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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 27, *IT Security techniques*.

A list of all parts in the ISO/IEC 27050 series can be found on the ISO website.

Introduction

This document provides requirements and guidance associated with the electronic discovery process elements described in ISO/IEC 27050-1. While the requirements and recommendations are not intended to contradict or supersede local jurisdictional laws and regulations, they are expected to be useful for both legal and non-legal application, as well as for both technical and non-technical personnel involved in some or all of the electronic discovery activities. Additional materials are provided to help organizations better understand the objectives associated with each electronic discovery process element and considerations to avoid failures, which can mitigate risk and expense if electronic discovery becomes an issue.

Electronic discovery often serves as a driver for investigations, as well as evidence acquisition and handling activities (covered in ISO/IEC 27037). In addition, the sensitivity and criticality of the data sometimes necessitate protections like storage security to guard against data breaches (covered in ISO/IEC 27040).

Note that this document is not a reference or normative document for regulatory and legislative security requirements. Although it emphasizes the importance of these influences, it cannot state them specifically, since they are dependent on the country, the type of business, etc.

Information technology — Security techniques — Electronic discovery —

Part 3: Code of practice for electronic discovery

1 Scope

This document provides requirements and guidance on activities in electronic discovery, including, but not limited to, identification, preservation, collection, processing, review, analysis and production of electronically stored information (ESI). In addition, this document specifies relevant measures that span the lifecycle of the ESI from its initial creation through to final disposition.

This document is relevant to both non-technical and technical personnel involved in some or all of the electronic discovery activities. It is important to note that the requirements and guidance are not intended to contradict or supersede local jurisdictional laws and regulations and it is expected that care is exercised by the user to ensure compliance with the prevailing jurisdictional requirements.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 27000, *Information technology — Security techniques — Information security management systems — Overview and vocabulary*

ISO/IEC 27050-1:2016, *Information technology — Security techniques — Electronic discovery — Part 1: Overview and concepts*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 27000 and ISO/IEC 27050-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org.obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Abbreviated terms

ESI Electronically stored information

ICT Information and communications technology

OCR Optical character recognition

5 Electronic discovery background

Electronic discovery is an element of traditional discovery and it is a process that typically involves identifying, preserving, collecting, processing, reviewing, analysing, and producing electronically stored information (ESI) that may be potentially relevant to a particular matter. The requirements and recommendations provided in this document are in accordance with the electronic discovery concepts described in the following clauses and subclauses of ISO/IEC 27050-1.

— Clause 3, Terms and definition: Key electronic discovery terminology

— 6.2, Basic concepts: Electronic discovery issues and primary cost drivers

— 6.3, Objectives of electronic discovery: General electronic discovery objectives

— Clause 7, Electronically stored information (ESI): Common ESI types, common sources and representations

— Clause 8, Electronic discovery process: Description of the electronic discovery process and the process elements

ISO/IEC 27050-1 differentiates between generic actions such as "identifying" from the specific electronic discovery process elements by preceding the names with "ESI" (e.g. ESI identification). Likewise, this document follows this approach. Figure 1, repeated from ISO/IEC 27050-1, shows all of the electronic discovery process elements and the interrelationships between them (see ISO/IEC 27050-1:2016, 8.1 for a full description).

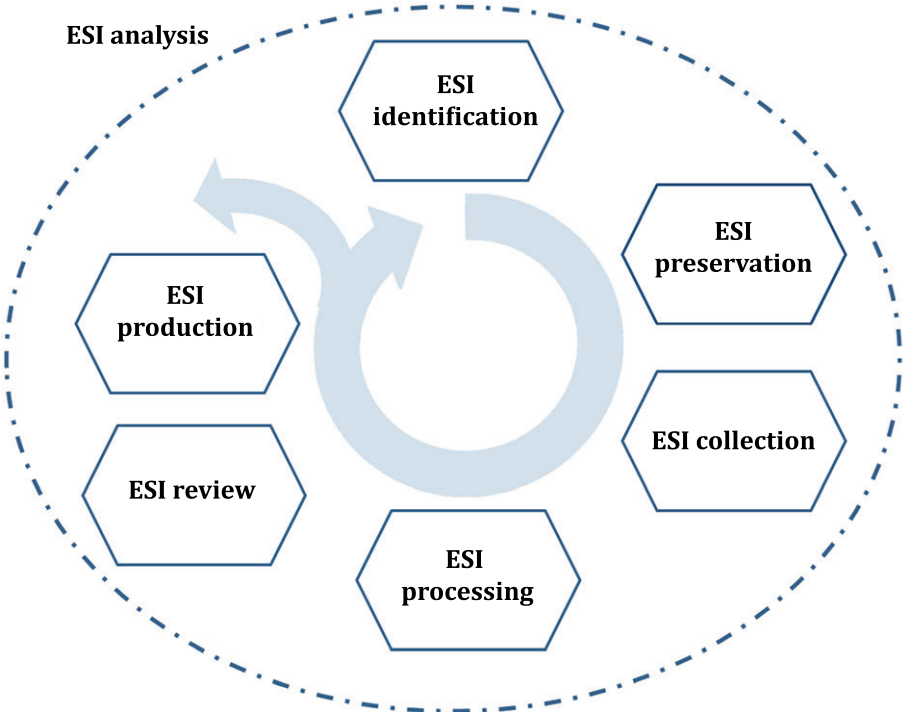

Figure 1 — Electronic discovery process elements

Although the goal of electronic discovery is the same as with hardcopy document discovery — to find and to produce information that is potentially relevant in a matter — the nature of electronic information adds differing layers of complexity and opportunity, since ESI carries with it such elements as metadata and requisite data processing and management functions that do not exist with paper. In addition, the collection and processing of ESI for discovery presents challenges (e.g. data corruption, password protection, encryption, indexing issues, inadequate keyword search, poor OCR) that may have importance either to the viability or accuracy of the ESI produced to the opposing side or to the

ability to maintain provenance or chain of custody. Further, the escalating volumes of ESI typically created, maintained and collected present challenges for consistency and accuracy in review.

This document addresses these challenges by:

— promoting common understanding of various concepts and terminology for electronic discovery;

— articulating objectives and risks inherent in the steps in the electronic discovery process;

— encouraging practical and cost-effective discovery by those tasked with managing ESI through the process;

— providing guidance and best practices for those responsible for delivering electronic discovery projects (e.g. legal practitioners, services providers, independent experts, courts, and any other parties engaged in the process);

— identifying competency areas for those involved in electronic discovery;

— promoting the proactive use of technology to reduce costs and risks, while increasing efficiencies throughout the discovery process;

— suggesting ways to avoid inadvertent disclosures of potentially privileged, confidential, or sensitive ESI.

The overriding goal is to help organizations meet their electronic discovery goals (e.g. legal obligations, business objectives, regulatory requirements).

While this document has been written with larger electronic discovery projects in mind, and therefore covers aspects encountered in the majority of matters, it is not necessarily the case that all steps will be required or proportionate to every matter. For example, in small matters, it may well be that a single person manages and completes every aspect of the project, whereas larger matters may warrant the use of separate individuals or even teams for each element of the electronic discovery project.

6 Electronic discovery requirements and guidance

6.1 Overview

6.1.1 Structure of materials describing the process elements

Each electronic discovery process element is addressed in a separate clause and each contains the following:

a) an overview of the process element;

b) objectives for the process element;

c) considerations to avoid failures;

d) the requirements and guidance specific for the process element.

The order of the clauses in this document does not imply their importance or a particular sequence that needs to be followed.

6.1.2 Cross-cutting aspects

Cross-cutting aspects are behaviours or activities that span multiple electronic discovery process elements and need to be coordinated across the process elements.

— **Planning**. To be effective, most or all of the process elements need to be well planned from the outset, with the specific objectives and conditions taken into consideration and with the resources to be deployed readily available.

— **Transparency**. Implementation of the process elements often necessitates refinement and iteration that have to be readily explained to interested parties. An effective process will be dependent on transparency, as well as allowing for changes and for explanation later on.

— **Documentation**. The process elements need to be well documented, both for the purpose of defending the scope and activities of the process elements down the line if they are challenged, and for the purpose of improving the effectiveness and consistency of future implementations of the process elements.

— **Expertise**. Certain kinds of specialized expertise and qualifications will be necessary for each process element to do the work and to meet any operative standards. This expertise can be associated with the matter at hand, language, technology, the chosen tools or methods, or the quality assurance of the results of applying those tools and methods.

— **Informed**. An effective electronic discovery process is dependent on the pertinent legal and subject matter experts being well informed as to the purposes to be served by the relevant process elements, the relevant requirements (e.g. operative, matter-specific, process-specific, etc.), and the landscape of the ESI, as well as having an understanding of the subject matter, scope and timeframe that apply to the situation in question.

