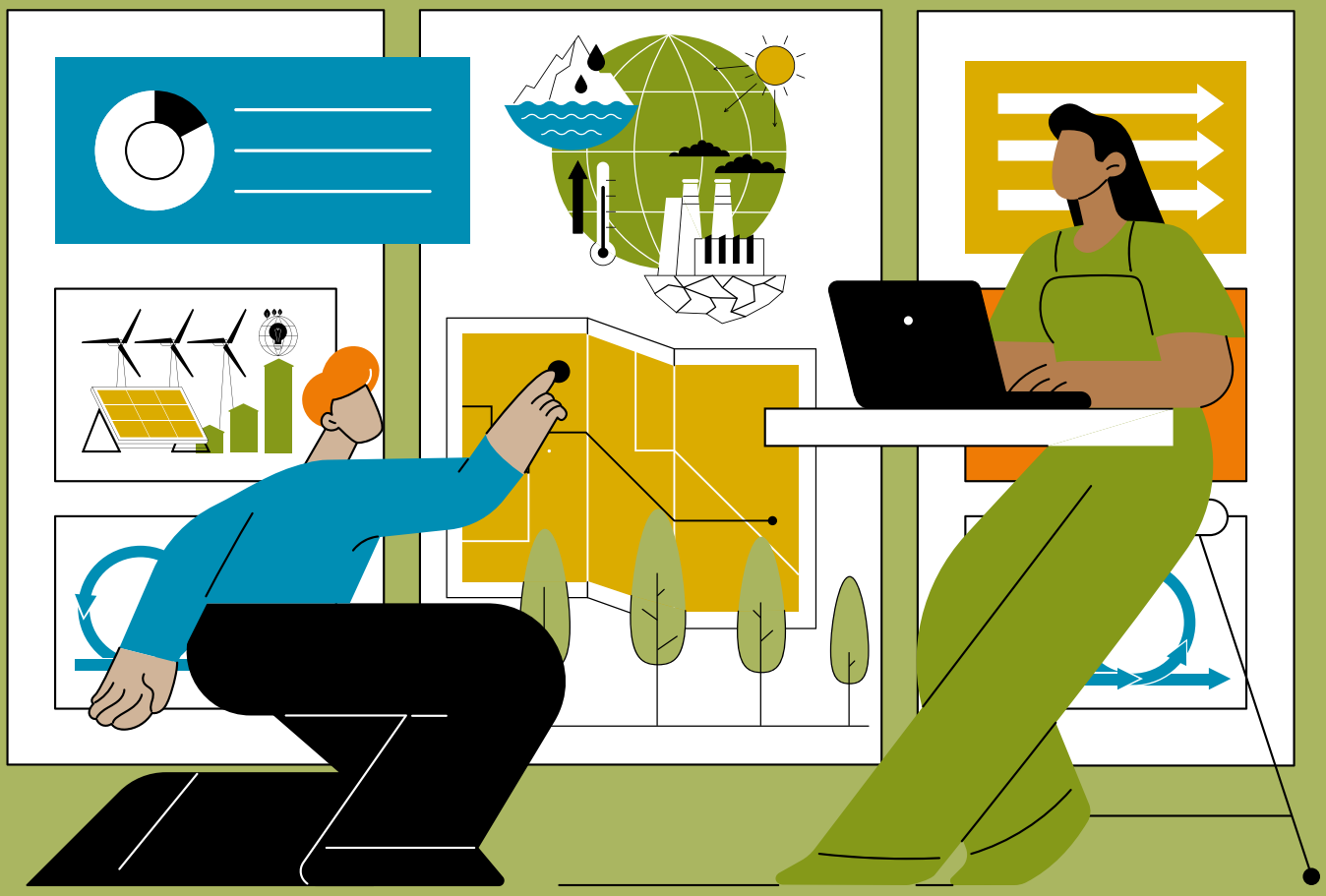
A roadmap to digital environmental assessment



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Contents

Executive summary

Over the past two decades, various stakeholders from the government, academia, industry, local authorities, regulators and the public have been united in calling for shorter and more accessible environmental assessment reports. However, a majority of these stakeholders have also made it clear that they do not want to see a reduction in environmental protection. Therefore, the challenge over recent years has been how to achieve a proportionate level of assessment and reporting, without reducing the quality of assessment as a tool for environmental protection.

