview of the content.

Recommendation 3b: Add hypertext links to assist readers to jump to a section, Schedule, legislative document, etc. when they are referenced in the text (for an example from New Zealand, look here: https://www.legislation.govt.nz/act/public/2019/0058/latest/DLM7298196.html).

2.4. Structure

Software: The guidance described in Section 3 above forces software developers to think about structure early in their design process: a guiding principle is that modules of software must be small in length. However, determining how one creates a structure for software is difficult. While there is no single right answer that can be applied to all scenarios, a primary technique is to identify common themes and structure the software such that all components associated with a theme are grouped together for design and maintenance. Software developers have also found that certain aspects of the software change more frequently than others. Hence, where possible, these aspects are grouped together to reduce the number of components that need to change.

Legislation: When a new Act defines a new offence, it has been common practice to set out any new and related policing procedures, court procedures, sentences, etc alongside the offence. For example, the Domestic Abuse Act 2021 defines the process for appointing a commissioner, police powers, responsibilities of local authorities, rules of court, offences, etc. While that approach is convenient for the drafters of legislation and a government's processes to get legislation approved, there are benefits to the public, judicial system, police, etc. in separating the definition of these different activities and consolidating related activities into separate Acts, or separate parts of one Act. This is because the law, policing, judicial processes, and sentences evolve at different rates over time as public opinion changes and improved practices are identified. Specifically,

- Offences are subject to few changes.
- Policing and judicial processes evolve depending on economic constraints and when efficiencies or lessons learned can be implemented.
- Sentencing can vary with time and the economic or political climate.

Also, offences, policing, judicial processes, and sentences are of interest to different people at different times. The benefits of structure and separating aspects of legislation into different Acts has been recognised (e.g. The Sentencing Act, 2020 introduces the Sentencing Code, which is intended to be a single point of reference for the procedural law considered by courts when sentencing offenders. It consolidates a substantial body of complex procedural sentencing law and will ensure greater transparency and clarity is achieved when passing sentences), but is there sufficient investment in the UK in consolidating aspects of legislation to gain the benefits of consolidation and improved structure?

Another aspect of legislation related to structure is that the principal intent of an Act is often lost in the detail that defines all the potential scenarios in which an Act is applicable. For example, the Sexual Offences Act 2003, Section 4

(Causing a person to engage in sexual activity without consent) has very strongly related scenarios defined in sections 8, 10, 17, 26, 31, 35 and 39, but the whole Act must be read to be sure one has found all relevant scenarios (e.g. is a child involved, is a carer involved, does a person have a mental disorder, are the persons related).

The approach of categorising procedures and consolidating them into fewer Acts (or at least into Schedules of an Act) will have the following benefits:

1) The Acts defining offences are reduced in size and lay people will benefit by being able to read about offences without having to wade through lots of content related to policing, magistrates, sentencing etc.

2) Police will benefit from having all powers for police brought together in one place (or fewer places). Currently the Police rely on a third-party product (Blackstone's Police Manuals, published by Oxford University Press) to meet this need. I'm surprised that the UK Police depend on a third party to produce and maintain such a book, especially now that most legislation is online, making it relatively easy to consolidate for different types of readers.

3) Magistrates would benefit by having all their procedures defined in one place (or fewer places). Currently Magistrates rely on a third-party product (Stone's Justices' Manual, a book published by LexisNexis Butterworths) to meet this need. It is formidably large. I'm amazed that the UK judiciary depend on a third party to produce and maintain such a book, especially now that most legislation is online, making it relatively easy to consolidate for different types of readers.

4) While there are differences between laws in England, Wales, Northern Ireland and Scotland, plus differences for the armed forces, the differences are mainly (not always) for punishments, or judicial processes and terminology. It would be very helpful if the areas of law that were common could be managed separately from those topics (e.g. judicial processes) that are different.

5) With all sentences in one place, they are easier to compare to ensure they are consistent and there are fewer Acts to maintain when public opinion or financial inflation requires punishments or penalties to change.

6) Sentences that are dependent on severity, context, etc. of an offence can be documented with the punishment and penalty, which simplifies the definition of the offence and helps both offenders and magistrates to understand the reasonable punishment and penalty to be given.

Recommendation 4a: Rather than define a sentence alongside the definition of each offence, define sentences in a schedule to the Act or in another Act where sentences are documented. Where an offence is defined, provide a hypertext link for a reader to go and look at a sentence related to the offence. For example, all sentences in the Sexual Offences Act 1956 are recorded in a Schedule, but this is not common practice.

Recommendation 4b: Rather than define procedural elements alongside offences, define these in a schedule related to the type of procedure or in another Act where similar procedures are documented.

An example where restructuring helps to clarify the contents of an Act is shown in Figure 2. The top diagram shows the structure of the Consumer Rights Act 2015, Part 1, Chapters 1 and 2 as published, while the lower diagram shows the structure of the Act that I propose is clearer, following analysis of the contents (numbers in brackets refer to the section numbers in the Consumer Rights Act 2015). At first glance, the original structure looks appropriate, but when one realises that several sections contain only definition of terms and several sections are pertaining to the contents of a contract, one realises that the proposed structure is simpler and clearer to the reader.

