



Digital**Preservation**Coalition

# **Bit List of Digitally Endangered Species**

**Revision 2**

**November 2018**

## 1. Executive Summary

The Global List of Digitally Endangered Species – *The BitList* – provides an accessible snapshot of the concerns expressed by the global digital preservation community with respect to the viability of and risks to diverse types of digital content in varied conditions and contexts. First produced in 2017, it offers an elementary assessment of the imminence and significance of the dangers faced by different, and at times overlapping classifications. By identifying the urgency of action and significance of content, *The BitList* draws attention to those digital materials which, in the view of the global digital preservation community, require action if they are to remain viable.

The classes of content are purposefully broad in order that the list can be digested quickly. This accessibility is a virtue but comes at a cost to specificity. Consequently, the recommendations are imprecise and the urgency of action with respect to any specific instance of that content may be amplified by the presence of aggravating factors or ameliorated in the presence of good practice. An approximate action plan is presented for every content type including a timeline for action.

*The BitList* was generated through an open nomination process in September and October 2017. Members of the digital preservation community around the world were invited to express concerns in relation to content for which they are responsible, and also to identify significant content where, in their view, responsibility was uncertain or capability in doubt. These initial nominations were assessed in detail by an expert panel which reviewed the imminence of the threats, the significance of the content and the competence of the policy environment of the materials nominated. The result was a simple classification of digital materials into six risk categories, first published on 30th November 2017. *The BitList* is maintained and published by the Digital Preservation Coalition with the intention that it be published annually over a two-yearly revision cycle. A major edition is planned every two years with an interim progress report and commentary in alternate years. This schedule explicitly complements the biannual cycle of the Digital Preservation Awards. The 2018 edition provides a brief commentary on progress since publication and an assessment as to whether the content is more or less endangered than in 2017.

First and foremost, *The BitList* is an advocacy tool. It emerged as a recommendation from the DPC's Advocacy and Communication Sub-Committee and exists to inform priorities in the allocation of resources and support policy-development where this may be needed. It is intended as an ongoing framework of assessment which not only highlights risks but also provides a basis for the celebration of success in the anticipation that challenges identified in one year are addressed, resolved and reported in subsequent years. The framework is also intended to become more specific over time, and thus more direct in recommendations.

This edition of *The Bitlist* is an interim revision of the initial publication in 2017, adding explanatory notes and updating the list based on comments and progress in the previous twelve months. A full revision will begin in early 2019 with publication due at the end of that year.

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## 4. Director's Introduction to the 2018 Revision

The 2018 Revision of *The BitList* offers a chance to update and review progress since initial publication in 2017. It was always intended as an interim statement that identified major changes or trends but offering commentary rather than a comprehensive review. It designed around the commitment that the DPC makes to the Digital Preservation Awards in alternate years, recognizing that the capacity for a full review would be limited in Autumn 2018. However, the pace of change is also relatively slow so the appetite and impact of an annual revision would be limited.

*The BitList* was an experiment in 2017, and attempt to establish a new narrative and new fixed point for the digital preservation community. Because this revision is largely based on that original review it is therefore also something of an experiment. As in 2017 comments and corrections and welcome, as are suggestions as to what might be added for our next planned review in 2019. However this experiment is now based on more robust appreciation of the impact that a report like *The BitList* can have. Two examples demonstrate the benefit.

In our initial publication last year we highlighted the 'practical extinction' of 'Pre-WWW ViewData and TeleText Services'. Services like Ceefax and TeleText were tremendously important information channels during their hey-day of the 1980s, coded within TV signal of major broadcasters. We knew that these signals could be captured within the archival services that recorded the broadcast signal, but were uncertain of whether this collection could be accessed in any meaningful way. Our report caused a number of projects in the broadcast industry to contact us, with research projects and demonstrator services that explicitly sought to recover and index this signal. Thus, *The BitList* brought independent, international and informed verification of the relevance and importance of these projects and not surprisingly has been useful to them in encouraging further and more sustained research.

In 2017, the BitList identified 'Community Archives and Community Generated Content' as being Critically Endangered. This has turned out to be a timely recommendation. 2018 has been a significant year of commemoration and celebration of the centenary of peace at the end of First World War. Consequently a great many community-based heritage projects have sorted and digitized photographs, letters, diaries and all sorts of ephemera and remembrances from that war and the peace that followed. Sustainability of the myriad commemorations and projects was never not guaranteed nor warranted in every case. But by highlighting the risks to community generated content, the BitList has influenced policy and practice towards sustainable funding and access to a selection of these collections, hopefully providing a contribution to capacity within the various sector-leading agencies that fund and foster community-based heritage.

These two examples and many more other messages of support have encouraged us to revise and update the list marking significant changes since last year. The trends over the year have been manifold and ambiguous so it is hard to provide an overall summary of the health of the digital estate. But 3 cross-cutting themes have nonetheless impacted on a range of the items listed.

Firstly, it is hard to hide from the introduction of European General Data Protection Regulation (GDPR) on May 25<sup>th</sup> 2018. It is too early to provide a systematic view of the impact of GDPR on digital preservation but two views summarize informal discussions with DPC members. On one hand data retention is now seen as a significant liability by many different agencies, so a tendency to risk-averse and ill-informed disposal has been reported. The

derogations that apply to archives may prove insufficient if data is deleted prior to transfer. From this perspective, over-zealous or ill-informed interpretation of GDPR has become a significant threat to the digital estate. On the other hand, the opportunity to extract and store ones' own data from service providers means that there is a new opportunity for the management and preservation of content to be delegated to individuals. Whilst there is precious little evidence that the skills necessary to achieve this purpose are widely enough dispersed, the fact of drawing attention to the value and opportunity of personal collections is itself welcome.