— **Adaptive**. Almost all electronic discovery projects begin in a state of imperfect knowledge when requirements and definitions are not yet fully specified and the ESI landscape is not yet fully mapped. Adaptability is therefore an essential feature of an effective electronic discovery process in general.

— **Use of technology.** The effectiveness of an electronic discovery project can be dependent on how it avails itself of the tools and methods appropriate to the general approach taken in the various process elements; the specific tools and methods can vary from one approach to the other, but most approaches can benefit from the appropriate application of technology.

6.2 ESI identification

6.2.1 Overview of ESI identification

In this subclause, the objectives of ESI identification, the issues inherent in that process element, and considerations to avoid failures are discussed.

ESI may need to be identified and preserved in an organization for a number of reasons, including reasonable anticipation of a lawsuit, receipt of a pre-litigation preservation request, a request to inspect, a demand letter, a cease and desist letter, a cure notice, or even a discussion with an opposing party or its counsel. In some jurisdictions, courts, legislatures, or government regulators have developed rules concerning how organizations identify ESI, particularly for purposes of civil and criminal proceedings, investigations and audits. As a result, it is advisable for organizations to understand when a duty (or need) to preserve is triggered and any steps that may have been mandated or accepted as best practices to identify and preserve relevant ESI in jurisdictions in which they do business.

ESI identification is the element in the electronic discovery process in which information that could be potentially relevant to a matter is specifically located for potential preservation or collection.

6.2.2 Objectives for ESI identification

As defined in ISO/IEC 27050-1, ESI identification is the “element of an electronic discovery process focused on locating potential sources and the criteria for selecting potentially relevant electronically stored information.” A primary objective of ESI identification often is to identify key departments, individuals, custodians, and locations of ESI or ESI sources that could reasonably lead to the discovery of potentially relevant information related to the subject matter in question. In order to undertake such ESI identification, an organization needs to be able to:

— understand the nature of the subject matter in question;

— identify individuals who may have or know relevant information;

— know the potential ESI sources likely to contain such information;

— identify potentially relevant information with a level of accuracy appropriate to the circumstances;

— identify potentially relevant information within a timeframe that is consistent with the overall electronic discovery objectives; and

— accomplish the above tasks with a level of resource utilization that is proportionate to what is at stake in the matter that has necessitated the effort.

6.2.3 Considerations to avoid failures

The primary issues associated with ESI identification are the following:

— **Destruction of ESI by untimely delay.** A delay in locating potentially relevant ESI could result in the inadvertent destruction of the ESI. Such inadvertent destruction could occur if custodians have not been properly advised to refrain from deleting ESI related to relevant subject matter, or when there is, by company policy, a routine deletion policy in place for certain data stores (e.g. a 90-day retention cycle for email).

— **Incomplete or erroneous identification of ESI.** An incomplete or erroneous identification of custodians and sources can result in delays or cost-overruns and, in the context of legal proceedings, legal consequences if a late production unreasonably hinders a case. Defensibility of ESI identification may be questioned and, depending on jurisdiction, documentation and quality control procedures may be scrutinized.

The issues identified above can be managed via the implementation of a process that makes well-coordinated use of appropriate individuals, tools, methods, and expertise in order to meet the defined ESI identification objectives. More specifically, the issues can be managed by the implementation of an ESI identification process that adheres to the following principles:

— **Organized.** Certain kinds of specialized expertise may be called for in ESI identification, whether subject matter experts or the ICT personnel who manage implicated ESI or those with knowledge to query systems to assess system relevance. A plan that identifies from the outset the kinds of expertise required and contains interview templates and other tools to document the information learned can be very helpful. An organization would be wise to identify a team of key people that need to be involved in discovery project management, including ESI identification. These individuals typically include corporate legal counsel, outside counsel, ICT personnel, records management personnel, data custodians, human resources personnel, business leaders, and service providers/electronic discovery consultants.

— **Planned.** To be effective, an ESI identification process needs to be well planned from the outset, with the specific objectives and conditions taken into consideration and with the resources to be deployed readily available. Being proactive and gathering timely information about custodians and existing systems can enable an organization to meet the expectations of the courts and regulators. An effective ESI identification process is typically well informed by individuals with the appropriate expertise who are aware of the requirements of identifying and collecting potentially responsive ESI. A well-planned ESI identification makes provision for quality-control assessments that monitor progress and completeness of the plan as it is being executed. An effective plan also provides timelines and cost targets that can realistically be met and are appropriate to the matter.

— **Transparent.** Implementation of ESI identification often necessitates refinement and iteration that may have to be explained to interested parties. An effective process will be dependent on transparency, as well as allowing for changes and for explanation later on. A transparent process is one in which identified steps are clearly communicated and evidence of their execution as described is documented. Since ESI identification can be iterative in that additional individuals and new sources of potentially responsive information can be added as more is known, it is important to document such changes as they occur. To that end, in order for the process to be transparent,

tools that document processes and capture information during ESI identification (e.g. custodian interview templates) are useful if explanation is required later.

— **Documented.** As ESI identification proceeds, organizations need to be prepared to adequately document the process to be able to show that reasonable steps were taken to identify potentially responsive information. Such documentation is especially important considering that some litigation can go on for years and still require a look-back at steps that were initially taken to identify potentially responsive information.

6.2.4 Requirements for ESI identification

ESI identification carries significant importance. Since it occurs early and essentially defines the universe of potentially relevant hardcopy documents or ESI, missteps can result in significant problems later on. At best, additional collections can ensue, with additional collection, processing and review costs and delays. In the context of legal proceedings, if key individuals or ESI sources have been overlooked or ESI has been deleted, claims with potential legal consequences can result in some jurisdictions.

The best way to avoid these problems is with a plan that includes the individuals, ESI sources, tools and procedures that can be deployed if information in the enterprise needs to be identified.

The following are requirements for ESI identification.

a) The ESI identification coordinator shall be informed as to the purposes to be served by the identification effort and develop an understanding of the subject matter, scope and timeframe that apply to the situation in question.

b) The individuals responsible for identification of potentially relevant ESI shall, in advance of executing ESI identification, develop a plan to guide the identification effort.

c) The individuals executing the identification process shall be informed with regard to operative requirements that govern ESI identification including:

   1) legal requirements,

   2) matter-specific requirements,

   3) process-specific requirements, and

   4) the landscape of ESI that may be within the scope of the matter.

d) ESI identification shall be sufficiently transparent during its implementation to enable the individuals responsible for identification to assess its progress and make adjustments as warranted.

e) ESI identification shall be supported by appropriate methods and metrics.

f) ESI identification shall be adapted, as needed, to changes in the requirements that govern the identification effort and by any additional information obtained during the identification process, such as addition of knowledgeable custodians, relevant ESI sources, or aspects of the ESI environment that may be pertinent (e.g. auto-delete functions).

g) The identification procedures implemented shall be documented to accurately reflect:

   1) all procedures followed in the course of identification,

   2) all significant decisions made during the identification process, and

   3) any evaluations of the effectiveness of the identification process.

6.2.5 Guidance for ESI identification

The following recommendations can be relevant for ESI identification.

a) An identification plan, including clear assignments and expectations, should be developed so the process is repeatable and defensible. Even in the simplest cases, a plan can ensure that all eventualities have been considered and accounted for in the plan.

b) Standard templates for interview questions and survey forms that can be used in multiple cases should be developed and used.

c) If possible and prior to an actual electronic discovery event, create a list or inventory of systems, or possibly a data map to provide a centralized listing of what types of ESI the organization has and where it is stored (local computers, servers, cloud, back-up, external media, portable devices, home computers, intranets, extranets, etc.). Gain insight into the company's application portfolio, systems, data flow and capabilities, understand how they map to business units and keep this knowledge current to identify potentially relevant ESI sources.

d) Litigation hold materials and processes should be reviewed and revised (if needed) after identifying potentially relevant ESI sources.

e) Documentation should be created to confirm processes, tools and methodologies used in the identification process to demonstrate that the process was reasonable and defensible.

f) Status and progress reports regarding the identification process should be provided on a regular basis.

g) Quality control and validation plans should be created throughout the identification process to ensure it is thorough and defensible.

6.3 ESI preservation

6.3.1 Overview of ESI preservation

ESI preservation is the step in the electronic discovery process in which, after a triggering event, efforts are made to keep secure from modification or destruction any information that can relate to the scope of a preservation obligation or objective in a matter. This includes not only potentially relevant ESI in a party's possession, but can also include information of a non-party.

In the context of legal proceedings, standards for establishing if and when a preservation obligation is triggered vary depending on jurisdiction. There is no single standard that describes how to measure the appropriateness of ESI preservation activities, or a party's exposure or potential liability for failure to fulfil their preservation duties.