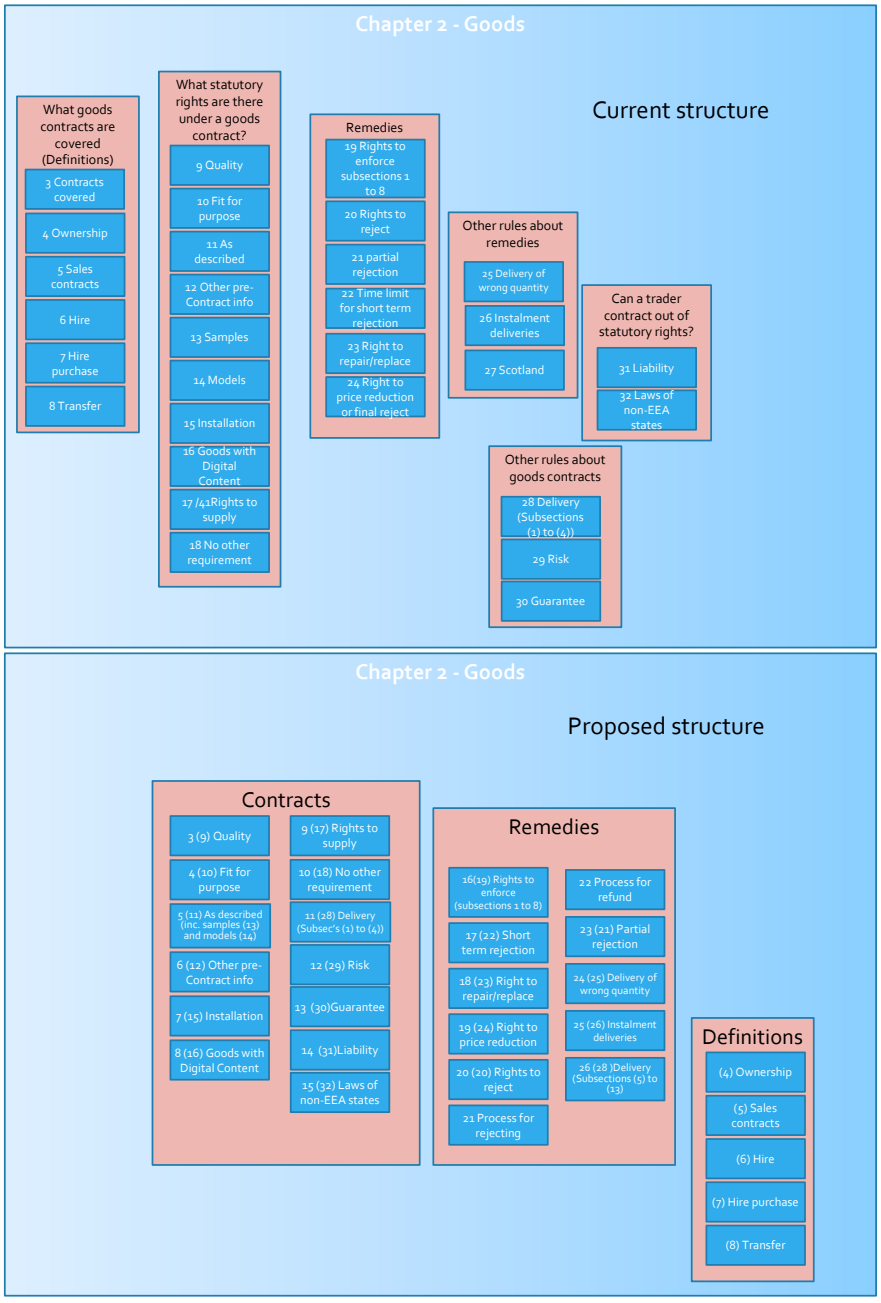


Figure 2. Original structure of Consumer Rights Act 2015 and proposed structure.

Recommendation 4c: In Acts where there is a complex relationship between sections, provide an introduction to the Act, possibly supported with a diagram (presented for guidance only) showing the relationships between scenarios and sections. I suspect Thring, 1877 intended this recommendation when he stated (ref. Chapter 2, s4): "If the reader, after mastering the first two or three sections, comprehends the whole drift of the Act…the Act…is well arranged".

Recommendation 4d: When setting out the structure of an Act (see similar Recommendations 3b and 4a), online readers of an Act should be provided with hypertext links that enable a reader to understand the main purpose of a section of an Act to begin with, and then "jump" (using a hypertext link) to a section that is of interest to them.

Recommendation 4e: Rather than define all the different scenarios in which an offence can occur in different sections, structure an Act such that it is clear what an offence is and list the scenarios as sub-sections within the section that defines the offence and/or document the related scenarios, for example, in a Schedule to the Act (hypertext links can be added to enable a reader to easily move from reading about an offence to a set of related scenarios).

2.5. Interconnections

Software: A software system is made up of many components. Often each component is used by or interfaces with many other components. A successful software system requires that:

- Each component has a clear function
- Each component has a clear interface
- Interdependencies between components is minimal
- The software describing the operation of each component is clear and understandable on its own, with minimal requirement to read the software describing other components, other than knowing what the other components function and interface is.

Of course, to understand the whole system, one must know and understand how each element works, but good practices, as described above, mean that the reader can usually focus on understanding one component at a time.

Legislation: Cormacain (2017) states that "multiple layers of amendments make legislation unintelligible". He gives the example "a reader can only understand s. 10 of the Companies Act by also looking at sections 50, 60, and 100 of the Insolvency Act and section 52 of the Directors Act, then there are too many jumps, too many connections. Excessive interconnectedness requires a reader to read multiple provisions simultaneously, to have multiple books open at once, or on screen to have multiple windows up". While not all legislation is like this example, the principle that excessive interconnectedness is bad is recognised by many.

Recommendation 5: Aim to minimise the interconnectedness of legislation by identifying an overall structure for the legislation that separates concerns

such that they can be defined and documented clearly as a stand-alone element.

2.6. Macro Structure

Software: When developing a large, complex system, software developers start by defining a macro structure, with an aim to minimise interdependencies between the components. This allows a large team of people to work on the software development, often creating components in the macro structure where different skills and techniques are used to develop the different components. It also minimises the risk that work on the different components will overlap or conflict with that of other teams. An important aspect that makes such design successful is the need to clearly define the key system components and the interfaces between them.

Legislation: Legal professionals often specialise in different categories of the law (e.g. Business Law, Constitutional Law, Government Administration Law, Criminal Law, etc.), but the UK has no standard taxonomy that classifies Acts of parliament. While it is necessary that some Acts cover more than one category of law, I believe the professionals and the public would benefit by having legislation categorised and/or tagged (as, for example, papers in this journal are tagged with keywords), enabling data on http://www.legislation.gov.uk/ to have improved search facilities.

There have been many proposals for a legal taxonomy in the UK (e.g. House of Lords, 2012, House of Lords, 2011), but the Government has faced difficulties in finding an agreed, effective taxonomy (e.g. The Government Response to the House of Lords Constitution Committee, 2011 Report "The Process of Constitutional Change"). This is partly due to the different ways in which a taxonomy could be created (see for example, Sherwin, 2009). However, if each piece of legislation was tagged with a few keywords, the users (e.g. police, lawyers, the public, judiciary) of https://www.legislation.gov.uk/ could be given improved search facilities, saving time and costs for all. Tagging is already applied by the UK government for material stored on https://www.gov.uk/ (see GOV.UK Taxonomy principles, 2019), so it should not be difficult for the UK to start tagging with a few keywords on https://www.legislation.gov.uk/ and expand their usage as and when academics and parliament agree.

Recommendation 6a: Improve the ability of people to find relevant legislative documents by formally identifying categories of legislation.

Recommendation 6b: When new legislative documents are created, the introduction should clarify which categories of legislation (see Recommendation 6a) are covered within the document.

Recommendation 6c: Aim to minimise mixing different categories of legislation when drafting a new Act.

Recommendation 6d: Provide search facilities to users of legislation (e.g. on https://www.legislation.gov.uk/) to help them find legislation within the defined categories (see Recommendation 6a).