Secondly, efforts to foster digital preservation skills have continued apace this year, most obviously among the library and archive profession, but also among academic researchers, artists and records managers who are responsible for the creation of digital materials. These efforts have created a sense of a baseline of digital preservation knowledge and capability which is some small encouragement.

Thirdly, the sheer energy of the academic sector in the provision of new policy and new tools for the preservation of digital research outputs has continued to be sustained. The debates about open access and the value of data in the cause of reproducible science can make tough reading for outsiders, replete as they are with the jargon of numerous projects, services, policies and positions. This community has however lead a great deal of digital preservation innovation over the years. It remains an open question as to whether the numerous standards, techniques and skills assembled in the preservation of research data and research publications can be applied to other sectors easily. But the fact that these debates remain tightly coupled to the emergence of new technologies means that new digital preservation tools and techniques have continued to emerge, and are therefore available to be adopted or adapted by others where appropriate.

These are just a few of the trends that have helped form the 2018 review of The BitList: there's a lot more in the text that follows.

Even so it seems inevitable that there will be important points overlooked or simplified or misunderstood or misinterpreted, and all comments and suggestions about how it could be improved are welcome. The BitList is an open invitation to action and an invitation to participation: to act on the recommendations; to participate in the global community which is developing good practice around digital preservation; and to participate in the enhancement of the list. The growing capabilities of the digital preservation community, evidenced in this report, makes plain that digital loss is not some inevitable or disembodied force. Nor for that matter is digital preservation a business process or a software bundle or a policy framework or an optimized workflow. It's all of these and also a commitment we make to the future and it's how we turn a sorry history of all the things that should have been avoided into a coming history of all that can be achieved.

*William Kilbride*

*Digital Preservation Coalition*

*29<sup>th</sup> November 2018*

## 5. Interpreting and Using *The BitList*

The BitList is first and foremost an advocacy tool. It describes a range of digital materials in a range of organizational settings which, in the experience of the global digital preservation community, face distinct and imminent challenges. These challenges may be as much to do with accountability, policy or business process as about technological obsolescence. By identifying them, and by presenting and providing elementary recommendations about how the risks can be tackled, the DPC seeks to provide generic, impartial and international support to specific preservation actions and policies in any context.

Although all digital materials fall within the scope of the BitList, it is not a complete account of digital materials at risk: only those items which members of the community recognize as being at risk have been included. Consequently the fact that a data set is not listed should not be taken as evidence that it is not at risk: simply that the community which has compiled the list has not encountered any explicit risks or has no experience with these particular materials. Equally, the fact that an item has been identified as being at risk is some small proof of effort, however weak, to secure long term viability. In most cases, items on the list are very broadly defined, summarizing significant variability in specific cases. Often items on the list will overlap, amplifying or lessening the urgency for action as appropriate.

Each item on the list is given a short title and a slightly longer description. It is described in general terms, then a series of examples are given. By and large these examples are the specific recommendations that were received from the digital preservation community when the initial call for proposals was made in 2017. The examples are illustrative not exhaustive, and although they provide a bit more detail, they are also in many cases very broadly defined classes of digital content which in turn have many different instances and examples.

Users of *The BitList* are encouraged to assess whether any digital object in their possession, or which they intend to create, or for which they have a current or imminent preservation responsibility, is a specific example of the item described and whether it aligns with one of the examples given.

A simple recommendation for action is associated with each item on the list along with an indicative timescale for implementation. In most cases the recommendation is for a fuller assessment to be undertaken: by implication however the recommendations of such an assessment are not trivial and should also be acted upon. Therefore the time frame indicated includes delivering the outcomes of that assessment. In some cases the recommendation for action is also given an explicit timescale. As the risk increases so the urgency of assessment and action increase.

Each item has been placed in a risk classification. However, recognizing that the items are very broadly defined, individual instances of that item can be at more or less risk depending on local circumstances. There is greater risk and therefore greater urgency to act in the presence of one or more aggravating conditions. So while an item may be classified as 'Vulnerable' in generic terms, any example of that item may reasonably be described as 'Endangered' or 'Critically Endangered' in the presence of aggravating conditions. Conversely, in the presence of good practice, specific digital materials may move from 'Endangered' to 'Vulnerable' or 'Lower Risk'. A list of typical aggravating conditions is provided, though these are indicative not exhaustive. Good practice has not been described though efforts will be made to include this as an addition to the BitList in 2019.

The entire list has been reviewed prior to the 2018 release and general comments have been added about trends and activities that have had an impact on each item since initial publication. In a number of cases imminent extinction events are reported or predicted. A number of recommendations have also been made about the items, which will be followed up in 2019. The overall classifications have not been changed though trends have been identified where these are clear. These will also be assessed at the point of the next complete review in 2019.

The BitList is designed to be collaborative, iterative and provisional. Thus, if readers are aware of significant digital collections that do not match up with any of the broad examples given but are at material risk, then they are encouraged to draw these to the attention of The BitList jury through the DPC's Head of Advocacy and Community Engagement. These will be reviewed in time for publication in November 2019. Where significant digital collections face an imminent extinction event before publication in November, their evaluation may be accelerated and an addendum published to The Bitlist in order to provide the timely, impartial and expert advocacy that may be required.



## 6. Explanation of Classifications

- **Lower Risk**

Digital materials are listed as 'Lower Risk' when it does not meet the requirements for other categories but where there is a distinct preservation requirement. Failure or removal of the preservation function would result in re-classification to one of the threatened categories.