6.3.2 Objectives for ESI preservation

The objective of ESI preservation is to make a reasonably complete and accurate assessment of the electronic information that can be potentially relevant to the matter after a triggering event and take the necessary steps to ensure such information is not modified, destroyed, or made inaccessible by advertent or inadvertent activities of custodians or other parties, or by routine enterprise technology processes. More specifically, the objectives of ESI preservation are the following:

— to keep from modification or destruction electronic information that can potentially relate to the scope of the matter implicated by a triggering event as it has been defined by counsel;

— to keep from modification or destruction electronic information such that, to an extent commensurate with a reasonable good-faith effort, it includes all ESI that is in need of preservation and excludes ESI not in need of preservation;

— to preserve the information in a cost- and time-effective manner.

6.3.3 Considerations to avoid failures

The issues inherent in ESI preservation include the possible failure to meet ESI preservation objectives which can result in the loss or alteration of ESI that is potentially responsive. More specifically, the issues are the following.

— **Failure to recognize and respond to a triggering event.** To ignore or be otherwise neglectful regarding information that would indicate that a litigation or investigation is possible or likely and thus take no steps to preserve potentially relevant information.

— **Over-preservation.** To define the universe of hardcopy documents or ESI requiring preservation too broadly, resulting in an unnecessary accumulation of ESI that would otherwise be disposed of or the suspension of routine deletion procedures that can otherwise remain in effect.

— **Under-preservation.** To define the universe of hardcopy documents or ESI requiring preservation too narrowly, either by under-inclusive subject matter scope, overlooking certain ESI types or locations, or overlooking third-party ESI sources, resulting in deletion or modification of potentially relevant ESI by custodians, third-parties or routine enterprise technology procedures.

— **Untimely or insufficient notification of custodians or third parties.** To know of such a triggering event but fail to adequately communicate and reiterate the ESI preservation imperative through a formally issued legal hold or other communication to implicated parties.

The possibility of modifying or deleting ESI is much greater than it is for hardcopy documents for the following reasons.

— ESI can be easily deleted, either intentionally or as part of an automated process, and either with or without the data custodian's knowledge. Once deleted it requires additional cost and technical effort to retrieve it, which (in many cases) may not be possible.

— ESI can be easily altered, again either intentionally or automatically. If it is likely that an understanding of the precise content of an item of ESI at a particular moment in time is required, then it is important to take steps to preserve it as soon as possible to ensure that it is not altered.

— Metadata associated with each item of ESI can also be easily changed. Intact metadata can provide significant efficiencies when filtering for relevancy. It is also an essential piece of information when the provenance or chain of custody of an item of ESI needs to be determined.

Once a decision has been made that a duty to preserve has been triggered, the scope of that duty needs to be evaluated; decisions as to scope can address time frames, custodians, subject matter and responsive information by source or system, category, or type. Considerations need to include: the facts upon which the triggering event is based and the subject matter of the triggering event; whether the ESI is relevant to that event; the expense and burden incurred in preserving the ESI; and what the consequences of the loss of the ESI might be. The development of an ESI preservation strategy is not a static event. It needs to be reviewed to reflect changes, both internal and external, to the organization.

The importance of communication to appropriate parties to retain potentially responsive ESI is paramount. This is most often affected by the issuance of a legal hold by counsel to known custodians, records managers and ICT administrators, describing potentially relevant ESI and known ESI locations where such information can reside. From a technical point of view, implementing legal holds can be easy or difficult (and everything in between) depending on the nature of the sources and systems that it is necessary to address.

The issues identified above can be managed via the implementation of an ESI preservation strategy that makes well-coordinated use of communication methods, tools and expertise in order to meet ESI preservation objectives. More specifically, the issues can be managed by the implementation of an ESI preservation process that adheres to the following principles.

— **Planned.** An effective ESI preservation process is well planned from the outset, with the specific objectives and conditions taken into consideration and with the resources to be deployed for the effort well coordinated.

— **Informed.** An effective ESI preservation process is well informed, both by the pertinent legal and subject-matter experts and by the appropriate ICT personnel with knowledge of the technology environment.

— **Supported by technology.** An effective ESI preservation process will avail itself of the tools and methods appropriate to the general approach taken to affect the effort; the specific tools and methods can vary from one ESI preservation effort to another, but all approaches can benefit from the appropriate application of technology.

— **Transparent.** ESI preservation imperatives require scope identification and communication efforts that can change as more information about a potential matter becomes available. The process for ensuring that potentially relevant information is preserved needs to be readily explained to interested parties. An effective ESI preservation process will be dependent on transparency, as well as allowing for modifications during the process and explanation at the completion of the process.

— **Adaptive.** An ESI preservation process can be premised on the fact that the information available at the outset of the matter will be imperfect and incomplete. An effective ESI preservation process will therefore expect the unexpected and be able to adapt to changes in direction, whether those changes come from outside factors (e.g. changes in the scope of a discovery request) or from information that becomes available regarding other ESI sources (e.g. content that was not identified at the outset of the ESI preservation effort).

— **Documented.** An effective ESI preservation effort will also be well documented for the purpose of defending the activities taken to ensure safekeeping of ESI if they are challenged.

6.3.4 Requirements for ESI preservation

ESI preservation is central to the electronic discovery process. Ensuring that ESI preservation meets its objectives of safekeeping without altering potentially responsive ESI with a reasonable level of completeness and accuracy at a reasonable expenditure of time and resources is essential to the successful conduct of electronic discovery. There are, of course, issues inherent in the execution of an ESI preservation strategy, chief of which are under-preservation, over-preservation, and overruns of time and cost. These issues can be managed, however, if an ESI preservation strategy adheres to the principles noted in this document: planning, information gathering, technology, expertise, transparency, adaptability, and documentation.

The following are requirements for ESI preservation.

a) The individuals responsible for the ESI preservation effort shall, in advance of executing the ESI preservation effort, develop a plan to guide preservation of potentially relevant ESI.

b) The individuals responsible for ESI preservation shall be informed with regard to operative requirements that govern ESI preservation including:

    1) legal requirements;

    2) matter-specific requirements;

    3) process-specific requirements; and

    4) the landscape of ESI that needs to be preserved.

c) The individuals responsible for ESI preservation shall ensure that notice is given to pertinent individuals or all appropriate parts of the organization to preserve potentially relevant ESI; that such notice is acknowledged, updated as appropriate, and reminders are issued periodically; and that changes to the status of the implicated individuals or hardcopy documents and ESI (e.g. custodian departures, system retirement) are appropriately addressed.

d) The individuals responsible for ESI preservation shall initiate the necessary directions to suspend destruction of potentially relevant ESI or ESI sources.

e) ESI preservation shall be conducted using tools or methods that are appropriate to the ESI to be preserved and to the operative requirements that govern the matter and those tools or methods shall be applied in a manner that enables them to have their intended effect. This can include preservation by collection or instructions to preserve in place.

f) The individuals executing ESI preservation shall have the expertise needed to apply the chosen tools or methods correctly and to conduct quality assurance on the results of the ESI preservation effort.

g) ESI preservation shall be sufficiently transparent during its implementation to enable the individuals responsible for ESI preservation to assess its progress and make adjustments as warranted.

h) ESI preservation shall be supported by appropriate methods and metrics.

i) The ESI preservation effort shall be adapted, as needed, to changes in the requirements that govern the effort and changes in the hardcopy documents and ESI that is the domain of the collection.

j) The ESI preservation effort, as implemented, shall be documented to accurately reflect

   1) all procedures followed in the course of the ESI preservation effort;

   2) all significant decisions made during the effort; and

   3) any evaluations of the effectiveness of the effort.

6.3.5 Guidance for ESI preservation

The following recommendations can be relevant for ESI preservation.

a) The list of ESI sources identified for preservation in ESI identification should be reviewed to determine whether technical measures can be taken to preserve the ESI in place. Test technical measures (if any) used to preserve ESI.

b) Relative to hold/preservation notices, explicit acknowledgement from all data custodians or certain key custodians should be required. Repeat as necessary over time, for example, with “refresh” memos issued regularly. Implement arrangements to ensure that ESI continues to be preserved from loss or destruction even when custodians leave the organization.

c) Preservation notices associated with ESI sources or data custodians should be continually reviewed by the organization and its advisors and releases issued at the earliest appropriate time.

d) Technical preservation controls, such as the removal of access rights to delete ESI, should be tested in advance of implementation and at regular intervals while deployed. This will assist in verifying the effectiveness of the controls throughout their use.

6.4 ESI collection

6.4.1 Overview of ESI collection

ESI collection is the element of the electronic discovery process in which a data set is created from the hardcopy documents or ESI that have been preserved (see 6.3) pursuant to the organization’s requirements; the collection data set is then made available for further processing (see 6.5) and eventual review (see 6.6).