2.7. Configuration Management and Change Control

Software: Configuration management and change control of software is hugely complex as there can be thousands of components of a software solution, with hundreds of people developing these components in parallel. It is imperative that the correct combination of versions and variants is combined at the right time to create a working whole, but it is almost impossible to do this without advanced configuration management tools.

When software is changed, normally a new "final" version of the software is created by amending a previous version. If one wants to see what has been changed, it is common practice to use a utility to compare versions and highlight what has been changed. The changed version is then thoroughly tested to ensure it performs as required, before release to the users.

Legislation: Currently Acts are referenced by the year in which they were created. Amendments to the Acts are authorised in a new Act and a new, updated version of the amended Act is created after the amending Act has been passed. An amended Act records the date at which it is brought up to date with amendments from subsequent Acts and shows the history of amendments to the Act. While the history of amendments is relevant to a few legal experts and aids those who maintain the Acts, it can generate long and complex Acts with much text within the Acts that many readers will not need or wish to see (see example in Figure 3).

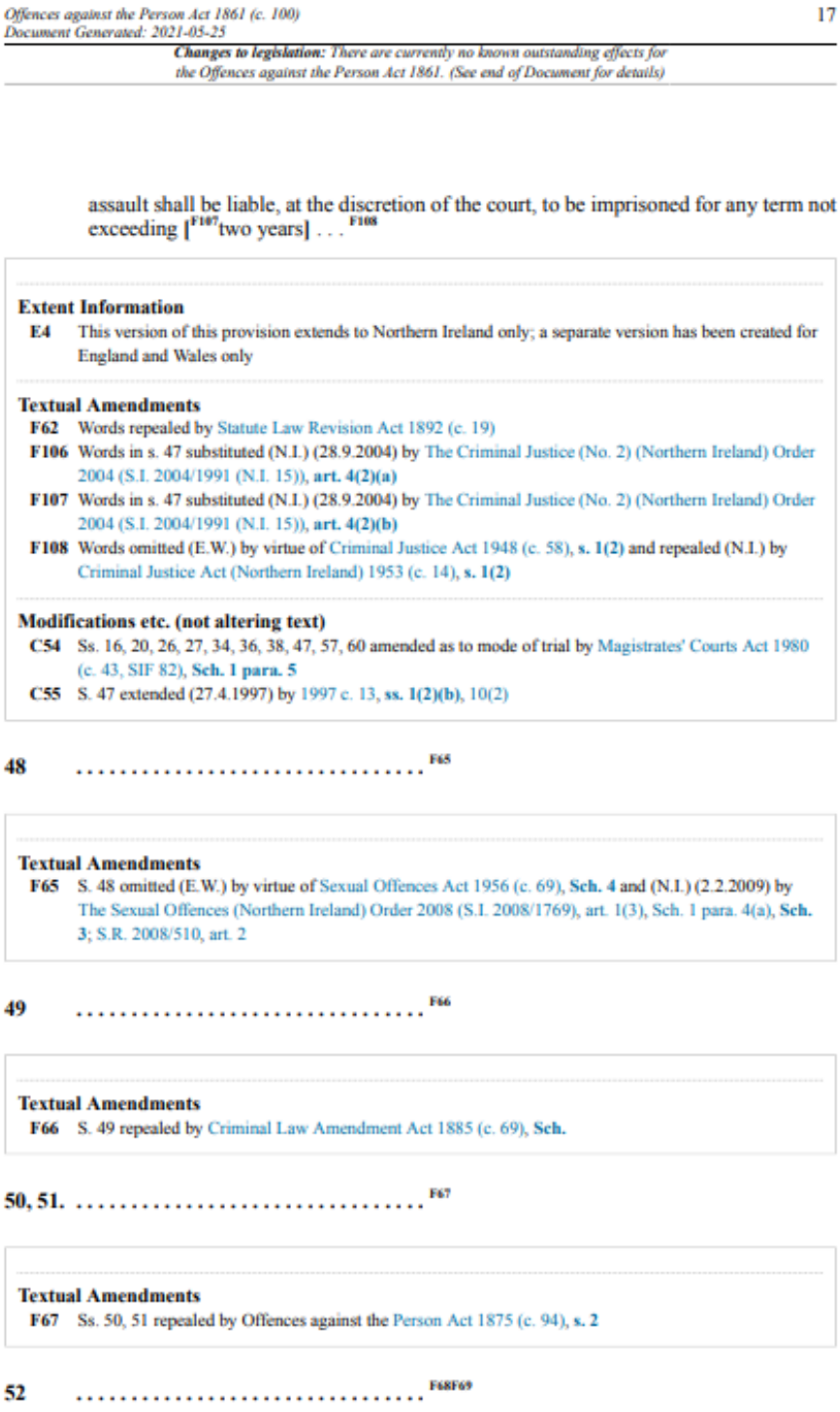
The courts, police and other interested parties need to be able to view legislation that was current at a time in the past related to an incident in which they are interested as there are scenarios when previous legal rights and obligations are relevant. For example, the Historical Institutional Abuse Inquiry (https://www.hiainquiry.org/) was obliged by statute to investigate child abuse in Northern Ireland between 1922 and 1995. Hence, there is a need to be able to present legislation to *some* readers about the history and the status of a legislative document at a point in time, but *all* readers do not need to be provided with this information. The UK web site legislation.gov.uk does provide "point in time" views of legislation, thus demonstrating that this aspect of configuration management is in place. The web site also includes text within the legislative documents that records:

1) When a legislative document was authorized.

2) What amendments have been made and which legislative document authorised the amendment.

3) Amendments that have been authorised by a legislative document, but not yet implemented.

However, while the text associated with configuration management is necessary for managing changes to legislative documents, most readers only care about current legislation and do not want to wade through pages of configuration management text that identify where changes occurred, and by which legislative documents. With an appropriate investment in configuration management and



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***Changes to legislation:** There are currently no known outstanding effects for the Offences against the Person Act 1861. (See end of Document for details)*

assault shall be liable, at the discretion of the court, to be imprisoned for any term not exceeding [F107two years] . . . F108

Extent Information

E4 This version of this provision extends to Northern Ireland only; a separate version has been created for England and Wales only

Textual Amendments

F62 Words repealed by Statute Law Revision Act 1892 (c. 19)

F106 Words in s. 47 substituted (N.I.) (28.9.2004) by The Criminal Justice (No. 2) (Northern Ireland) Order 2004 (S.I. 2004/1991 (N.I. 15)), **art. 4(2)(a)**

F107 Words in s. 47 substituted (N.I.) (28.9.2004) by The Criminal Justice (No. 2) (Northern Ireland) Order 2004 (S.I. 2004/1991 (N.I. 15)), **art. 4(2)(b)**

F108 Words omitted (E.W.) by virtue of Criminal Justice Act 1948 (c. 58), **s. 1(2)** and repealed (N.I.) by Criminal Justice Act (Northern Ireland) 1953 (c. 14), **s. 1(2)**