- **Vulnerable**

Digital materials are listed as *Vulnerable* when the technical challenges to preservation are modest but responsibility for care is poorly understood, or where the responsible agencies are not meeting preservation needs. This classification includes *Lower Risk* materials in the presence of aggravating conditions.

- **Endangered**

Digital materials are listed Endangered when they face material technical challenges to preservation or responsibility for care is poorly understood, or where the responsible agencies are poorly equipped to meet preservation needs. This classification includes *Vulnerable* materials in the presence of aggravating conditions.

- **Critically Endangered**

Digital materials are listed *Critically Endangered* when they face material technical challenges to preservation, there are no agencies responsible for them or those agencies are unwilling or unable to meet preservation needs. This classification includes *Endangered* materials in the presence of aggravating conditions.

- **Practically Extinct**


Digital materials are listed as Practically Extinct when the few known examples are inaccessible by most practical means and methods. This classification includes *Critically Endangered* materials in the presence of aggravating conditions.

- **Of Concern**

Digital materials are listed as Of Concern when an active member of the digital preservation community has expressed a legitimate concern but the concern has not yet been assessed by the BitList jury. They will be assessed for inclusion in the subsequent year.


## 7. Vulnerable




Materials Posted to Current Web-based Social Media Platforms or Equivalents		
Data generated on web-based social interaction services with complicated terms and conditions, and dependent on the business model of a single corporate service provider which is in good health but has no requirement to preserve. Often provided at no cost to users.		
<p><b>Action:</b> Assessment is Urgent (Within 2 years)  <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b>            Facebook posts;            Twitter;            WhatsApp Messages;            SnapChat Messages;            Slack Channels;            Online political campaigns;            Blogs and blog comments;            Online discussion fora;            Online communities.</p>	<p><b>Aggravating conditions:</b>            lack of preservation capacity in supplier;            lack of preservation commitment at or incentive for social media companies;            dependence on proprietary products or formats;            poor management of data protection;            inaccessibility to web archiving services;            political or commercial interference;            lack of offline equivalent;            encryption;            infrequent access;            conflation of preservation and access;            political or commercial interference;            dependencies within subscriptions;            inadequate or overly complex export functionality.</p>
<b>Endangered</b> in the presence of Aggravating Conditions. <b>Lower Risk</b> where good practice can be demonstrated.		
<p><b>2018 Review:</b> Continued development of web archiving and social media tools and services (such as <a href="#">Mirrorweb</a>, <a href="#">WebRecorder</a> and <a href="#">SocialFeedManager</a>) and <a href="#">increased confidence legal deposit collection management</a> means that the community is better able to manage such collections. However 2018 has been a difficult year for social network service providers, partly because the introduction of General Data Protection Regulations in Europe has created new liabilities in the retention and sharing of personal data; and in particular because of what has become known as the Cambridge Analytica scandal. GDPR has had a complicated affect. On one hand social media providers have faced threats of prosecution and much larger fines for breaching data protection laws, encouraging them to reduce the amount of data they process or restrict how it is used. On the other hand, users have new rights and tools <a href="#">to extract data that pertains to them</a>, generating opportunities for users to manage and preserve their own data. There is no explicit evidence of social media service providers being significantly less profitable, or any less able to provide continuing access to content; and there is no strong evidence to support the contention that users are able to preserve their own content. Nonetheless the erosion of trust and tightening of regulation means that over the year the trend has been towards greater risk.</p>		


## 8. Endangered




Born Digital Photos and Video Shared on Social Media or Uploaded to Cloud Services		
Digital images or video with no analogue equivalent and where the only copy is online with a social media platform or cloud image hosting service.		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Flickr; Vimeo; YouTube; Instagram; Periscope; DropBox; Facebook.</p>	<p><b>Aggravating conditions:</b> lack of preservation capacity in provider; lack of explicit preservation commitment or incentive from provider to preserve; lack of storage replication by provider; dependence on proprietary products or formats; poor management of data protection; inaccessibility to web archiving services; political or commercial interference; lack of offline equivalent; over-abundance; poorly managed intellectual property rights; lossy compression applied in upload scripts.</p>
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions. <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> Significant concern has been expressed this year about free accounts on Flickr when it was announced that <a href="#">Flickr would actively delete content until accounts were below a new, arbitrary limit of 1000 items</a>. Subsequent announcements <a href="#">excluded material that was licensed under creative commons licenses</a>, but it remains unclear how significant the ensuing loss event, scheduled for the 8<sup>th</sup> January 2019, will be. Consequently, users reliant on free services from Flickr to store images should act urgently to ensure multiple copies are replicated on other storage platforms. Without such action, images on free Flickr accounts are now <b>critically endangered</b> and face an <b>imminent extinction event</b>. On the upside, continued development of web archiving and social media tools (such as <a href="#">WebRecorder</a> and <a href="#">SocialFeedManager</a>), and <a href="#">increased confidence legal deposit collection management</a> means that the community is better able to manage such collections when they are available.</p>		


<a href="#">Corporate Records of Long Duration held on Network Drives, Intranets and Document Systems</a>		
<p>Records on internal corporate network drives, intranets or document management services where access is limited to a distinct group of users, and in which the lifecycle of the record or the business processes they support is greater than the technology on which they are created or retained.</p>		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p>	<p><b>Examples:</b> Born digital records of small and medium sized enterprises; fasting-changing internal manuals, advice or policies shared on intranets or EDRMS; records of long-lived products and services; Historic guidelines and manual which evidence 'best practice'; Documentation supporting long-lived contractual relations; Online terms and conditions; Corporate Slack channels; Google Drives; EDRMS; Email.</p>	<p><b>Aggravating conditions:</b> lack of systematic preservation function; lack of preservation path or plan for data; dependence on proprietary products or formats; poor management of data protection; political or commercial interference; lack of offline equivalent; over-abundance through poor disposal or version control; lack of capacity; lack of commitment; dependency on proprietary formats loss or lack of documentation; sector specific software or data types.</p>
		