NOTE While there can be cases in which, for practical reasons, the collection effort is combined with the preservation effort or even cases in which the collection effort is combined with both the identification effort and the preservation effort, the objectives and issues of each task remain distinct and the requirements and recommendations for meeting the objectives and managing the issues associated with each task (see 6.2.4, 6.3.4, and 6.4.4) still apply.

ESI collection is essentially a copying exercise, in which copies of the ESI are obtained and included in a data set that will then be passed on to downstream ESI processing and ESI review. There is a wide range of tools and methods that can be used for ESI collection, from those that can enable the recovery of ESI that a user has deleted to those involving a simple user-created export of the ESI. The specific tools and methods appropriate in any given instance will vary with the nature of the device from which the ESI is being collected (e.g. a desktop computer vs. a smart phone), with the nature of the ESI being collected (e.g. email vs. a microblog post), with the nature of the matter that is the reason for ESI collection (e.g. criminal vs. civil), and with the jurisdiction in which the litigation or investigation is conducted.

The objectives, issues, and mitigation principles discussed in 6.4 are, however, applicable to all approaches to ESI collection.

6.4.2 Objectives for ESI collection

The objective of ESI collection is to create a set of accurate and complete copies of all the ESI that is to be delivered to downstream ESI processing and ESI review and to do so within the time and cost constraints set for this element of the project. More specifically, the objectives of ESI collection are as follows:

— to assemble a collection data set of copies of all the preserved hardcopy documents and ESI which are in need of processing and review;

— to assemble the collection data set such that it includes all hardcopy documents and ESI within the scope of ESI processing and ESI review and excludes ESI not in scope of ESI processing and ESI review. The criteria that define what is and is not to be included in the collection data set will vary from one matter to another;

— to assemble the collection data set in a manner that ensures that the hardcopy documents and ESI it contains are accurate and complete copies of the original ESI with respect to both content and metadata. The criteria for what counts as “accurate” and “complete” will vary from matter to matter;

— to assemble the collection data set in a manner that ensures that the hardcopy documents and ESI it contains are in a format suitable for the tools and methods to be employed in downstream ESI processing and ESI review;

— to accomplish the above objectives at a level of accuracy commensurate with a reasonable good-faith effort;

— to accomplish the above objectives within the cost and time constraints set for this element of the electronic discovery exercise.

6.4.3 Considerations to avoid failures

While the objectives of ESI collection are reasonably clear, there are a number of issues inherent in any effort to meet those objectives, and those issues need to be addressed if ESI collection is to be successfully executed. More specifically, the issues are the following:

— **Under-collection.** The failure to include ESI in the collection data set that in fact meets the criteria for inclusion in the set for ESI processing and ESI review.

— **Over-collection.** The failure to exclude ESI from the collection data set that does not meet the criteria for inclusion in the set for ESI processing and ESI review.

— **Incomplete files.** The failure to capture either all of the content or all of the required metadata associated with target ESI.

— **File alteration.** The alteration, in the course of the ESI collection process, of either the content or the metadata values associated with a target file.

— **Incorrect format.** The failure to collect a file in a format suitable for downstream tools and methods or convert to a suitable format (e.g. to address new or obsolete technology or software).

— **Time overrun.** Failure to complete ESI collection within timelines set for the task.

— **Cost overrun.** Failure to complete ESI collection within the budget set for the task.

For a producing party, a failure to manage the issues inherent in ESI collection can have serious consequences, both in terms of costs (due to over-collection or the need to remediate instances of incomplete files, file alteration, or incorrect format) and in terms of adverse rulings from a court or regulator due to under-collection or to collection (and eventual production) of incomplete or altered ESI.

The issues identified above can be managed via the implementation of a process for carrying out ESI collection that makes well-coordinated use of appropriate tools, methods and expertise. More specifically, the issues can be managed by the implementation of an ESI collection process that adheres to the following principles.

— **Planned.** If it is to be successful, an ESI collection effort needs to be well planned (where appropriate, in consultation with the receiving party). ESI collection involves several steps:

  — gathering requirements as to what ESI is within the scope of ESI collection and in what format it is to be collected;

  — understanding the ESI landscape that is the domain of ESI collection (where the ESI resides, level of accessibility, in what format, etc.);

  — deciding upon the ESI collection tools and methods that will be appropriate in the circumstance and then applying them;

  — creating cost and duration estimates for collecting the ESI;

  — conducting quality control throughout the process and quality assurance on the end result. Each of these steps needs to be well planned individually and well coordinated collectively, if this element of electronic discovery is to proceed efficiently and effectively. A comprehensive plan is the foundation of a successful ESI collection effort.

— **Supported by technology.** There is a wide range of tools and methods available for use in conducting an ESI collection effort, but not all tools and methods will be suitable in every circumstance. A key to a successful effort is therefore the selection of tools and methods that are appropriate to the specific circumstances at hand, and that means the selection of tools and methods that are suitable to the objectives, conditions, and standards in any given instance.

— **Informed.** The challenges posed by the ESI collection will be met only if the appropriate kinds of expertise are drawn upon in the course of the effort. More specifically, two kinds of expertise are required to ensure a successful ESI collection effort:

  — expertise in the application of the tools and methods that have been chosen for ESI collection;

  — expertise in the quality assurance of the results of applying those tools and methods.

— **Measured.** If the issues in 6.4.3 (under-collection, over-collection, incomplete files, file alteration, incorrect format, time overrun, cost overrun) are to be managed effectively, a sound quality control and assurance regimen is necessary. An essential element of a sound quality control and assurance regimen is measurement: an assessment of the effectiveness of the ESI collection process will be on more solid footing if it is informed by quantitative gauges of the extent to which the issues have been avoided. The specific metrics, and the methods used to obtain their values (or estimates of their values), will vary both with the specific risk gauged and with the specific circumstances of the matter that is the reason for the ESI collection effort.

— **Adaptive.** Almost all electronic discovery projects begin in a state of imperfect knowledge; requirements and definitions are not yet fully specified and the ESI landscape is not yet fully mapped. Changes in course during ESI collection can be necessitated either by changes in the understanding of the operative requirements or by changes in the hardcopy documents and ESI that is the domain for the ESI collection. Changes in requirements can be of either the scope or the process variety. Changes in scope are necessitated when the criteria for what to include in the ESI

collection prepared for downstream ESI processing and ESI review are broadened or narrowed; changes in process are necessitated when the needs of either the organization from which the ESI is being collected or of the larger electronic discovery process dictate a change in procedures. Changes in the hardcopy documents and ESI will occur when new ESI sources (custodians, devices, media, etc.) are added to the domain of ESI collection. An effective ESI collection process has the capability of responding briskly to such changes in course.

— **Transparent.** There will be occasions when individuals (whether on the team engaged in the electronic discovery effort or outside of the electronic discovery effort) will have questions as to what was done to arrive at the set of ESI collected for ESI processing and ESI review. A sound ESI collection effort is prepared to answer such questions.

— **Documented.** In order to support transparency, the ESI collection effort needs to be well documented. A well-documented ESI collection effort is one in which a complete record is kept:

  — of all procedures followed in the course of ESI collection, including salient artefacts used in the execution of those procedures;

  — of all significant decisions made during ESI collection, including the reasons for those decisions and any follow-up analysis of the consequences of those decisions;

  — of any evaluations (whether statistical or otherwise) of the effectiveness of the ESI collection effort, both in the course of ESI collection and at the conclusion of the effort.

  An ESI collection effort that retains such a record of its decisions and actions will be well positioned to answer any salient questions that are asked about the effort and, thus, support defensibility and provenance or chain of custody.

6.4.4 Requirements for ESI collection

ESI collection is a key element in electronic discovery, as its results (the collected ESI), and only its results, feed the downstream elements of ESI processing, ESI review, and ESI production. Inherent in an ESI collection effort, however, are certain issues that, unless properly managed, can prevent the effort from realizing its objectives; chief among these issues are over- or under-collection, incomplete, altered, or incorrectly formatted files, and time and cost overruns.

The following are requirements for ESI collection.

a) The individuals responsible for ESI collection shall, in advance of executing ESI collection, develop a plan to guide ESI collection (where appropriate, in consultation with the receiving party).

b) The individuals responsible for ESI collection shall be informed with regard to operative requirements that govern ESI collection including:

   1) legal requirements,

   2) matter-specific requirements,

   3) process-specific requirements, and

   4) the landscape of ESI within the scope of ESI collection.

c) ESI collection shall be conducted using tools or methods that are appropriate to the ESI to be collected and to the operative requirements that govern the matter and those tools or methods shall be applied in a manner that enables them to have their intended effect.

d) The individuals conducting ESI collection shall have the expertise needed to apply the chosen ESI collection tools or methods correctly and to conduct quality assurance on the results of the ESI collection effort.

e) ESI collection shall be sufficiently transparent during its implementation to enable the individuals responsible for ESI collection to assess its progress and make adjustments as warranted.

f) ESI collection shall be supported by appropriate methods and metrics.

g) ESI collection shall be adapted, as needed, to changes in the requirements that govern the ESI collection effort and changes in the hardcopy documents and ESI that is the domain of ESI collection.

h) ESI collection procedures implemented shall be documented to accurately reflect:

   1) all procedures followed in the course of ESI collection,

   2) all significant decisions made during ESI collection, and

   3) any evaluations of the effectiveness of ESI collection.