The trends of climate change, social deprivation, biodiversity loss and pollution have all been increasingly negative, based on published scientific studies. To combat these negative externalities there has been a rise in the use of environmental assessments, for example environmental impact assessments (EIA), strategic environmental assessments (SEA), health impact assessments (HIA) and equality impact assessments (EqIA), to seek to identify and reduce the adverse environmental and social impacts of plans, projects and programmes.

As the number and depth of the assessments has improved over time, the resulting length and complexity of reports has, arguably, become a barrier to stakeholder engagement; prolonging consultation periods and, in some cases, providing a negative user experience. There is a need for robust assessments that are proportionate and accessible. The use of digital tools has been proposed on multiple occasions to help both expedite and simplify the process of environmental assessment at all stages and, most importantly, improve accessibility and stakeholder engagement. For example, embracing digital approaches was one of the four key recommendations from IEMA's Proportionate EIA Strategy, published in 2017.

The growing consensus between planning and impact assessment professionals is that better use of digital tools and smarter use of data could make it easier to share information, avoid inefficiencies such as duplication and facilitate more effective monitoring. This may further reduce environmental and social risk and lead to better environmental outcomes. This document provides a roadmap for the use of digital tools in the process of environmental assessment. It is based on a number of desirable outcomes, rather than specific methodology, in order that it can remain flexible enough to take into account the constantly shifting digital landscape and availability of tools. The areas covered here are:

1. Data collection, management and processes
2. Assessment processes
3. Reporting.

The appendices provide further information on terminology, data strategy considerations and databases.

Ultimately, this document aims to help IEMA's members on their journey towards digital environmental assessment, assisting organisations by using the IEMA digital maturity matrix (see page 4) to establish their current level of digital maturity, and guide them towards appropriate next steps in their digital evolution.

Digital environmental assessment

- Digital environmental assessment is not just the digital report presenting the findings of an environmental assessment, but encompasses the use of digital tools and techniques through the entire environmental assessment lifecycle.
- To transition to digital environmental assessment the impact assessment itself must be treated as data, that is, categorised and stored logically.
- Any digital environmental assessment solutions must be created to be adaptable, be that to changing regulations and processes or to work for different types of projects.

Digital maturity matrix

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This guidance has been developed by an IEMA Impact Assessment Working Group on Digital Impact Assessment made up of environmental impact assessment (EIA), geographic information system (GIS) and digital professionals from a wide range of public and private sector organisations working across the UK and internationally.

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1. Introduction and methodology

What is the purpose of this roadmap?

Improvements in the availability and use of digital technologies have the potential to transform the environmental assessment process.

The proposed planning reforms in England (2020 onwards) have focused, in places, on the greater use of digital assessment, and this focus has continued in the proposals for environmental outcome reports (EOR) that are being brought forward under the Levelling Up and Regeneration Act (2023). EORs are set, in time, to replace the environmental impact assessments (EIA) and strategic environmental assessments (SEA) regulations in England and, possibly, other parts of the UK. However, the new EOR will also require environmental assessment, with a commitment to maintaining or increasing existing levels of protection from EIA and SEA. Therefore, the need to be better organised, capture and reuse data, and embrace digital tools remains as strong as ever to ensure EIA, SEA and EORs are as effective as possible.

Within this roadmap, environmental assessment refers to EIA and will equally apply to the emerging EORs. The environmental assessment process should include improving data management and use through all stages of a project. This improvement can, ultimately, streamline the decision-making process, improving stakeholder engagement and user experience.

This roadmap sets out the key outcomes required to define an environmental assessment as 'digital'. It provides direction on the key elements for digitally transforming the environmental assessment process and helps answer the question, 'what is digital environmental assessment?'. This roadmap may also be useful to those involved in environmental assessment other than the assessors themselves, such as decision-makers; and to those involved in related impact assessment processes, such as SEA and health impact assessment (HIA). This roadmap does not exhaustively cover all elements of an environmental assessment, but instead highlights key areas where digital tools are considered to have the greatest potential influence.

What is environmental assessment?