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions, <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> the introduction of the general data protection regulations (GDPR) in the EU in May 2018 has concentrated attention on the volume and content of corporate records. The general impression has been for organizations to dispose of records in response to greater public awareness and larger penalties. GDPR also means users are better able to extract their own data, meaning that there are new opportunities for users to manage and preserve their own content. Derogations exist within the regulations for archives but inappropriate interpretation of GDPR is likely to mean that some corporate records are never made available to archival appraisal. GDPR has also created a new pretext for deletion from those who would choose to conceal or obscure unwelcome evidence. The roll out of digital preservation solutions within corporate environments has continued this year (such as CrossRail), and corporate participation in digital preservation activities around the world (such as RBS). Nonetheless the general trend is towards greater risk.</p>		


<p><a href="#">Digital Legal Records and Evidence</a></p> <p>Digital records gathered or created in the course of criminal or civil investigations or presented as evidence in court proceedings. The data may be generated through legal processes, such as legal rulings or proceedings; or may be generated externally by public authorities or members of the public. Any digital object which could be presented in court as evidence.</p>		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> CCTV; Email; Public Enquiry Evidence; Online Terms and Conditions; Police records; Court records; Text messages.</p>	<p><b>Aggravating conditions:</b> risk of falsification; fragile or obsolete media; dependence on proprietary formats or products; lack or loss of documentation; inaccessible to web harvesting technologies; lack of version control; lack of integrity checks or integrity records; poor chain of custody;</p>
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions. <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> This is a large category. It is hard to provide a meaningful overview of progress and so it may be usefully split into more measurable components in future years. A series of scandals with respect to non-disclosure has targeted attention on digital evidence, its assessment and presentation to litigants: but it is too early to assess if risks to such evidence have since been ameliorated. Improvement to the baseline competence of the archival profession provide a narrow basis for optimism but there is little evidence that such opportunities have been exploited by court and legal officials who remain largely absent from the digital preservation community. Only one court agency (UNMICT) seems meaningfully engaged in digital preservation. On balance there is no progress to report.</p>		


<p><a href="#">Digital Music Production and Sharing</a></p> <p>Digital music, especially components used in the production or informal sharing of digital music.</p>		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Digital Music Scores; MaxMSP Patches; Community-based music sharing and tracking; Fan and community fora; Pre-production notes; Demo recordings; Soundcloud.</p>	<p><b>Aggravating conditions:</b> fragile or obsolete media for offline content; service provider preservation capability for online content; dependence on proprietary formats or products; lack or loss of documentation; Uncertainty over intellectual property rights; lack of version control; lack of policy or mandate</p>
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions. <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> Published sheet music falls under the scope of the Non-print Legal Deposit Regulations in a number of jurisdictions. Although only a small section of the wider non-print legal deposit collections, an <a href="#">assessment of digital preservation capability of the legal deposit libraries in the UK</a>, completed in January 2018, gave improved confidence that sheet music published in the UK in digital form was subject to robust and responsive preservation processes. Moreover, procurement of a new digital preservation platform by Libraries and Archives Canada means collections there are likely to see enhanced preservation in the near future. In addition, the completion of a <a href="#">major cataloguing and digitization initiative in the Netherlands</a> has added capacity and insight into the challenges of preserving digital sheet music as well as the value of the collections. These activities will be further supported by new format assessments published for the <a href="#">Sibelius and MusicXML formats</a>. These represent a component of the larger grouping described in this item and there is little progress to report with the preservation of other digital materials associated with it. On balance therefore, a very modest trend to improvement can be traced, but it cannot be said to be universal. It may be useful to break this category up into smaller, more measurable components in future years.</p>		



<p>Digital Radio Recordings</p>		
<p>Master recordings of radio broadcasts generated live but often poorly stored thereafter.</p>		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of Aggravating Conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Offline recordings on single LTO (Linear Tape Open) Tapes</p>	<p><b>Aggravating conditions:</b> lack of archival mandate; lack of capability of archive; lack of policy or capacity within broadcaster; small or unprofitable broadcaster; concern over intellectual property rights; overzealous rights management protection; device or software dependence; dependence on proprietary or obsolete formats; lack or loss of documentation little use or inaccessibility; storage (typically tapes) older than warranty; lack of media refreshment plan; lack of error or integrity checking process; single copies</p>
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions. <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> This category was reported explicitly in concern over recordings on LTO tapes. These provide between <a href="#">15 and 30 years storage</a> which may be less depending on usage and storage. Therefore LTO1 and LTO2 which were released in 2000 and 2003 respectively are now entering the final phases of viability. Reader compatibility may be more problematic than media resilience. Drives supporting newer releases of the format are typically only <a href="#">compatible within two generations</a>. However experience with the recently released LTO8 suggest that it is only backwardly compatible to one generation. Therefore one major national archive and library has decided to expedite migration away from LTO6 which is becoming obsolete more quickly than anticipated. Through time, the risks to collections that have not been refreshed or replicated from early LTO tapes expand. Thus, the overall trend is towards greater risk when collections are not migrated. Older formats, perhaps as recently as LTO6, extinction events should be anticipated within two to five years.</p>		