6.4.5 Guidance for ESI collection

The following recommendations can be relevant for ESI collection.

a) The party conducting ESI collection should take steps to ensure that the ESI collection process is minimally disruptive to the regular activities of the individuals and organizations from whom the ESI is being collected.

b) The party conducting ESI collection should, in consultation with the individuals and organizations from whom ESI is to be collected and their legal advisors, address any data protection, privacy, or security concerns raised by those from whom ESI is to be collected.

c) The party conducting ESI collection should provide the individuals and organizations from whom the ESI is being collected with a clear plan and schedule for the relevant ESI collection steps and should, to the extent reasonably possible, adhere to the ESI collection plan and schedule.

d) The party conducting ESI collection should, when departures from the initial ESI collection plan or schedule prove to be necessary, notify any individuals, from whom ESI is to be collected and who are affected by the change, both of the departure and of the revised plan and schedule.

e) The party conducting ESI collection should keep all relevant parties apprised of the progress of the ESI collection effort and of any unanticipated obstacles or challenges.

f) The party conducting ESI collection should staff the ESI collection team with individuals capable of meeting the objectives of the ESI collection effort in the most time- and cost-efficient manner.

g) The party conducting ESI collection should select tools and methods that meet the objectives of the ESI collection effort in the most time- and cost-efficient manner.

6.5 ESI processing

6.5.1 Overview of ESI processing

Once collected from source locations, ESI may need to be processed in accordance with agreed upon filtering and culling parameters to meet the requirements of a matter. In ESI processing, the use of various filtering techniques is designed to provide the most accurate and relevant yield of ESI that can be potentially responsive. Essentially, ESI processing, through the use of filtering and culling techniques, allows for the reduction of data volumes and any required re-formatting or file conversion prior to conducting ESI review. The status of processing, preservation of metadata, as well as logging file inventories, are essential.

ESI can arrive at the ESI processing stage in various formats which then need to be restored before subsequent work can be done (tapes, backups, etc.); individual files and email may need to be extracted from container files (PST, NSF, zip, rar, etc.); and certain types of ESI may need to be converted to facilitate further processing (legacy email formats; legacy file formats). During these ESI processing stages, individual items are catalogued and their associated metadata is captured.

Rarely is it necessary to review all items that are collected for ESI processing. A number of ESI reduction opportunities are usually available. ESI processing is further broken into four main sub-processes, namely assessment, preparation, selection and output.

— Assessment can allow for a determination that certain ESI need not move forward.

— Preparation involves performing activities against the ESI which will later allow for specific item-level selection to occur (extraction, indexing, hashing, etc.).

— Selection involves de-duplication, searching, and analytical methods for choosing specific items which will be moved forward.

— Output allows for transport of reviewable items to the subsequent elements of the electronic discovery process.

6.5.2 Objectives for ESI processing

The key objective of ESI processing is to prepare ESI for ESI review. The ESI preparation process includes the identification of filtering parameters that can aid in the reduction of ESI. Inherent in this process are controls to ensure proper ESI handling in order to prevent unintentional modification of content.

6.5.3 Considerations to avoid failures

The primary issues associated with ESI processing include:

— **Inaccurate or incorrect assessment.** It is essential to understand what the goals and expected outcomes for ESI processing are as they are aligned to the requirements of the matter. Devising an ESI processing strategy and approach that align to the type of ESI required for ESI review, as well as a method of ESI review, is a critical first step.

— **Technology capabilities.** Understanding how available technologies can be used, as well as the effectiveness of those technologies, contributes to the strategic approach to how ESI can be processed. Often it is necessary to understand the specific algorithms used to process data in order to document and defend the filtering results.

— **Data preparation.** Prior to ESI processing, data needs to be prepared. Depending on the container in which the data is stored, different techniques may need to be considered to ensure the proper extraction. During preparation of the ESI, attention needs to be given to file conversion needs in the event that certain files are not compatible with ESI processing utilities.

— **Quality control.** As ESI is processed, quality control measures need to be employed in order to ensure the proper handling of ESI. These measures can serve to prevent inadvertent mishandling or modification. Quality control measures need to enable the consistent and persistent identification of issues associated with ESI processing that can include:

  — data integrity,

  — accessibility/passwords,

  — corruption, and

  — file type variations and respective handling needs based on ESI complexity or type.

  A key output of the quality control process can be a set of reports that identify ESI volumes prior to ESI processing, as well as post processing yields. In addition to these quantified metrics, reports can also support the error handling or exceptions that were encountered during ESI processing. Quality control measures also can serve to deliver statistics relating to filtering and ESI reduction to help with considerations associated with ESI review resources needed, as well as associated costs and timing.

— **ESI inventory management.** Related to quality control, maintaining an inventory of the ESI as it proceeds through processing transformations assist with supporting process integrity and justifications for any process variation. These inventories essentially need to detail aspects related to the ESI condition prior to ESI processing, as well as after ESI processing.

— **ESI processing approach and strategy.** The individuals responsible for ESI processing need to understand aspects relating to filtering techniques such as deduplication or near deduplication prior to beginning processing ESI. The team also needs to be aware of varying techniques that can be available to reduce the ESI prior to applying keyword sets. These techniques can include file type filters, keyword variation approaches and possibly concept categorization.

The issues identified above can be managed via the implementation of a process that makes well-coordinated use of appropriate individuals, tools, methods and expertise in order to meet the defined ESI processing objectives. More specifically, the issues can be managed by the implementation of ESI processing efforts that adhere to the following principles.

— **Planned.** An effective ESI processing is well planned from the outset, with the specific objectives and conditions taken into consideration and with the resources to be deployed readily available. Leveraging the work performed in ESI processing to inform processing requirements is essential. Typically, the processing instructions are initially developed within ESI identification. An effective ESI processing needs well-informed individuals with the appropriate expertise to understand the requirements set forth in ESI identification and are able to apply those requirements using the prescribed processes and technologies available.

— **Transparent**. Implementation of ESI processing will often require refinement and iteration that have to be readily explained to interested parties. Similar to earlier elements of the electronic discovery process such as identification, the filtering processes and the respective yields may need to undergo a series of iterative attempts (possibly leveraging ESI analysis) to define and refine the most accurate data sets. An effective process will be dependent on transparency, as well as allowing for changes and for defensible explanation later on.

— **Documented.** ESI processing needs to be well documented, both for the purpose of defending the scope of identified information down the line if it is challenged, and for the purpose of improving the effectiveness and consistency of future ESI processing routines. The procedural steps, as well as the filtering aspects applied, need to be documented at each step during the ESI processing efforts.

6.5.4 Requirements for ESI processing

ESI processing carries significant importance. It serves to leverage technology, as well as strategy to narrow the scope of potentially responsive content. ESI processing is typically an iterative process that can involve the refinement of filtering parameters throughout the course of the matter. In addition to the handling and filtering techniques used in processing ESI, meticulous attention needs to be paid to recordkeeping and logging of data as it is transformed via these filtering techniques. In the event that ESI needs to be reprocessed due to the addition of new custodians or data sets, historical reference needs to be available based on prior applied filtering steps. It is for this reason that quality control methods need to be employed to ensure both the standardization and defensibility of steps taken throughout ESI processing. The ESI processing team can continue to return to the plan periodically throughout ESI processing to avoid inadvertent or overlooked processing instructions devised prior to ESI processing.

The following are requirements for ESI processing.

a) The individuals responsible for ESI processing shall, in advance of executing ESI processing, develop a plan to guide the ESI processing effort.

b) The individuals responsible for ESI processing shall be informed with regard to operative requirements that govern ESI processing including:

    1) legal requirements,

2) matter-specific requirements,

3) process-specific requirements, and

4) the landscape of ESI within the scope of ESI processing.

c) ESI processing shall be conducted using tools or methods that are appropriate to the ESI to be processed and to the operative requirements that govern the matter and those tools or methods shall be applied in a manner that enables them to have their intended effect.

d) The individuals conducting ESI processing shall have the expertise needed to apply the chosen ESI processing tools or methods correctly and to conduct quality assurance on the results of the ESI processing effort.

e) ESI processing shall be conducted in a manner that ensures that sensitive ESI is protected (e.g. using encryption, access controls, etc.) while it is in transit, at rest, or in use.

f) ESI processing shall be sufficiently transparent during its implementation to enable the individuals responsible for ESI processing to assess its progress and make adjustments as warranted.

g) ESI processing shall be supported by appropriate methods and metrics.

h) ESI processing shall be adapted, as needed, to changes in the requirements that govern ESI processing and to changes in the hardcopy documents and ESI that are to be processed.

i) The procedures implemented for ESI processing shall be documented to accurately reflect:

1) all procedures followed in the course of ESI processing,

2) all significant decisions made during ESI processing, and

3) any evaluations of the effectiveness of the ESI processing effort.