Modifications etc. (not altering text)

C54 Ss. 16, 20, 26, 27, 34, 36, 38, 47, 57, 60 amended as to mode of trial by Magistrates' Courts Act 1980 (c. 43, SIF 82), **Sch. 1 para. 5**

C55 S. 47 extended (27.4.1997) by 1997 c. 13, **ss. 1(2)(b)**, 10(2)

48 . . . . . F65

Textual Amendments

F65 S. 48 omitted (E.W.) by virtue of Sexual Offences Act 1956 (c. 69), **Sch. 4** and (N.I.) (2.2.2009) by The Sexual Offences (Northern Ireland) Order 2008 (S.I. 2008/1769), art. 1(3), Sch. 1 para. 4(a), **Sch. 3**; S.R. 2008/510, art. 2

49 . . . . . F66

Textual Amendments

F66 S. 49 repealed by Criminal Law Amendment Act 1885 (c. 69), **Sch.**

50, 51. . . . . . F67

Textual Amendments

F67 Ss. 50, 51 repealed by Offences against the Person Act 1875 (c. 94), **s. 2**

52 . . . . . F68F69

Figure 3. Page from an act showing the impact of amendments.

presentation tools, most users would see significant benefits if lay people and experts who do not need to see the history of amendments, could view legislative documents in a format that shows only the current version of a legislative document, without any indication of the history of amendments in that. I believe this version would be the version most accessed, and it will significantly reduce

the number of search results and the pages to be read on any topic.

Recommendation 7a: A configuration management tool should enable versions of legislative documents to be generated to meet the specific needs of different types of users (see also recommendation 10), as set out above.

While many authorised amendments to old legislative documents are implemented quickly, too many amendments are remain unimplemented due to a lack of investment. For example:

1) The Criminal Law Act 1967 abolished a distinction between felony and misdemeanour. However, much legislation still includes these terms, leading to confusion for readers.

2) The Criminal Justice Act 1948 abolished sentences to imprisonment with hard labour, but many earlier Acts still refer to such a sentence.

Recommendation 7b: The UK needs to make additional investment to make all legislation consistent.

Although the process of turning a Bill into an Act ensures that all the elements of an Act are authorised, Acts often have elements that are not implemented until a later date. For example, the Greater London Authority Act 1999 Sch. 27 para. 1 and Sch. 34 Pt. 7 state that the remaining provisions in the Metropolitan Police Act 1829 shall cease to have effect (are repealed). However, this requirement is still, over 20 years later, not fully implemented and the Metropolitan Police Act 1829 remains unchanged by the 1999 Act. Several other elements of the Greater London Authority Act 1999 also remain "prospective". While there can be difficulties in implementing certain elements of Acts quickly, maybe Parliament should be more concerned than it is by the long duration it takes for some of its authorised legislation to be implemented. If, with the benefit of hindsight, a government decides that "prospective" legislation is not required, then it should be repealed and not left to clog up the statute book.

Recommendation 7c: A database or at least a simple list of prospective elements of legislative documents should be maintained and regularly reviewed by parliament such that pressure is brought to bear by parliament to ensure that either their wishes are implemented in a timely manner or there is a formal decision (recorded in a new Act) that the prospective elements are repealed.

2.8. Consolidation, Maintainability

Software: With thousands of components, keeping track of changes to software is difficult. Software developers aim to consolidate components that have a similar purpose. The main benefits of this are:

- Team members develop expertise in the consolidated components.
- Consistency is improved across the consolidated components.
- Maintenance costs are reduced for the consolidated components.

For example, Microsoft's Excel, PowerPoint, and Word had quite different user interfaces when initially developed. However, by consolidating these user interfaces into one common style, Microsoft significantly reduced their budgets

for maintaining the products, while improving the consistency of the user's interface to their products.

When software is to be amended, the amendment is made directly to the modules of software that need to be changed, plus some new modules may be required. Ensuring consistency of a change to a set of modules is brought about by thorough testing.

Legislation: Legislation is maintained/changed through a different process to that for maintaining software. The process of changing legislation in most jurisdictions is:

1) document the changes that are proposed to be implemented in a Bill,

2) when the changes are agreed, authorise the Bill to be issued as an Act,

3) change the affected Acts and publish the updated Acts.

The process for amending legislation has the advantage that the change process is clearly documented, and related consequential changes are recorded together.

Now that legislation is online with search engines to find what you are looking for, legal research is much easier than it was years ago. However, if one is on, for example, a charge of murder, it is a common law, not a statutory offence. Some defences have been introduced by legislation (e.g. Coroners and Justice Act 2009 defines the defence of loss of self-control and the Homicide Act 1957 defines the defence of suffering from an abnormality of mental functioning) and the word "murder" is found in over 100 Acts. However, many of the defences are part of common law, so a search for valid defences for murder is an onerous process. If you are charged with murder, it would be a good idea to find a good lawyer, but is that the best way for the law to operate?

Another example of the difficulty in finding clear and relevant legislation is related to "offences against the person", which are currently covered in about 20 Acts. These sometimes define different scenarios in which the offence can be committed, but references from one Act to another are not always made. For example, various aspects of the law relating to assault and battery are covered in the following Acts, with (arguably) inconsistent sentences, leading to confusion for readers and implementors of the law:

a) Offences Against the Person Act 1861,

i) Section 36 defines assaulting a clergyman or other minister in the discharge of his duties shall be liable to be imprisoned for any term not exceeding two years,

ii) Section 37 defines assaulting a magistrate…concerning the preservation of any vessel in distress…shall be liable...to be kept in penal servitude for any term not exceeding seven years,

iii) Section 38 defines assault on any person with intent to resist or prevent the lawful apprehension or detainer of himself or of any other person for any offence, …shall be liable…to be imprisoned for any term not exceeding two years,

iv) Section 39 defines assault with intent to obstruct the sale of grain, …or its free passage shall on be liable to be imprisoned...for any term not exceeding

three months,

v) Section 40 defines assaults on seamen shall be imprisoned for any term not exceeding three months.