<p>Orphaned Digital Works: digital materials where copyright cannot be traced</p>		
<p>Materials where copyright is uncertain, disputed or unknowable meaning that preservation actions are constrained or prevented</p>		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of Aggravating Conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Part Two of the BBC Domesday Book Websites outside of legal deposit mandate where the copyright owner cannot be traced</p>	<p><b>Aggravating conditions:</b> rights management software and encryption; lack of enabling preservation regime; lack of ownership; lack of preservation path or plan for data; dependence on proprietary products or formats; poor management of data protection; political or commercial interference; lack of capacity or commitment; dependency on proprietary or obsolete formats; dependency on proprietary or obsolete process; loss or lack of documentation; uncertainty over contents; encryption;</p>
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions. <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> there is no evidence of any renewed effort to address the issue of orphaned works in the last year. Improvement to the baseline competence of the archival and library professions in their understanding of copyright and the skills to preserve contents, provides a narrow basis for optimism in some contexts but in the round the scale of the challenge is likely to have grown and aggravating conditions become more prevalent. Consequently, the trend is towards greater risk.</p>		


<a href="#">Published Research Outputs</a>		
<p>Published outputs created by researchers to present and disseminate their findings electronically, especially through established platforms like journals, theses and monographs.</p>		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of Aggravating Conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> E-Books Electronic Journals E-theses Electronic Monographs</p>	<p><b>Aggravating conditions:</b> lack of identified 'keeper' for material falling outside of collecting mandates; lack of capability of designated 'keeper'; lack of policy or capacity within research libraries; lack of disciplinary repository; lack of understanding within discipline; small or unprofitable publishers; concern over intellectual property rights; overzealous rights management protection; device or software dependence; dependence on proprietary or obsolete formats; lack or loss of documentation; little use or inaccessibility; political or corporate interference; inaccessible to web harvesting technologies;</p>
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions. <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> Research publications have remained a lively and at times heated topic for debate within the digital library community. A number of service providers supplement the efforts of publishers and libraries to secure sustainable access. A review of the <a href="#">digital preservation capability with respect to non-print-legal-deposit</a> gave increased confidence that e-journal and e-book collections which fall within scope of the regulations are secure, and the preservation of <a href="#">emerging formats are the subject of outward looking and energetic research</a>. A platform for collaboration between national libraries is in the process of being established. Materials outside of the scope of collecting policies remain problematic, and the emergence of new forms and increased volumes mean constant renewal is a necessity. The overall context for preservation of content remains unsettled and since the adoption of <a href="#">Plan S</a> by a group of research funders in September this year, it seems likely to remain unsettled for two or more years. Nonetheless, this plan explicitly acknowledges the need for preservation services. Moreover the <a href="#">Research Data Shared Service</a> by Jisc has continued to develop over the year promising a more holistic service for preservation and access to all manner of research outputs in 2019. Thus, despite continued volatility, the overall trend is towards reduced risk.</p>		


<p><a href="#">Records of Long Duration from Local Government or Other Government Agencies</a></p> <p>Born digital records of local and small or medium-sized public authorities, held on internal network drives, intranets or document management services where access is limited to a distinct group of users, and in which the lifecycle of the record or the business processes they support is greater than the technology on which they are created or retained.</p>		
<p><b>Action:</b> Assessment is Most Urgent (Action in 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Born digital records of small and medium-sized agencies; fasting-changing internal manuals, advice or policies shared on intranets or EDRMS; records of care services, historic guidelines and manuals which evidence 'best practice at the time'; Documentation supporting long-lived contractual relations like Public Finance Initiatives; Organizational Slack channels; Google Drives; EDRMS; Email</p>	<p><b>Aggravating conditions:</b> lack of capacity in preservation function; shallow political commitment; perception of 'back-office' function; lack of preservation path or plan for data; dependence on proprietary products or formats; poor management of data protection; political or commercial interference; lack of offline equivalent; over-abundance through poor disposal; lack of commitment from senior management; dependency on proprietary formats; loss or lack of documentation; lack of sensitivity-control;</p>
<p><b>Critically Endangered</b> in the presence of Aggravating Conditions. <b>Vulnerable</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> Improvement to the baseline skills of the archival professions and the roll out of digital preservation solutions within local and state governments gives some scope for encouragement. However the financial challenges faced by local government have continued with a number of authorities <a href="#">practically insolvent</a> or attempting to reduce spending to avoid it. Although consortium models for digital preservation (such as <a href="#">NEA in Denmark</a> and the <a href="#">Local Authority Digital Preservation Consortium</a> in the UK) have proved resourceful in addressing digital preservation with limited funding, financial strains continue to be a challenge. There is some prospect that the start of a new digital preservation programme by the Nuclear Decommissioning Authority will provide leadership for non-departmental public agencies. But these are relatively rare examples of progress. In such circumstances, it is hard to imagine digital preservation attracting sufficient commitment to ensure meaningful progress.</p>		

## 9. Critically Endangered





<p><a href="#">Born Digital Images Held Offline on Portable Storage Devices</a></p>		
<p>Digital images with no analogue equivalent stored offline on portable storage devices or on hard disks, especially where there is no refreshment plan or no replication</p>		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Family or personal photos; Photo archives of Small and Medium-Sized Enterprises (SME)</p>	<p><b>Aggravating conditions:</b> dependence on obsolete or proprietary formats or processes; single copies; no archival function; lack of preservation capacity; lack of skills; single points of failure; lack of clear stewardship or sense of ownership old or obsolete media; lack of refreshment plan; lack or loss of documentation; overabundance; primary storage is camera or phone;</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> A general improvement in the baseline of digital preservation skills of the archival profession gives some small cause for comfort but the <a href="#">volumes of photographs continues to rise</a> and therefore the scale of the challenge to ensure a meaningful legacy. This trend aggravates the issue of overabundance in which appraisal decisions for preservation or deletion are overwhelmed. Thus the overall trend is towards increased risk.</p>		