6.5.5 Guidance for ESI processing

The following recommendations can be relevant for ESI processing.

a) ESI processing tools should be tested for the data types in use in a specific electronic discovery project in advance of being deployed on the full data set. This may be testing conducted by the manufacturer of the tools, with results published, or testing completed by the user of the tools.

b) Where tools or data reduction techniques are proposed which are new to a jurisdiction (such as predictive coding), consideration should be given to undertaking additional discussions with the requesting party to gain agreement on the use of any such tools or methods.

6.6 ESI review

6.6.1 Overview of ESI review

ESI review is the step in the electronic discovery process in which each of the hardcopy documents or ESI that have been collected and processed is assessed as to whether or not it meets the criteria for being included in the actual production.

ESI review is essentially a screening exercise, in which hardcopy documents or ESI that meet the production criteria are separated from those that do not. ESI review may be conducted in one or more stages.

Managing families of documents, especially when duplicate documents are contained within other unique families of documents, can require special consideration and attention.

There is a wide range of approaches to conducting an ESI review, from the long-practiced linear manual review to more recent approaches making extensive use of advanced information retrieval tools and

methods. The objectives, issues and mitigation principles discussed in 6.6 are, however, applicable to all approaches.

6.6.2 Objectives for ESI review

The objectives of an ESI review are fairly straightforward: to make a reasonably complete and accurate identification both of the set of responsive hardcopy documents or ESI within the collection data set and of the set of special-treatment hardcopy documents or ESI within the responsive set (e.g. those that are privileged or subject to data protection/privacy) and to do so in a time- and cost-effective manner. More specifically, the objectives of an ESI review are the following.

— Within the set of collected hardcopy documents or ESI, designate as responsive all, and only, those that are within the scope of the governing criteria.

— Within the set of hardcopy documents or ESI designated as responsive, designate for special treatment all, and only, those that will require special handling prior to ESI production (withholding on grounds of privilege, etc.).

— Accomplish the above tasks with a level of accuracy commensurate with a reasonable good-faith effort.

— Accomplish the above tasks within timelines agreed upon with the requesting party or court or otherwise specified by the project parameters.

— Accomplish the above tasks with a level of resource utilization that is proportionate to what is at stake in the matter that has necessitated the ESI review.

6.6.3 Considerations to avoid failures

The issues inherent in ESI review are the following:

— **Over-designation.** To designate as responsive (or as requiring special treatment) hardcopy documents or ESI that are not actually within the scope of the governing criteria (or that do not actually meet the criteria for hardcopy documents or ESI requiring special treatment).

— **Under-designation.** To fail to designate as responsive (or as requiring special treatment) hardcopy documents or ESI that are actually within the scope of the criteria (or that do actually meet the criteria for hardcopy documents or ESI requiring special treatment).

— **Time overrun.** To fail to complete ESI review within the timelines agreed upon with the requesting party or the court or otherwise specified by the project parameters.

— **Cost overrun.** To fail to complete ESI review at a level of resource utilization that is proportionate to what is at stake in the matter that has necessitated ESI review.

The issues identified above can be managed via the implementation of a process for conducting ESI review that makes well-coordinated use of appropriate tools, methods, and expertise in order to meet the objectives of ESI review. More specifically, the issues can be managed by the implementation of an ESI review process that adheres to the following eight principles.

— **Planned.** A document review is a complex exercise, requiring coordination of several components, from the legal and subject-matter experts who inform the definition of responsiveness, to the tools that will be used in the review and the experts who will utilize them, to the quality control methods that will be employed to validate the results of the review. Planning is therefore essential in order to ensure that each component is able to contribute its maximum value to the ESI review effort.

— **Informed.** Every document review takes place in its own unique context: the specific issues and strategy, the pertinent subject matter, the ESI landscape and the linguistic usage of the communities that generated the collection data set will all vary from one review to the next. In order to be effective, a document review needs to be tailored to the specific circumstances in which it is conducted,

and that means it needs to be well informed about those circumstances. Information needs to be gathered from two sources:

— from individuals with knowledge and expertise to contribute to ESI review (the top-down track), and

— from the hardcopy documents or ESI in the review collection data set itself (the bottom-up track).

The two sources each provide unique kinds of information and both need to be utilized if those conducting the ESI review are going to succeed in identifying the responsive material that resides in the collection data set.

— **Supported by technology.** Any ESI review, regardless of specific approach, will have a greater likelihood of success if it makes appropriate use of available technologies. Technological support can come in the form simply of an ESI review platform that facilitates the execution and quality control of a manual ESI review process or of more advanced information retrieval technologies used to identify responsive hardcopy documents or ESI. Key to the effective use of technology is

  — that tools be selected that are appropriate to the overall approach taken to ESI review; and

  — that the tools be used in a manner that enables them to have their intended effect.

— **Supported by scientific expertise.** An ESI review, regardless of a specific approach, is fundamentally an information retrieval exercise; an effective ESI review will therefore draw upon, as appropriate, the kinds of expertise that are brought to bear in information retrieval science (computer science, statistics, linguistics, etc.).

— **Transparent.** In the case of an ESI review process, transparency means that the process is readily auditable, whether by a party engaged in the process or by a third party, and that the links between the cause and effect throughout the process are readily viewed and understood. In a transparent ESI review process, it can be possible, if given the final assessment assigned to any document in the review set, to identify the specific reasons that led to that document receiving that assessment.

— **Measured.** The effectiveness of an ESI review can be readily quantified by metrics regularly used in information retrieval science (e.g. recall and precision). An effective ESI review can therefore, in the course of the exercise, take direction from statistically sound measures of effectiveness and, at the conclusion of ESI review, be validated (at least in part) by sound empirical measures.

— **Adaptive.** An ESI review process can be premised on the fact that the information available at the outset of ESI review will be imperfect and incomplete. An effective ESI review process will therefore expect the unexpected and be able to adapt to changes in direction, whether those changes come from outside factors (e.g. changes in the scope of a discovery request) or from ESI collection itself (e.g. content that was not expected at the outset of ESI review).

— **Documented.** An effective ESI review will also be well-documented for the purposes of :

  — improving the ESI review's effectiveness and consistency;

  — improving the repeatability of the ESI review process in future implementations; and

  — defending the results of ESI review if they are challenged.

  A well-documented ESI review is one in which a complete record is kept of:

  — all procedures followed in the course of ESI review, including salient artefacts used in the execution of those procedures;

  — all significant decisions made during ESI review; and

  — any evaluations (whether statistical or otherwise) of the effectiveness of ESI review, both in the course of ESI review and at the conclusion of ESI review.

6.6.4 Requirements for ESI review

ESI review is central to the electronic discovery process. Ensuring that ESI review meets its objectives of identifying responsive (and special-treatment) hardcopy documents or ESI with a reasonable level of completeness and accuracy and at a reasonable expenditure of time and resources is essential to the successful conduct of electronic discovery. There are, of course, issues inherent in the execution of a document review, chief of which are under-designation, over-designation and overruns of time and cost. These issues can be managed, however, if a document review is treated as the complex information retrieval exercise that it is and, more specifically, if a document review adheres to the eight principles noted in this document: planning, information gathering, technology, expertise, transparency, measurement, adaptability and documentation.

The following are requirements for ESI review.

a) The individuals responsible for ESI review shall, in advance of executing ESI review, develop a plan to guide the ESI review effort.

b) ESI review shall be conducted using reasonably accurate information with regard to the operative definitions of the categories of information to be identified in ESI review.

c) ESI review shall be conducted using tools or methods that are appropriate to the overall approach to ESI review and those tools or methods shall be applied in a manner that enables them to have their intended effect.

d) The individuals conducting ESI review shall have the expertise needed to apply the chosen ESI review tools or methods correctly and to conduct quality assurance on the results of the ESI review effort.

e) ESI review shall be sufficiently transparent during its implementation to enable the individuals responsible for ESI review to assess its progress and make adjustments as warranted.

f) ESI review shall be supported by appropriate methods and metrics.

g) ESI review shall be adaptable to changes, either in the requirements that govern the ESI review effort or changes in the hardcopy documents and ESI that are the domain of ESI review.

h) The ESI review procedures implemented shall be documented to accurately reflect

    1) all procedures followed in the ESI review,

    2) all significant decisions made during the ESI review, and

    3) any evaluations of the effectiveness of the ESI review.