vi) Section 42 defines assault and battery on any person with the sentence of six months or a fine of £200;

b) Criminal Justice Act 1988 (Section 39) defines assault and battery with a sentence of a fine not exceeding level 5 on the standard scale, to imprisonment for a term not exceeding six months, or to both (and notes that the offence is subject to Section 1 of the Assaults on Emergency Workers (Offences) Act 2018, which makes provision for increased sentencing powers for offences of common assault and battery committed against an emergency worker acting in the exercise of functions as such a worker);

c) Criminal Justice Act 1991 (Section 90(1)) defines assaults on a prisoner custody officer with a sentence on summary conviction to a fine not exceeding level 5 on the standard scale or to imprisonment for a term not exceeding six months or to both (also referenced from Section 40(3) of the Criminal Justice Act 1988 and the Firearms Act 1968);

d) Criminal Justice and Public Order Act 1994 (Section 13(1)) defines assaults on a custody officer with a sentence on summary conviction to a fine not exceeding level 5 on the standard scale or to imprisonment for a term not exceeding six months or to both (also referenced from Section 40(3) of the Criminal Justice Act 1988 and the Firearms Act 1968 for assaulting secure training centre custody officer);

e) Criminal Justice and Courts Act 2015 (Section 13(2)) defines assaults on a secure college custody officer, with a sentence on summary conviction, to a fine not exceeding level 3 on the standard scale;

f) Assaults on Emergency Workers (Offences) Act 2018 (Section (1) defines assaults on an Emergency Worker, with a sentence of imprisonment for a term not exceeding 12 months, or to a fine (no limit to the fine is defined), or to both;

g) Criminal Justice Act 1988 (Section 40) notes that a summary offence for (c), (d) and (e) above may be included in an indictment, but not (f) above!

Another example of inconsistent sentences for similar offences occurs in

a) the Offence Against the Person Act 1861, where sections 21 and 22 define the offence of choking or using a substance with the intent to enable a person to commit an offence, with the penalty of life imprisonment,

b) and the Sexual Offences Act 2003, where section 61 defines a very similar offence, but with a different sentence (10 years).

Recommendation 8a: Increase the investment in the process of consolidation of legislative documents that cover the same or similar subject in order to simplify and improve the understanding of the law, bringing benefits to the Judicial System, policing and the solicitors, barristers etc who use the legislation.

The UK statute book records some provisions and Acts that have not yet commenced and may never be brought into force. For example, the Easter Act 1928 has never been commenced. Such provisions are a distraction for readers

and most readers of the legislation will not be interested in something that has not been introduced into law.

Recommendation 8b: Use configuration management tools (see Section 7) to keep a record of and help to manage changes, repeals, and unimplemented changes, enabling users to be able to request a presentation of only the types and status of legislation that they require (see recommendation 7a).

2.9. Issue Management

Software: Despite the best efforts being made, software can still contain defects. Some of these defects can be critical, possibly affecting the operation of the whole system being managed by the software, while others may be minor, cosmetic defects in a user interface. The important thing is that software developers identify and correct serious defects quickly and do not lose track of the minor defects that need correction too. This requires a clear and efficient method for reporting "potential defects" (usually referred to as "issues" because it is often the case that the issue reported by a user is not a defect), with a process in place for assessing if they are real defects, assigning a priority to the defects for correction and having a team ready to correct defects, testing updated software and getting the changed software authorised so that an update of the software can be issued. In the software world, these activities are often called "issue management".

Legislation: Although drafting mistakes are never intended, it is inevitable that they will occasionally occur. A judgement in the House of Lords, 2000 stated that "It has long been established that the role of the courts in construing legislation is not confined to resolving ambiguities in statutory language. The court must be able to correct obvious drafting errors… This power is confined to plain cases of drafting mistakes." Cormacain, 2017 noted that the point here is not to question the limits of that power to correct, but to ask what consequences it has for the availability of legislation. Correcting a mistake may do justice in an individual case before a judge, but will not serve the population as a whole unless they know that the mistake has been corrected. The reader of the statute book will still see the incorrect words used in that statute and it is difficult to find the judicial correction. For example, there is still no indication to the reader of the statute book that the words in s. 18(1)(g) of the Senior Courts Act 1981 are to be read with the addition of the words added to it by the House of Lords in Inco.

If a significant mistake is found in legislation (by a judge or by anyone else), it is important that it is recorded for all to see and rectified in the statute book as soon as possible. Of course, there must be a process for assessing the severity of a mistake (e.g. a significant mistake may require parliament to authorise a correction, while a spelling mistake may be corrected by legislation services). Administration of corrections to UK legislation is in place as I personally reported the following defects (not defects in the original drafting, but defects in the maintenance of legislation) in text stored on https://www.legislation.gov.uk/ to a Se-

nior Legal Editor at the Legislation Services in the UK National Archives and they were corrected as follows:

a) In May 2019, I reported that the Offences Against the Person Act 1861 contained the text for section 56, but Section 56 had been repealed by the Child Abduction Act 1984. Within a week, the text for the Act on https://www.legislation.gov.uk/ was corrected.

b) In January 2020, I reported that the Sexual Offences Act 1956 contained the text for Section 28, but Section 28 was repealed by the Sexual Offences Act 2003, Schedule 6, paragraph 11. Within hours of my report, https://www.legislation.gov.uk/ was corrected. I was informed that the Legislation Services had originally repealed 1956 c. 69, s. 28 on 1.5.2004, but when a subsequent repeal of words was brought into force on 30.12.2005, the update tool resurrected the text (a bug in the tool which has since been fixed) and no-one noticed that s. 28 had already been wholly repealed.

However, I am not aware if there is a single database where potential issues or known defects in https://www.legislation.gov.uk/ are recorded. Such a database would be an aid to the public (to be aware of potential defects in legislation) and also to parliament (to be aware of the need and priorities to change legislation).

Recommendation 9a: Make available to the public and the courts two formal mechanisms by which they can report their issues and concerns with legislation. One would be for lawyers and members of the judiciary to report genuine errors in legislation and errors in editing (which needs a mechanism for the Office of Parliamentary Counsel to respond), while the other would be for the public to voice their concerns about legislation (which could be monitored by Members of Parliament).

Recommendation 9b: Use configuration management tools (see Section 7) to keep a record of, and help to manage, publication errors.

2.10. Presentation

Software: The early development of software focused on defining the requirements for the software in detail, then producing the software that meets the requirements. However, especially where there is a high user interaction, it was found that there are often different groups of people who have quite different needs and wishes for using the software. Hence, nowadays software user interfaces often contain many parameters that can be defined for the users to enable them to use the software in their preferred way. For example, we can all choose the ring tone that our phone uses.

Legislation: In the UK, legislative documents may apply in whole or in part to one or more of England, Wales, Northern Ireland, and Scotland, plus there are Crown Dependencies and British Overseas Territories. However, most readers of legislation want to read the legislation that applies specifically to them, in their country. The differences in legislation between countries are often due to:

a) Use of different terminology in a region.

b) Different punishments or penalties required in a region.

c) Different processes or powers for magistrates or police in each region.

The implementation of the recommendation given below will help administrators of legislation clarify where legislation across the UK is common and where the differences are. For example, frequently, all regions will agree on the definition of an offence, but there may be differences only in a penalty applied. I suspect that, if this recommendation is implemented in the UK, many legislative drafting errors will be found as legislation is often complex with regards to if, when and where legislation is applied.