Community Archives and Community-Generated Content		
Digital content generated by community interest groups with great enthusiasm but dependent on project funding and limited or no prospect for long term support after creation, and no funding to deposit in digital archive.		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Data of marginalized or sub-culture groups; one-off projects in art, heritage, environment or community development; content from small or volunteer societies where preservation is not a core function; digital and digitized oral history; AV content at Glasgow Women's Library; recordings of BME oral history;</p>	<p><b>Aggravating conditions:</b> dependence on obsolete or proprietary formats or processes; single copies; conflation of bit preservation with logical preservation; ill-devised funding programmes; lack of skills; single points of failure; lack of clear stewardship or sense of ownership dependency on portable media; inadequate provision or over-dependency with social media, webhost or service provider</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> 2018 has been a productive year for community archives, exemplified by the culmination of numerous projects to commemorate the First World War and to celebrate its cessation. The end of these commemorations means the end of programmatic funding for many of these initiatives and therefore a significant quantity of material has taken a major step closer to loss. This comes at a time when local and state funded archive services which are most likely to have a closer relationship with the community archives are also under severe financial pressure; when Flickr has announced its intention to delete images from 'free' accounts; and GDPR has raised at times misplaced fears about data retention. Consequently, although there are examples which buck the trend, the risks to community archives and community-based content have expanded significantly in 2018.</p>		


<a href="#">Digital Materials Stored on Magnetic Portable Media</a>		
Digital materials stored on magnetic media which is more than 5 years old and which was intended to be portable (i.e. not fitted as a component to a computer or other device) especially those for which there is no explicit media refreshment plan		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Amstrad PCW Disks, MiniDV, ZipDisks, floppy disks (3.5, 5.25, 8), reel-based magnetic tape, Older LTO (especially LTO1-6), Digital Linear Tape, AIT Digital8 Compact Cassette data tapes DDS/DAT tapes</p>	<p><b>Aggravating conditions:</b> Poor storage conditions (temperature, humidity, dust electro-magnetic effects); No refreshment schedule; Dependence on obsolete devices; Storage media out of warranty; Single copies; Compression or encryption; Lack of integrity checking; Conflation of bit preservation with logical preservation; exotic or non-standard connectivity; approaching or exceeding published life cycles</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> A number of projects examining the <a href="#">technical infrastructure required to transfer data from older media</a> reported this year and the gradual improvement in the baseline digital preservation skills of the archive and library professions give scope for encouragement, as do efforts to recover games off disks exemplified by the Archives Team at the Internet Archive. This is, however, a large category where there is a great deal of difference between the components that make it up: some are explicitly unsupported or obsolete and others are still in production. Without a very wide effort of assessment it is hard to be confident of the impact of these efforts in competing with contrary processes such as bit-rot, or technical and media obsolescence, processes which can be taken for granted. Consequently, this category shows a modest but continued trend towards increased risk.</p>		





<a href="#">Digital Materials Stored on Older Portable Media (Non-Magnetic)</a>		
Digital materials stored on older portable optical or solid-state (flash) based devices, especially where the media is older than the warranty and there is no explicit media refreshment plan		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Flash Drives; USB sticks; CD; DVD; LaserDisc; Magneto-Optical Disc; MiniDisc; GD ROM; Mini-DVD; UMD; EVD; BluRay; HDDVD; HVD; Memory Cards; SD, Micro-SD</p>	<p><b>Aggravating conditions:</b> Poor storage conditions (temperature, humidity, dust); electro-magnetic effects; no refreshment schedule; dependence on obsolete reader devices; storage media out of warranty; single copies; lack of integrity checking; conflation of bit preservation with logical preservation; exotic or non-standard connectivity; approaching or exceeding published program-erase cycles; read disturb effects</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> A number of projects examining the <a href="#">technical infrastructure required to transfer data from older media</a> have reported this year, the gradual improvement in the baseline digital preservation skills of the archive and library professions give scope for encouragement, as do the efforts to recover games from disks exemplified by the Archives Team at the Internet Archive. However, this is a large category where there is a great deal of difference between the components that make it up: some are explicitly obsolete or unsupported and others still in active production. Without a very wide effort of assessment it is hard to be confident of the impact of these efforts in competing with contrary processes such as exhausting program/erase cycles, or technical and media obsolescence, processes which can be taken for granted. Consequently, this category shows a modest but continued trend towards increased risk.</p>		


<p><a href="#">Family or Personal Records</a></p> <p>Digital content and communications generated for personal consumption in a domestic setting and which may be of limited general interest but highly valuable to family members and genealogy</p>		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples</b> childhood photographs and videos; School or graduation photos; Wedding photos and movies; Electronic correspondence (email, messenger, WhatsApp).</p>	<p><b>Aggravating conditions:</b> storage on portable media or poor storage; dependence on devices or processes; dependence on obsolete or proprietary formats; storage media out of warranty; single copies; inappropriate dependence on service provider; inappropriate encryption or passwords; lack of awareness or planning; loss or lack of documentation; over-abundance; inability to act in a timely manner; confusion over intellectual property</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> Although research and advice on preservation of personal records have been available for some time (see the DPC Tech Watch Report, guidance from Library of Congress and numerous local examples like <a href="#">Save your Digital Stuff</a> from the Borthwick Institute), outreach and training has arguably not reached a wide audience as is yet needed. This is in spite of significant and celebrated activities like <a href="#">POWRR</a> in the USA, <a href="#">Leren Preserveren</a> in the Netherlands or <a href="#">AusPreserves</a> which seek to reach unusual audiences and smaller institutions. There has been no material improvement in the risks faced by this category over the last year and trends reported elsewhere in this survey have exacerbated the aggravating conditions associated with it. In addition, it is reasonable to assume that the number of digital objects in this category has increased thus the consequences of loss have expanded. It is also a very large category and may be usefully broken into a series of components to represent the complexity more effectively and present a more nuanced action plan.</p>		