6.6.5 Guidance for ESI review

The following recommendations can be relevant for ESI review.

a) While planning ESI review, the individuals responsible for ESI review should consider whether all of the ESI in the processed set requires review or whether further culling or advanced search techniques can be applied to reduce the volume of ESI to be reviewed.

b) While planning ESI review, the individuals responsible for ESI review should consider various different approaches to conducting ESI review, including the use of manual review, the use of technology-assisted review and the use of combination methods which use both human review and automated tools to accomplish the ESI review objectives.

c) While planning ESI review, the individuals responsible for ESI review should canvas the availability of the various technologies for technology-assisted review, bearing in mind that each tool will have its own strengths and weaknesses.

d) While planning ESI review, the individuals responsible for ESI review should consider the optimal size and composition of the ESI review team, taking into account the need for consistent results,

specific expertise required, the complexity of the issues and time and budget constraints for the completion of ESI review.

e) During ESI review, the individuals responsible for ESI review should facilitate open and ongoing dialogue among the individuals conducting ESI review and between the individuals responsible for ESI review and the individuals conducting ESI review to ensure that problems are identified and resolved at the earliest opportunity and the learning is shared with all individuals involved in ESI review. This communication can improve consistency in results and the morale of the individuals conducting ESI review during a lengthy ESI review project.

f) The individuals conducting ESI review should be provided with written documentation outlining the guidelines for categorizing the ESI as a reference guide. This ESI review plan or protocol should include a summary of the goals of ESI review, explanations of key concepts in the context of the project, such as relevant, privileged, confidential or private, a timeline of key events to assist with recognizing relevant ESI, a list of individuals likely to be associated with privileged communications, or any instructions that should be referenced regularly to assist with ESI review decision-making. This ESI review plan or protocol should be amended and redistributed to adapt to changes in the requirements and previous learning from ongoing dialogue with those conducting ESI review.

6.7 ESI analysis

6.7.1 Overview of ESI analysis

The objective of ESI analysis is to take a deeper look at a document, for example, to determine its provenance. Structured data, such as accounting systems, can also be analysed to generate insights into specific transactions or patterns of transactions.

As electronic discovery tools and processes have matured, sophisticated analytics methods have been put to use in aid of more and more of the process elements of discovery. Initially, the focus was on the analysis of the collected ESI to make it easier to cull documents and provide increased productivity during ESI review step. More recently, all types of analytics (described in 6.7) are being used to increase productivity through the whole process.

6.7.2 Objectives for ESI analysis

The objective of ESI analysis is to utilize data analytics in order assist all process elements of electronic discovery (ESI identification, ESI preservation, ESI collection, ESI processing, ESI review and ESI production) in meeting their objectives.

— **In support of ESI identification.** To utilize data analytics in order to assist in the identification of ESI sources containing information potentially relevant to the operative requests for production.

— **In support of ESI preservation.** To utilize data analytics in order to assist in the development of an ESI preservation plan that is appropriate to the landscape of potentially in-scope ESI and to ensure that the plan, once developed, is properly executed.

— **In support of ESI collection.** To utilize data analytics in order to ensure that the collection team has the empirical information it needs both to meet its objectives and to know that it has met its objectives.

— **In support of ESI processing.** To utilize data analytics in order to inform the process of preparing the collection data set for ESI review (including any data reduction steps taken as part of that preparation) and to validate the results of that process).

— **In support of ESI review.** To utilize analysis or data analytics in order to assist the ESI review team both in meeting its objectives effectively and efficiently and in validating that it has met its objectives.

— **In support of ESI production.** To utilize data analytics in order to ensure that the ESI to be delivered to the recipient of production is in a format and condition consistent with agreed-upon requirements.

6.7.3 Considerations to avoid failures

The issue inherent in ESI analysis is a failure to provide the empirical information each of the process elements of discovery needs in order to meet its objectives.

— **Failure to match tools and methods to data conditions.** Without the information provided by data analysis, the electronic discovery team potentially adopts tools and methods that are not appropriate to the actual ESI that are the domain of discovery.

— **Failure to realize full capabilities of tools and methods.** Without the information provided by data analysis, the discovery team potentially fails to utilize any selected tools and methods in the manner they are intended to be used and thus, failing to realize the full potential of those tools and methods.

— **Failure to identify and understand in-scope ESI.** Without the information provided by data analysis, the discovery team potentially fails to identify sources of ESI potentially responsive to the operative discovery requests, as well as potentially responsive ESI within such sources as have been identified. This failure can also diminish the review team's ability to understand the relationships between different sources of ESI.

— **Failure to identify and remediate errors.** Without the information provided by data analysis, the discovery team potentially fails to detect errors made in the execution of any of the various elements of the electronic discovery process and thus failing to remediate those errors.

— **Inability to defend processes.** Without the information provided by data analysis, the discovery team potentially fails to obtain sound empirical support of the validity of its results and thus, if challenged, failing to be able to make an adequate defence of its process and results.

— **Inefficient use of time and resources.** Without the information provided by data analysis, the discovery team potentially adopts tools and methods that are not optimized to the actual ESI landscape to be covered and thus, incurring inefficiencies in the use of time and resources.

— **Failure to authenticate documents of interest.** Without the information which may be gained through the analysis of individual documents (where required to determine provenance, etc.), documents whose provenance has been questioned may remain unauthenticated.

The issues identified above can be mitigated by:

— **Planned.** Data analysis can be a complex exercise and needs to be adequately planned. For analysis whose objective is to determine the provenance of a document, adequate consideration needs to be given to the objectives of the analysis and how the output of the analysis might be used (for example, in a legal setting).

— **Documented.** ESI analysis can be invoked in conjunction with the other electronic discovery process elements, so it is critical to document the reason for analysis, the findings and outcomes, the use of technology, etc. The detail level of documentation can vary significantly and is typically driven by the need to support decisions made as a result of the analysis.

6.7.4 Requirements for ESI analysis

The following are requirements for ESI analysis.

a) The individuals responsible for ESI analysis shall, in advance of executing an ESI analysis task, develop a plan to guide the conduct of the task.

b) The individuals responsible for ESI analysis shall be informed with regard to operative requirements that govern the ESI analysis task, including both matter-specific requirements and process-specific requirements.

c) ESI analysis tasks shall be conducted using tools or methods that are appropriate to the ESI to be analysed and to the operative requirements that govern the task and those tools or methods shall be applied in a manner that enables them to have their intended effect.

d) The individuals conducting ESI analysis tasks shall have the expertise needed to apply the chosen ESI analysis tools or methods correctly and to conduct quality assurance on the results of the ESI analysis effort.

e) ESI analysis shall be sufficiently transparent during its implementation to enable the individuals responsible for ESI analysis to assess its progress and make adjustments as warranted.

f) ESI analysis shall be supported by appropriate methods and metrics.

g) ESI analysis shall be adapted, as needed, to changes in the requirements that govern the ESI analysis effort and to changes in the hardcopy documents and ESI that is the domain of ESI analysis.

h) The procedures implemented for ESI analysis shall be documented to accurately reflect

   1) all procedures followed in conducting ESI analysis tasks,

   2) all significant decisions made during the conduct of ESI analysis tasks, and

   3) any evaluations of the effectiveness of an ESI analysis task.

6.7.5 Guidance for ESI analysis

The following recommendations can be relevant for ESI analysis.

a) Individuals performing ESI analysis should recognize that tasks relevant to ESI analysis span a wide range of activities, from simple visual inspection of a data set to determine what types of data exist in the set, to employing sophisticated data analysis software tools to determine relationships and patterns among the data, make predictions, present visualizations of the data, or create reports to exercise legal judgement regarding the data.

b) ESI analysis should be performed before embarking on a process element to determine whether and the extent to which that process element is required in the project at hand and to assess the options for confronting the particular challenges of each process element in a given project.

6.8 ESI production

6.8.1 Overview of ESI production

Once the ESI has been evaluated by the review team for issues and aspects relating to the matter (such as relevancy and privilege in legal matters), the results of this review may need to be produced to a requesting party. This may be an external party, or another internal team depending on the requirements of the matter.

There can be a series of considerations when preparing for ESI production, including the agreed-upon terms of production established in communications with relevant parties prior to proceeding with ESI collection. Typically, there are a myriad of considerations to be made when preparing ESI for production that include the type of file format, file conversion requirements, metadata preservation aspects, branding and endorsement requirements, conversion and printing costs, image to text relationships, as well as load file compatibility requirements.