Recommendation 10: Readers of UK legislation should be presented with only the elements of a legislative document that are applicable for a particular country, without (as at present) the reader having to skip over the elements of the law applicable to countries in which the reader is not interested. Note that this recommendation would require configuration management tools mentioned in Recommendation 7a and may also require a change to the way UK legislation is written/structured.

2.11. Housekeeping

Software: With thousands of components, keeping track of changes to software is difficult. This is made more difficult if one maintains a database that contains obsolete components and information. Hence, software developers transfer obsolete information to a separate, archive database where it can be accessed when necessary, and the main database is then not overloaded with files that most people do not want to see.

Legislation: The number of UK Public General Acts (over 4300) brings a challenge to anyone looking for something specific in the law, especially when

a) some Acts, for example the Local Audit (Public Access to Documents) Act 2017, simply make an amendment to a previous Act and having been implemented, they are simply a record of how legislation has been amended and are no longer of interest to most people;

b) many Acts have been repealed (e.g. Punishment of Offences Act (Repealed), 1837), but are still available to be read, although they simply add to the volume that many people will not wish to read (i.e. they only wish to read current versions of legislation);

c) new Acts often define a mixture of new legislation together with changes to old legislation, making it difficult to find new legislation amongst changes to previous Acts. For example, Part 13 of the Criminal Justice Act 2003 covers 20 pages, within which are 6 new sections defining new legislation alongside 10 sections covering changes to and repeals of previous Acts;

d) while one can search legislative documents with keywords on https://www.legislation.gov.uk/, this can often bring up many irrelevant legislative documents (e.g. for different UK countries that are not of interest to the reader);

e) currently, too many Acts define detailed administration (e.g. Farriers (Registration) Act 1975) by the government. Simpler Acts that leave the administration details to be defined through Statutory Instruments could be created more often. Statutory Instruments also make the process of changing the detailed procedures less cumbersome for Government.

f) many of the UK Local Acts, of which there are currently 275, provide detailed legislation that are very specific to an area or organisation (e.g. Faversham Oyster Fishery Company Act 2017, University of London Act 2018, New Southgate Cemetery Act 2017). Surely such Acts should be consolidated into a few standard categories that define strategic goals and constraints, leaving specific operational details to be defined by Statutory Instruments or agencies.

Acts or sections of an Act are considered as "spent" when the purposes for which they were enacted has been concluded. For example, the Police and Magistrates Court Act 1994 and the Magistrates' Courts (Procedure) Act 1998 contain only amendments/repeals to other Acts and those amendments/repeals have been implemented. While a record of the role of spent Acts in bringing legislation to the state it is in today is required, especially in recording the dates when changes were applied, most people are only interested in current legislation and don't need to see such Acts. In the UK, Statute Law (Repeals) Acts deal solely with statutes no longer in force, with the purpose of repealing obsolete, spent, unnecessary or superseded enactments. These Acts are drafted by the Law Commissions of England and Wales, and the Scotland. The Statute Law (Repeals) Act 2013 alone repealed over 800 UK Acts and amended about 70 other Acts, but since then, there have been no further such Acts.

Recommendation 11a: Legislation should be structured such that amendments and repeals of previous legislation are grouped together in a legislative document (preferably in a Schedule for ease of reference) that can be archived once it is implemented.

Recommendation 11b: A Statute Law (Repeals) Act should be implemented each year in order to repeal Acts and sections of an Act that have become spent in that year, thereby minimising the number of Acts that are current at any time.

Recommendation 11c: Statute Law (Repeals) Acts and Acts that have been repealed should be put in an archive for historians and the relatively few people who need to know a history of changes to an Act. This process will also minimise the number of Acts that are current at any time.

Recommendation 11d: Make greater use of Statutory Instruments when detailed administration needs to be defined for the government.

2.12. Crowd Guidance

Software: Software developers know from experience that they can't anticipate every scenario that their software will operate in. Nowadays, users of software are encouraged to provide comments and suggestions for improvements through websites that are monitored by the software developers. Useful ideas

and suggestions from such a website form the basis of improvements to the software.

Legislation: Drafters of legislation face a similar situation. The courts, through case law, enable legislation to be clarified for certain scenarios. However, there is no formal mechanism by which the users of legislation can record suggestions for improving the legislation. While there is now excellent access to legislation through https://www.legislation.gov.uk/, the technology needs to be improved to enable the public and professionals to provide comments and suggestions for improvements for parliament to consider.

Recommendation 12: Using similar tools to those that will support recommendation 9a, enable the public and legal professionals to make comments and propose improvements to legislation via the internet. Note that, while there are benefits to implementing this proposal, careful attention needs to be given to the administration of the comments to ensure the benefits are gained at an acceptable cost.

2.13. Related Issues

The New Zealand Law Commission, 2007 believes that access to legislation had three meanings: availability to the public, navigability and clarity. Burrows & Carter, 2009 says "availability involves provision to the public, and especially to users, of hard copies, or copies available electronically". Users need to be able to place their hands on the actual paper of the legislation or be able to read the actual words of the legislation on a screen. While much has been done in recent years to improve the availability of legislation, it appears that many drafters of legislation still feel constrained to thinking about how legislation is published on paper. However, paper documentation may soon be a thing of the past.

The use of modern, web-based techniques will enable new ways to improve legislation, specifically in how it is recorded on https://www.legislation.gov.uk/, which despite having become a vital resource that has transformed public access to the law, still suffers from a lack of clarity and coherence (as described in this paper). Modern web-based techniques will also aid readers of legislation, moving away from today's constraints with paper-based legislation. Improved standards for producing legislation will enable lay people and professionals to quickly find and understand the elements of the law they need.

As millions of people turn to https://www.legislation.gov.uk/ each month when they need to read, quote, or cite legislation, the way the legislation is presented is critical to a successful, efficient, and functioning Statute Book and the recommendations made in this paper support that goal.

Recommendation 13: Parliament should investigate the benefits to be gained by creating legislation that is based on being viewed on a screen, rather than on paper.

2.14. Constraints on Implementing Change

Developers of software are driven by the needs to get a return on their invest-

ment, so the development of software that results in high sales is a strong motivation to implement good practices. While several of the recommendations made in this paper are similar to those proposed by Thring in 1877, the examples given in the previous sections show the recommendations in this paper are not always implemented, and some not implemented at all, when legislation is drafted in the UK. One reason for this is the investment in achieving them has been insufficient. Another reason is that Acts have a different purpose in society than the Bills from which they are derived. Specifically,

- the structure of Bills is sometimes led by political considerations rather than making the best statute book,
- Bills are often written because there is an urgent need to fix something in society and the way that Bills are drafted reflects this.
- Acts must meet the requirements of "good law" and be clear, coherent and accessible to the public, police, and the Criminal Justice system.