Environmental assessment is a systematic process to assess the likely significant environmental effects of a project. It aims to ensure projects are designed, built, operated and decommissioned in a way that protects the environment and ideally provides positive environmental outcomes. The process (as defined in Figure 1) should start at project onset and should be used as a tool to inform the design throughout all project stages. The findings of the environmental assessment are set out within a report[1]. The report informs the relevant decision-making authority, stakeholders and members of the public, forming a critical part of the consenting process.

What is digital environmental assessment?

The Digital Impact Assessment Primer[2] defines digital impact assessment as, 'the use of software and hardware in an impact assessment that uses digital data as the storage medium'.

The definition used here is expanded to: assessing and presenting the environmental effects of a project in a consistent and repeatable manner, through the use of software and hardware, using data as the storage medium. Digital environmental assessment is the digitisation of the whole environmental assessment process, from project onset to decommissioning.

Digital environmental assessment can be defined by breaking it down into key components from a digital perspective. There is a great deal of interaction between the components set out below; therefore the roadmap should be read in its entirety. The key components are:

- Data – which underpins the entire process
- Assessment process – how specialist understanding and expertise are used to identify the environmental effects of a project
- Reporting – how the findings of the environmental assessment are presented.

1 Environmental impact assessment report in Scotland and Northern Ireland, currently environmental statement in England and Wales, and likely to be an environmental outcomes report in England
2 IEMA (2020). A Primer for Embracing Innovation and Digital Working

Figure 1: The interaction of design, digital and environment assessment processes