The producing party is typically obliged to create a log or schedule of all documents produced, as well as a log or schedule for any documents which have been withheld, due to reasons such as privilege or data protection.

Quite often the final step in the discovery process is providing a copy of the ESI (including hardcopy documents and hardcopy documents converted to digital format via the processing phase) which have been found to be relevant to the requesting party. It is vital that parties engage early in the process, so that what is produced at the end of the process is not a surprise.

6.8.2 Objectives for ESI production

The key objective in ESI production is to deliver relevant or responsive content to a requesting party consistent with the agreed-upon terms, formats and conditions while taking into consideration the sensitivity of the ESI.

6.8.3 Considerations to avoid failures

Generally, the parties involved in a matter agree upon a form of production in which to provide selected relevant ESI to the opposing party so that the contents can be reviewed. ESI production decisions can depend on the tools and technology available to each party for producing and reviewing ESI. One form of production might be, for example, production of electronic data in a native file format; that is, in the format used by the application that created it, complete with associated metadata. The receiving party would need a platform to host such ESI for review. Another method might include making an image of the file contents. Either a hosting platform for review or a printer would be required in that case.

Each method of production has certain issues and benefits associated with it for either side. Producing in non-native format, for example, can deprive the receiving party the ability to glean pertinent information from the metadata. On the other hand, producing in native format can expose information that the producing party has no obligation to share. The form of production needs to be carefully considered by the parties at the outset of discovery process.

The primary issues associated with ESI production include.

— **Overproduction.** Overproduction can create issues for both sides. When a producing party overproduces, the cost and timeframe to review the content increases. Causes of overproduction can relate to poor planning during the prior ESI review. Poor planning in the ESI review can contribute to overproduction in the event that the concepts associated with relevancy and privilege had not been clearly defined. Overproduction can put the client at risk as information that is not material to the litigation can be produced. Overproduction also means that the receiving party will need more time and incur more costs to review and evaluate the produced data set.

— **Under- or incomplete production.** Under producing ESI can have the opposite effect that overproduction can have. As is the case with overproduction, the cause can stem from a poorly planned ESI review. An additional possible impact is that under producing can result in adverse rulings from a court.

— **Producing in unacceptable formats or formats that were not agreed upon.** Producing in unacceptable or non-agreed upon formats is typically seen as an intent to obstruct and can have adverse impacts on the producing party. Prior to any production, it is wise to re-confirm the production formats with the receiving party.

— **Inadvertently producing privileged, confidential, sensitive or trade secret information.** Inadvertently producing ESI that contains sensitive content can put both the company and its employees at risk. If sensitive information such as personal health information, credit card data or social security numbers is produced unintentionally, the producing party may need to ask to have this data destroyed or returned.

— **Improper branding.** Improper branding can impact the order of hardcopy documents or ESI within a production. Typically, branding and endorsements are used to help both parties identify specific documents in a production. If the hardcopy documents or ESI are not properly labeled in a numerical fashion, it can create confusion between both sides when attempting to reference specific documents.

— **Cost containment.** Controlling costs throughout a set of productions is best achieved by making efforts to limit the scope of ESI production by producing only that ESI that is deemed most relevant and in the form agreed upon.

The issues identified above can be mitigated by the effective use of agreed-upon ESI production methods that can include consideration for the type of ESI production required as measured against the receiving party's capabilities and desired ESI review approach. One of the first questions that is asked prior to ESI production includes the type of file formats that the receiving party is able to ingest. With this information, the producing party may need to undergo file conversion or file transformation in order to comply with the receiving party's request. These production aspects are typically outlined in a production standard both parties agree to.

The issues can be managed by the implementation of an ESI production process that adheres to the following principles.

— **Planned.** An effective ESI production considers the various possible production formats. These production formats can include native file production, near native file production, image-based productions (also referred to as near paper), as well as image productions. It is important to communicate and understand the capabilities on the receiving party to handle specific file formats.

— **Documented.** Productions can include a quality ESI review process to ensure that there are no inconsistencies in any stamps or endorsements and there is assurance that the production is not duplicative. During the ESI production process, it is essential to document each step in order to present the step-by-step activities taken.

6.8.4 Confirm forms of production

It is important to engage with the recipient of the production at the earliest time to agree to the technical parameters of ESI production in order to help avoid incompatibilities or disputes upon receipt of the production. The purpose of these communications is to share information about the sources and types of potentially relevant ESI, what is considered to be accessible and inaccessible and the forms and formats for production of the different types of relevant ESI. Discussions can also include technical specifications for the format in which each requesting party will require ESI to be delivered. Ongoing communications will most likely be necessary to address unexpected issues as the ESI production process proceeds. Because there are so many variables and options for producing ESI, it is not possible to accurately know what the requesting party will need or want without communicating about it ahead of time.

Understanding the capabilities (and limitations) of the service provider or litigation support department that will be processing the ESI is key, but it is just as important to explore those issues as they relate to preparing the final document production. Be sure the chosen group can actually produce ESI in the formats agreed upon during negotiations and that the ESI production process can be done in a timely way. Early discussions with the service provider or litigation support department who will be providing the technical services and support will ensure that the requirements for the form or forms of the production can be met. This will also reduce the likelihood of delays during the final stages of ESI production resulting from undisclosed expectations or erroneous assumptions.

Separate to the decisions regarding production format, how families of documents are produced can also be an important decision, given its likelihood to significantly increase the volume of non-relevant documents produced or requiring redaction.

Consideration for how families of documents are managed at ESI production will have been included in the ESI review planning and strategy, i.e. if all family members are (automatically) marked as relevant, in the event that one or more of the family members are relevant, or if only those family members which are relevant are marked as relevant, with the remaining irrelevant family members marked as such. This latter approach is safe to do at the ESI review stage, as most electronic discovery systems will still allow the identification of all family members where one or more have been marked as relevant. Conversely, if all family members have been marked as relevant, just because one of the family members is, then it can often be impossible to work out which family members are in fact relevant.

6.8.5 Requirements for ESI production

The ESI production element of the electronic discovery process carries significant import. In the litigation context, for example, after ESI has been reviewed for relevance, ESI production initiates the process in which parties can determine merits and relevance of ESI that can be material in the matter. An integral part of ESI production relates to the work performed in prior process elements, particularly ESI review. Issues with ESI productions are best remediated via careful planning and documentation. As with other process elements, the best way to avoid possible ESI production issues is with a plan and quality control process that includes documentation relating to content reviewed and produced, as well as tools and procedures employed throughout the ESI production process.

The following are requirements for ESI production.

a) The individuals responsible for ESI production shall, in advance of executing the production, develop a plan to guide the ESI production effort.

b) The individuals responsible for ESI production shall be informed with regard to operative requirements that govern ESI production, including:

   1) legal requirements,

   2) matter-specific requirements,

   3) process-specific requirements, and

   4) the characteristics of ESI that needs to be produced.

c) ESI production shall be conducted using tools or methods that are appropriate to the ESI to be produced and to the operative requirements that govern the matter and those tools or methods shall be applied in a manner that enables them to have their intended effect.

d) The individuals conducting ESI production shall have the expertise needed to apply the chosen production tools or methods correctly and to conduct quality assurance on the results of the ESI production effort.

e) ESI production shall be conducted in a manner that ensures that sensitive ESI is protected in transit and at rest (e.g. using encryption, access controls, etc.).

f) ESI production shall be sufficiently transparent during its implementation to enable the individuals responsible for ESI production to assess its progress and make adjustments as warranted.

g) ESI production shall be supported by appropriate methods and metrics.

h) ESI production shall be adapted, as needed, to changes in the requirements that govern the ESI production effort and to changes in the hardcopy documents and ESI that is to be produced.

i) The forms of production shall be appropriate, such that the ESI is reasonably usable, and unless unwarranted, searchable.

j) The method by which the production is transferred shall be appropriate to the type and volume of the ESI and the needed speed and security of the transfer.

6.8.6 Guidance for ESI production

The following recommendations can be relevant for ESI production.

a) The procedures implemented for ESI production should be documented to accurately reflect

   1) all procedures followed in the course of production,

   2) all significant decisions made during production, and

3) any evaluations of the effectiveness of the production effort.

b) The individuals responsible for ESI production should assess the costs and benefits of different forms of production for their particular data set before agreeing to or finally determining a form of production.

c) The final production set should be reviewed before delivery to ensure that any confidential, privileged, or otherwise sensitive documents which remain in the set through error or inadvertence can be removed from the production set before delivery. The use of agreements should be considered (if appropriate) before making production to the requesting party.

d) The individuals responsible for the electronic discovery project should consider whether making production in stages, as opposed to making production of the entire relevant set at once, would be efficient or cost-effective in the particular circumstances and discuss such possibilities with the requesting parties.

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