Some of the previous recommendations made reflect the needs for an Act to meet the needs of "good law", but how can these recommendations be implemented without delaying the passage of a Bill through parliament? This is not an easy question to answer, and the following recommendation is not an easy solution to implement in the UK, but it is given to stimulate ideas as to what could be done.

Recommendation 14: Rather than require all changes to legislation to be scrutinised by Parliament, it is recommended that changes to legislation be categorized and managed according to the following processes, based on the fact that the First Parliamentary Counsel is the most senior/trained person in the legislative process who will have the full respect of Parliament:

1) Through an Act of Parliament, authorise the Secretary of State to authorise changes to legislation via a Statutory Instrument (SI) where the intended purpose of the change is purely to improve the intelligibility and use of legislation (i.e. no intended change to the intent/purpose of the legislation). Such changes would be pre-approved by the First Parliamentary Counsel and implemented on a small scale, on a frequent basis. These changes can be tested in the courts to confirm that each change is meeting its intended purpose and corrective action can be implemented quickly through this process if the courts require it.

2) Through an Act of Parliament, set up a new, additional process for the scrutiny and approval of changes to legislation that are aimed to simplify and improve its consistency (e.g. changes to sentences to bring them in line with other sentences), with the aim that such changes are implemented quickly. Such changes would originate from the First Parliamentary Counsel and the size of such changes should be limited.

3) Through an Act of Parliament, enable the Legislation Services team to add Hyperlinks, screen tips, and commentary to legislation for the purposes of assisting users, provided that such additions are reviewed and approved by the Office of the Parliamentary Counsel and a caveat similar to the following is added: "Hypertext links and screen tips are provided for the convenience of users of this

Act and do not form part of the Act".

4) New legislation and major changes to legislation will continue to follow current processes.

3. Conclusion

While the development of software has different constraints and objectives from the drafting of legislation, the analysis and recommendations in this paper show that lessons learned from software development can improve the drafting of legislation in the UK. The recommendations made in this paper should help to meet the aims set by the England and Wales's Law Commission[1] and others, and:

- improve readability by employing modern, web-based techniques for producing and reading documents,
- reduce the number of Acts and related legislation,
- categorise legislation in a structure that facilitates finding legislation relating to specific topics,
- improve accessibility to legislation for the lay person,
- reduce the complexity in legislation.

With most laws on the https://www.legislation.gov.uk/ website, the UK has an excellent basis on which to implement the recommendations made in this paper, enabling laws to be updated to ensure consistency where needed and appropriate differences to be highlighted. This will make the law clearer and more coherent to both practitioners and the wider public.

As mentioned in the introduction, there has been much agreement that drafting standards should be improved and there would be a national benefit from the investment required. This need has been known for many years, but various governments have not authorised the investment required. In order to stimulate discussion and initiate actions, proposals are made below (see Appendix A for more details) as to which organisations should take responsibility for implementing the recommendations in this paper.

The following recommendations should be relatively easy to implement by the Office of the Parliamentary Counsel:

Recommendations 1a, 3a, 4a, 4b, 4c, 4e, 5, 6b, 6c, 7c, 11a, 11a, 11d, 13.

As soon as resources are given to the team in the UK National Archives that maintain the data on https://www.legislation.gov.uk/, legislation can be updated to use hypertext links such that readers can quickly be taken to a definition of a term, thus avoiding the time and problems associated with searching through paper-based records of legislation. Such changes can largely be automated, requiring only appropriate scrutiny by legal experts to ensure the changes reflect the intent of the legislation that has been updated.

The following recommendations can be implemented by the Legislation Services team in the National Archives at low additional cost. Note that much of this work can be automated:

Recommendations 1b, 1c, 1d, 1e, 2a, 3b, 4d.

The following recommendations can be implemented by the Legislation Services team in the National Archives, provided a relatively small investment in resources is made. Note that much of this work can be automated:

Recommendations 1f, 6d, 7a, 8b, 9b, 11c.

The following recommendations can be implemented by the Legislation Services team in the National Archives, although some investment is required:

Recommendations 9a, 10, 12.

Once the Legislation Services have completed implementation of recommendation 1 g, Law Commissions could initiate research (largely based on computer analysis, so keeping costs down and giving a fast response) that aims to simplify those areas of the law where inconsistent terminology is used. Following this research, a programme of change can be initiated whereby all legislation is reviewed and converted to use the standard terminology, where appropriate. The following recommendation should be tackled by a Law Commission.

Recommendations 2b, 2c, 6a, 7b, 8a, 11b.

Parliamentary time is already overloaded, so can it handle all the changes proposed in this paper? The answer is clearly "No" in the short term as more investment in processes, people and technology to help the processes is required if the objectives of "good law" are to be achieved. I hope Parliament recognises the overall benefits (as mentioned in the introduction) to them and the nation by implementing recommendation 14.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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Appendix A

Summary and classification of recommendations

In order to stimulate discussion and initiate actions, proposals are made below as to which organisations should take responsibility for implementing the recommendations in this paper.

The following recommendations can be implemented by the Legislation Services team in the National Archives at low additional cost. Note that much of this work can be automated.

Recommendation 1b: Highlight each use of a defined term within a legislative document using, for example, bold font, colour, italics, or underlines.

Recommendation 1c: Where a word needs to be used in a legislative document with two definitions, make it clear that there is more than one definition by, for example, adding a suffix to the word as in child[1] and child[2].

Recommendation 1d: For every use of a defined term, provide a hypertext link to the source definition.

Recommendation 1e: For every use of a defined term, enable a screen-tip to appear if the user moves their cursor over the defined term.

Recommendation 2a: Create and maintain a list of defined terms used in legislation and case law. Store the defined terms, including alternative definitions where applicable, in a formal, public database that can be used to find the documents in which a term is used.

Recommendation 3b: Add hypertext links to assist readers to jump to a section, Schedule, legislative document, etc. when they are referenced in the text.

Recommendation 4d: When setting out the structure of an Act (see Recommendation 4a), online readers of an Act should be provided with hypertext links that enable a reader to understand the main purpose of a section of an Act to begin with, and then "jump" (using a hypertext link) to a section that is of interest to them.

The following recommendations should be relatively easy to implement by the Office of the Parliamentary Counsel

Recommendation 1a: Record all definitions of terminology in one place in a legislative document.

Recommendation 3a: Take great care in preparing the sequence of items in a legislative document and introduce the more complex documents with an overview of the content.

Recommendation 4a: Rather than define a sentence alongside the definition of each offence, define sentences in a schedule to the Act or in another Act where sentences are documented. Where an offence is defined, provide a hypertext link for a reader to go and look at a sentence related to the offence. For example, all sentences in the Sexual offences Act 1956 are recorded in a Schedule, but this is not common practice.