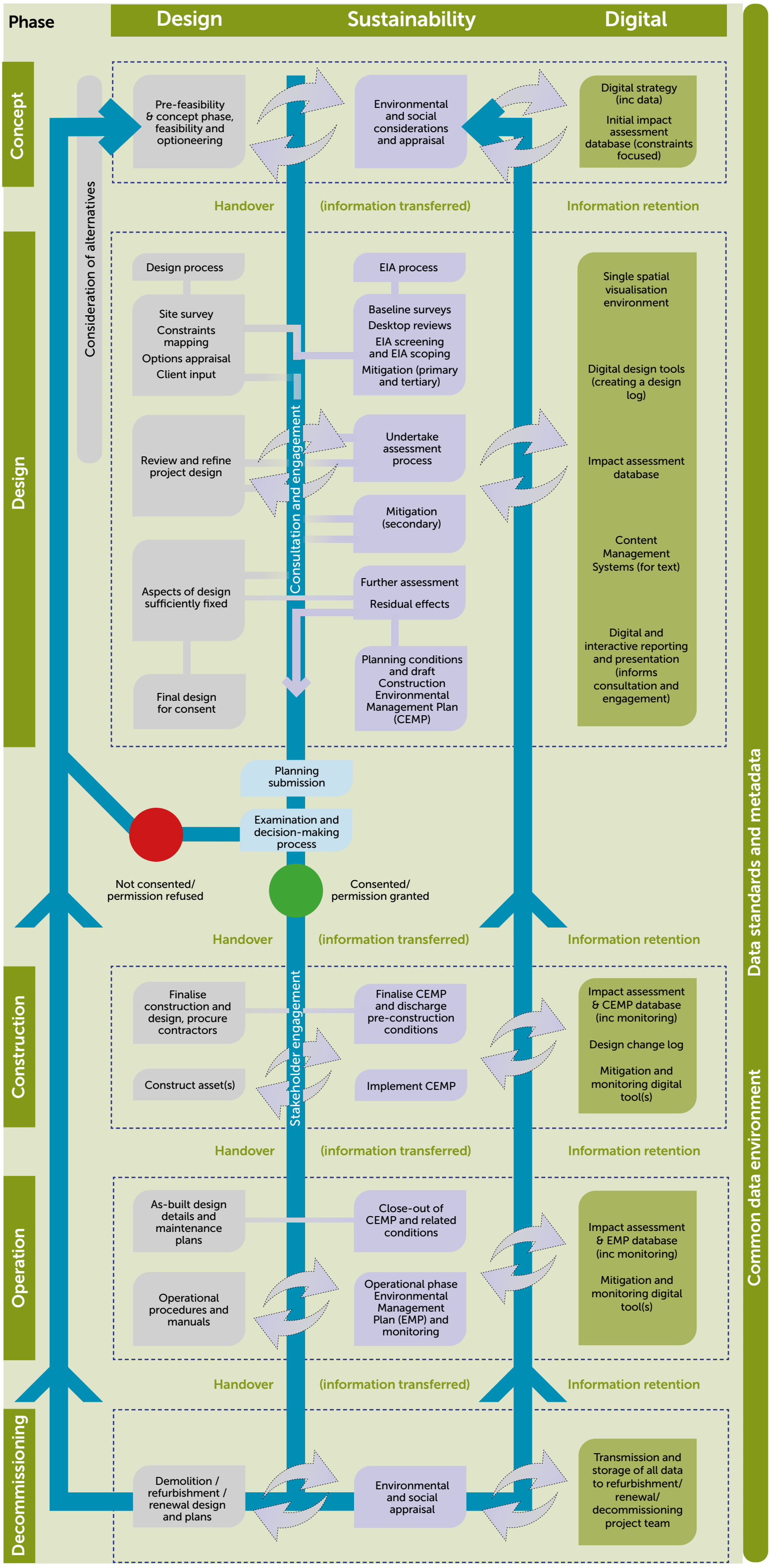


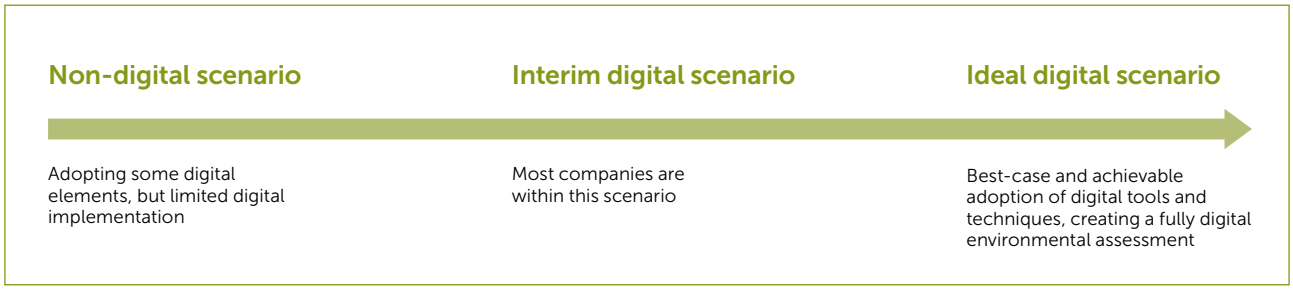
Figure adapted and expanded from: IEMA (2015) Environmental Impact Assessment Guide to Shaping Quality Development.

For each component, three scenarios are explored (see Figure 2, below):

- **Non-digital scenario** – describes a scenario in which little or no digital techniques are used and provides a contrast with the more digital scenarios.
- **Ideal digital scenario** – at the time of writing this is considered to be the best-case and achievable adoption of digital tools and techniques into environmental assessment. The ideal scenario is divided into components. However, for a fully digital environmental assessment, all components of the environmental assessment would need to be at this level.
- **Interim digital scenario** – presents ideas about how to approach digital environmental assessment in a stepped fashion, and represents good preparation towards the ideal scenarios. Adopting some, but not all, of the ideal digital scenarios would also present an interim/stepped approach.

The aim is for all environmental assessment authors to follow the roadmap towards the ideal digital scenario, using ideas presented in the interim scenario as a guide. A strict methodology of how to achieve the ideal scenario is not provided. Instead, several outcomes that should be met are described, with suggestions about how these outcomes can be achieved. As this is still an emerging field and new tools and technologies are becoming available regularly, this approach allows the authors to select the best means to achieve the desired outcomes.

Figure 2: Different scenarios of the digital maturity journey



How does digitising environmental assessment help?

IEMA[3] identifies that EIA practice in the UK presents the challenge of balancing increased practitioner and stakeholder knowledge, inherently precautionary and evidence-based consenting regimes and the ambition to produce high-quality deliverables.

Consequently, environmental assessment deliverables have become increasingly complex and the outputs themselves (typically PDFs or printed reports) can often be unwieldy and inaccessible. This limits the ability for many stakeholders to engage meaningfully with the project, especially within fixed consultation periods.