<p><a href="#">Gaming</a></p> <p>Interactions and experiences of games and related interactive virtual worlds, representing a significant investment of skill and time by players, and significant elements of cultural interaction in the late 20th and early 21st century</p>		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples</b> multiple online interactive games; Videogames post 32 bit / 3D graphics; MUD (e.g. TinyMUD, DikuMUD); Bulletin Board Systems; MMORPGs; Ultima Online Nexus; The Kingdom of the Winds; Neverwinter Nights; Gaming community discussion fora.</p>	<p><b>Aggravating conditions:</b> dependency on gaming console encryption; loss or lack of documentation including uncertainty over intellectual property rights absence of community of interest; publisher no longer exists; game withdrawn or replaced; absence of collecting mandate from memory institution; low or medium profile</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> A number of significant initiatives have made progress in the last twelve months, including the establishment of the Software Preservation Network, a popular series of webinars for the digital preservation community on critical aspects of software preservation, and a new research programme around emulation as a service. These developmental activities will contribute to the progress of the underlying technological challenges and have furthered the assessment of the policy and organizational issues that arise. However, these activities are not explicitly about games. Progress has been made by Archives Team in the rescue of gaming software, and by disparate efforts of community archives. It is not clear how sustainable these efforts will be, and they have not been matched by, for example, collection policies within memory institutions or co-ordinated programmes within the games industry. Thus, the trend to modest improvement is evident but this may falter without more sustained strategic commitment by publishers or cultural agencies.</p>		

<p><a href="#">Media Art</a></p> <p>Historical interactive media arts including audio-visual installations and interactive performance technology, especially where there is an explicit hardware dependence.</p>		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Works produced by media artists now deceased, such as: Jeremy Blake, Beatriz Da Costa, Heiko Daxl or Stanislaus Ostoja-Kotkowski</p>	<p><b>Aggravating conditions:</b> storage on portable media or poor storage; dependence on devices or processes; dependence on obsolete or proprietary formats; lack or loss of documentation; lack of capacity in gallery or collector; lack of awareness or concern from creator; uncertainty over intellectual property rights; uncertainty over provenance and significance</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> Media Art represents a moving target for the digital preservation community. A consistent series of projects and initiatives have contributed to our understanding and made material progress with infrastructure that will support the preservation of digital art, such as WebRecorder, Emulation as a Service and the Software Preservation Network. The increase in skills and capacities is welcome. Nonetheless these projects are not widely known outside of the digital preservation community, and by its nature the digital outcomes associated with Media Art are creative and exploratory. Thus, preservation requirements change, and solutions need to adapt and be more widely known. It is not clear whether the efforts of the digital preservation community are keeping pace with the scale and complexity of the challenge. This category may be useful split into components in future iterations of the list. In the meantime, and in the absence of any meaningful trend, it remains critically endangered.</p>		

<p><b>Politically Sensitive Data</b></p> <p>Digital content where the knowledge to preserve exists and there is no threat to obsolescence, but where political interests may be served by elimination, falsification or concealment.</p>		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions)  <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b>                  Online News;                  Social media and web-based campaigning;                  Social media relating to 2016 UK/EU referendum;                  Promises made in Scottish independence referendum 2014;                  US Environmental Data;                  UK Public Finance Initiative (PFI) documents;                  Recordings of Leinster House;                  Politwoops;                  DeletedbyMPs;                  4chan.org</p>	<p><b>Aggravating Conditions:</b>                  Opaque terms and conditions that facilitate deletion or obfuscation;                  lack of access to web-harvesting;                  significant lobby interest;                  change of administration;                  data resides in single jurisdiction;                  reputational risk to collecting institution</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> 2018 has been a significant year in understanding the nature and extent of political use of campaign material, most noticeably with revelations about the role of consultants like Cambridge Analytica. This has drawn greater attention to the political manipulation of digital media but has not explicitly addressed the issue of deliberate deletion, alteration or concealment of politically inconvenient data. Moreover, the advent of GDPR has provided a pretext for the disposal of records. The one encouragement over the last year has been the increased capability of government archives to secure the content from websites of outgoing governments and ministers as new ones are elected or appointed. Examples of this include National Records of Scotland where a new web archive programme was launched, while in Canada accusations that the incoming Liberal government had wiped the memory of the outgoing Conservative government were shown to be unfounded. Nonetheless there is a pressing need for a deep and comprehensive assessment of the risk to politically sensitive data and the impact which such deletions have on the public good. There are grounds for breaking this category into a number of components to allow such an analysis to proceed. That a year should have passed without such an assessment is a matter of grave concern, suggesting that the trend is towards significantly greater risk.</p>		


<p><a href="#">Smart Phone Apps</a></p> <p>Apps created for smartphones. Many are deprecated quickly but others survive through multiple update cycles. It is hard to maintain version control and often dependent upon the whim of the company that publishes them. There is no clear agency or mandate to record or collect.</p>		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> London 2012 app; BBC Olympic app; Apps published for Apple iOS 10 or earlier</p>	<p><b>Aggravating Conditions:</b> dependence on device; dependence on exotic or obsolete formats or processes; lack or loss of documentation; uncertainty over intellectual property rights; short term contracts lack of skills; lack of commitment or policy from corporate owners; legal or other IPR restrictions; environments whose major versions change faster than typical desktop OS versions; undocumented OS dependence</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> A number of significant actions around software preservation and emulation provide some prospect for improvement in this category which is large and may usefully be split into components, such as by platform or publisher. There is some sense that the market for smart phone <a href="#">has peaked</a> but this is a poor indicator of the velocity in the market for apps: it is estimated that there are almost <a href="#">1300 new apps published each day for Android</a>, a figure which also seems to be increasing. Given this extraordinary growth rate it is hard to see how digital preservation efforts can meaningfully keep pace. For that reason, the trend shows a rapid expanding risk in the preservation of smartphone apps.</p>		