Recommendation 4b: Rather than define procedural elements alongside offences, define these in a Schedule related to the type of procedure or in another

Act where similar procedures are documented.

Recommendation 4c: In Acts where there is a complex relationship between sections, provide an introduction to the Act, possibly supported with a diagram (presented for guidance only) showing the relationships between scenarios and sections. I suspect Thring intended this recommendation when (as quoted earlier, ref. Chapter 2, s4) he stated: "If the reader, after mastering the first two or three sections, comprehends the whole drift of the Act…the Act…is well arranged".

Recommendation 4e: Rather than define all the different scenarios in which an offence can occur in different sections, structure an Act such that it is clear what an offence is and list the scenarios as sub-sections within the section that defines the offence and/or document the related scenarios, for example, in a Schedule to the Act (hypertext links can be added to enable a reader to easily move from reading about an offence to a set of related scenarios).

Recommendation 5: Aim to minimise the interconnectedness of new legislation by identifying an appropriate structure (see section 4 above) for the legislation that separates concerns such that they can be defined and documented clearly as a stand-alone element.

Recommendation 6b: When new legislative documents are created, the introduction should clarify which categories of legislation (see Recommendation 6a) are covered within the document.

Recommendation 6c: Aim to minimise mixing different categories of legislation when drafting a new Act.

Recommendation 7c: A database or at least a simple list of prospective elements of legislative documents should be maintained and regularly reviewed by parliament such that pressure is brought to bear by parliament to ensure that either their wishes are implemented in a timely manner or there is a formal decision (recorded in a new Act) that the prospective elements are repealed.

Recommendation 11a: Legislation should be structured such that amendments and repeals of previous legislation are grouped together in a legislative document (preferably in a Schedule for ease of reference) that can be archived once it is implemented.

Recommendation 11d: Make greater use of Statutory Instruments when detailed administration needs to be defined for the government.

Recommendation 13: Parliament should investigate the benefits to be gained by creating legislation that is based on being viewed on a screen, rather than on paper.

The following recommendations can be implemented by the Legislation Services team in the National Archives, provided a relatively small investment in resources is made. Note that much of this work can be automated.

Recommendation 1f: Expand the current legislation maintenance services (people and tools) to enable hypertext links and screen tips to be added and maintained in legislation.

Recommendation 6d: Provide search facilities to users of legislation (e.g. on https://www.legislation.gov.uk/) to help them find legislation within the defined categories (see Recommendation 6a).

Recommendation 7a: A configuration management tool should enable versions of legislative documents to be generated to meet the specific needs of different types of users (see also recommendation 10), as set out above.

Recommendation 8b: Use configuration management tools (see Section 7) to keep a record of and help to manage changes, repeals, and unimplemented changes, enabling users to be able to request a presentation of only the types and status of legislation that they require (see recommendation 7a).

Recommendation 9b: Use configuration management tools (see Section 7) to keep a record of, and help to manage, publication errors.

Recommendation 11c: Statute Law (Repeals) Acts and Acts that have been repealed should be put in an archive for historians and the relatively few people who need to know a history of changes to an Act. This process will also minimise the number of Acts that are current at any time.

The following recommendations can be implemented by the Legislation Services team in the National Archives, although some investment is required.

Recommendation 9a: Make available to the public and the courts two formal mechanisms by which they can report their issues and concerns with legislation. One would be for lawyers and members of the judiciary to report genuine errors in legislation and errors in editing (which needs a mechanism for the Office of Parliamentary Counsel to respond), while the other would be for the public to voice their concerns about legislation (which could be monitored by Members of Parliament).

Recommendation 10: Readers of UK legislation should be presented with only the elements of a legislative document that are applicable for a particular country, without (as at present) the reader having to skip over the elements of the law applicable to countries in which the reader is not interested. Note that this recommendation would require configuration management tools mentioned in Recommendation 7a and may also require a change to the way UK legislation is written/structured.

Recommendation 12: Using similar tools to those that will support recommendation 9a, enable the public and legal professionals to make comments and propose improvements to legislation via the internet. Note that, while there are benefits to implementing this proposal, careful attention needs to be given to the administration of the comments to ensure the benefits are gained at an acceptable cost.

The following recommendations may take some time to complete, so it is proposed they be tackled by a Law Commission

Recommendation 2b: Using the database created under Recommendation 2a, identify where:

- one term is used to mean *different* things,
- many terms are used to mean the same thing

Recommendation 2c: Using the research performed under Recommendation 2b, initiate corrective action to bring consistency across the statute book, where and when appropriate.

Recommendation 6a: Improve the ability of people to find relevant legislative documents by formally identifying categorisations of legislation.

Recommendation 7b: The UK needs to make additional investment to make all legislation consistent.

Recommendation 8a: Increase the investment in the process of consolidation of legislative documents that cover the same or similar subject in order to simplify and improve the understanding of the law, bringing benefits to the Judicial System, policing and the solicitors, barristers etc who use the legislation.

Recommendation 11b: A Statute Law (Repeals) Act should be implemented each year in order to repeal Acts and sections of an Act that have become spent in that year, thereby minimising the number of Acts that are current at any time.

The following recommendation requires Parliamentary action

Recommendation 14: Rather than require all changes to legislation to be scrutinised by Parliament, it is recommended that changes to legislation be categorized and managed according to the following processes, based on the fact that the First Parliamentary Counsel is the most senior/trained person in the legislative process who will have the full respect of Parliament:

1) Through an Act of Parliament, authorise the Secretary of State to authorise changes to legislation via an SI where the intended purpose of the change is purely to improve the intelligibility and use of legislation (i.e. no intended change to the intent/purpose of the legislation). Such changes would be pre-approved by the First Parliamentary Counsel and implemented on a small scale, on a frequent basis. These changes can be tested in the courts to confirm that each change is meeting its intended purpose and corrective action can be implemented quickly through this process if the courts require it.

2) Through an Act of Parliament, set up a new, additional process for the scrutiny and approval of changes to legislation that are aimed to simplify and improve its consistency (e.g. changes to sentences to bring them in line with other sentences), with the aim that such changes are implemented quickly. Such changes would originate from the First Parliamentary Counsel and the size of such changes should be limited.

3) Through an Act of Parliament, enable the Legislation Services team to add Hyperlinks, screen tips, and commentary to legislation for the purposes of assisting users, provided that such additions are reviewed and approved by the Office of the Parliamentary Counsel and a caveat similar to the following is added: "Hypertext links and screen tips are provided for the convenience of users of this Act and do not form part of the Act".

4) New legislation and major changes to legislation will continue to follow current processes.