Unpublished Research Outputs		
Data created in the process of academic research and required to ensure the reproducibility of scholarly research, and significant components of the scholarly record		
<p><b>Action:</b> Action and Assessment is now Urgent (Action within 12 months in presence of aggravating conditions) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> shared research community resource eg fishbase.org; original unpublished research data; PhD data; research blogs; virtual research environments; Research software; correspondence between researchers; grant proposals and agreements; review comments;</p>	<p><b>Aggravating Conditions:</b> single copies; dependence on device; dependence on exotic or obsolete formats or processes; lack or loss of documentation; uncertainty over intellectual property rights; lack of institutional mandate or capacity; lack of disciplinary practice; political or corporate interference; lack of credit or incentive to share data; short term contracts;</p>
<b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Endangered:</b> where good practice can be demonstrated.		
<p><b>2018 Review:</b> This large category of material has been the subject of continued development since the last review, with efforts scaled to the size of the challenge and with many of the key stakeholders involved including institutions, publishers, data creators and funders. Local, national, global and discipline-specific efforts can be identified that either model good practice, provide services to preservation, or provide forums for such development. These include but are not limited to agencies and initiatives such as the <a href="#">Research Data Alliance</a>, <a href="#">CODATA</a>, <a href="#">DataCite</a>, <a href="#">OrCID</a>, <a href="#">Force11</a>, <a href="#">Jisc RDSS</a> and <a href="#">CoreTrustSeal</a>. The value of research data is increasingly recognised and the 'FAIR principles' published in 2016 have continued to gain currency. This gives encouragement that the trend is towards reduced risk and improved access and it models the kind of complexity and effort that may be needed to address many of the other categories on this list. The category is very large, however, and greater specificity of recommendations would arise if it were to be split into components.</p>		

## 10. Practically Extinct






<p><a href="#">Pre-WWW Videotex Data Services and Bulletin Board Services</a></p>		
<p>Pre WWW telephone and television information services that allowed a degree of user interaction and data retrieval with modem-based two way communication.</p>		
<p><b>Action:</b> Action Most Urgent (Action and reporting within 12 months when discovered) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> Prestel, Minitel, VidiTel and Videotex NL, Alex, BeITel, FidoNet</p>	<p><b>Aggravating Conditions:</b> Lack of understanding; structure of information silos; Lack or loss of documentation; Uncertainty about intellectual property rights; Lack of funding or impetus</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Critically Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> there is no clear evidence of change within this category over the last 12 months and consequently the assessment remains unchanged.</p>		

<p><a href="#">Pre-WWW ViewData and TeleText Services where no archival agency has captured and retained the signal</a></p>		
<p>Pre WWW television information services broadcast within the TV signal that allowed a degree of search and retrieval of up-to-date information, based on TeleText or ViewData technologies and variants.</p>		
<p><b>Action:</b> Action Most Urgent (Action and reporting within 12 months when discovered) <b>Assessment Completed:</b> November 2017</p> 	<p><b>Examples:</b> AerTel, Electra, MetroText; Antiope-based systems</p>	<p><b>Aggravating Conditions:</b> Lack of understanding; structure of information silos; Lack or loss of documentation; Uncertainty about intellectual property rights; Lack of funding or impetus</p>
<p><b>Practically Extinct:</b> in the presence of Aggravating Conditions. <b>Critically Endangered:</b> where good practice can be demonstrated.</p>		
<p><b>2018 Review:</b> A number of important developments have been reported in the last twelve months which give hope that collections can be recovered and re-used under certain circumstances. Live-capture of broadcast output at the BBC and British Film Institute embed the signals that can be assembled to access the teletext content. Methods to recover such signals have been demonstrated at the BBC and BFI meaning that, where the appropriate broadcast archive exists the signal can be recovered. It is not yet fully clear how such a signal could be made searchable except though by time stamps. Nonetheless research is progressing on how this may be made possible. Consequently, the trend for this category is towards significant improvement.</p>		

## 11. Concern

<p><a href="#">Items of Concern</a></p> <p>Digital materials are listed as Of Concern when an active member of the digital preservation community has expressed a legitimate concern, but the concern has not yet been assessed by the BitList jury. They will be assessed for inclusion in the subsequent year.</p>		
<p><b>Action:</b> To be assessed by BitList Jury within 12 months <b>Assessment Proposed:</b> November 2019</p> 	<p><b>Items of concern:</b></p> <ul style="list-style-type: none"> <li>• PDF</li> <li>• Websites containing Flash</li> <li>• Email services</li> <li>• Data posted to defunct or little-used social media platforms</li> <li>• GeoMagnetic Data</li> <li>• Pre-production TV and Movie materials</li> <li>• Pension, mortgage and insurance records</li> <li>• Medical records</li> <li>• Architectural and engineering data</li> </ul>	
<p><b>2018 Review:</b> This category captures items that members of the global digital preservation community have identified as being at risk but which the BitList Jury have been unable to assess. It was originally hoped that these items would be reviewed in the 2018 but that has not been possible. They will be retained on the list for full assessment in 2019.</p>		

## 12. About this document

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