Because of this, EIAs generally do not provide a positive user experience. The industry is striving towards proportionate environmental assessment; however, current practices do not encourage proportionality. The Connected Places Catapult reported in 2020 that an average Environmental Statement for a 500-dwelling housing development was 4,350 pages long and 14-17 chapters of content on average[4]. How, then, can the need for robust assessments that deliver environmental betterment be balanced with the desire to be proportionate and accessible?

Shifting environmental assessments towards a digital environment offers an invaluable opportunity to transform these complex and lengthy documents into more user-centric, data-driven formats that are easier to digest and navigate, thereby igniting more effective public participation in the planning process and enhancing decision-making. It is fundamental to embrace both online and in-person engagement and communications in approaches to environmental assessment[5]. By making it easier to share information with project stakeholders during the pre-application, decision-making and post-consenting stages, we can connect with our audiences (consultees, the public and decision-makers) clearly and transparently.

Digital environmental assessment can also improve efficiency, for example, by removing duplication. A data-driven digital environmental assessment would improve post-consent processes, since the environmental assessment information can be efficiently shared with contractors and/or operators in a logical and standard format, leading to time efficiencies and reduced risk during the post-consent phases. This data would facilitate more effective post-consent monitoring, leading to better environmental outcomes.

Further information on the benefits of adopting digital impact assessment can be viewed in the Connected Places Catapult[4] and IEMA Digital Primer[6].

What are the risks associated with adopting digital environmental assessment and how might these be mitigated?

Several risks might impact the adoption of digital techniques and tools in environmental assessment. These are outlined in Table 1 alongside considerations of how these risks might be mitigated. The risks have been separated into risks likely to be outside the author's control and those that the author could control.

Current situation

At the time of writing this roadmap, a wide spectrum and variety of digital tools and data management approaches are used to support environmental assessments. Good progress is being made by various authors towards digital environmental assessment solutions (a number of these are referenced in the 'interim scenarios'). However, to the best of our knowledge, no digital environmental assessment solution currently implements all the outcomes set out in the ideal scenario. In the next section, we showcase what a 'fully digital' environmental assessment might look like.

3 IEMA (2017). Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice.
4 Catapult Connected Places *et al.* (March 2020). Digitising the Environmental Impact Assessment (EIA) Process.
5 IEMA (January 2023). Impact Assessment Outlook Journal, Volume 15: Public Participation Stakeholder Engagement and Impact Assessment.
6 IEMA (March 2020). A Primer for Embracing Innovation and Digital Working.

Table 1: Risks associated with the adoption of digital environmental assessment

	Internal risks to authors of EIA		External risks			
	Organisational readiness of the authors	**Increased time and cost**	**External digital infrastructure**	**Client willingness**	**Availability and structure of open data (i.e. publicly available data)**	**Legislation, policy and regulatory environment, including changes to these processes**
RISKS	• Covers both the digital infrastructure and mindset of the organisation	• Implementing digital solutions may add time and cost to a project, particularly when trialling new methods, or if needing to duplicate information	• Planning system designed to accept PDFs only • Digital environmental reports are extra and not hosted on planning portal • Concerns associated with how digital only reports would be hosted and archived • Changes to external software/hardware	• Increasingly digital elements are used on large-scale projects • Some clients see it as a duplication of effort	• Mixed availability of open data • There may be different licensing rules for datasets	• Current legislation requires hard copies of the environmental assessment report • Require compliance with the Web Content Accessibility Guidelines (WCAG) AA standard • Legislation and policy change such as the Levelling Up and Regeneration Bill to introduce environmental outcomes report may change overall requirements
MITIGATION	• Appoint a digital champion to drive advances in digital environmental assessment • A more digital approach can be applied in an organisation without purchase of costly software	• All digital solutions should be based around a single source of truth, reducing duplication, increasing efficiency and, ultimately, reducing time and costs to a project	• Make all digital solutions adaptive to change • In the short term, all digital solutions should be able to provide a PDF version of the deliverables • In the longer term, changes to the system could be encouraged to allow for submission of the assessment database.	• Make all digital solutions adaptive to change • Internal digital improvements can be adopted to demonstrate efficiency	• Make all digital solutions adaptive to change	• Make all digital solutions adaptive to change

2. Overview: What could a truly digital environmental assessment solution look like?

A fully digital environmental assessment is an intuitive and spatially integrated system that guides authors, readers and users of environmental assessment through the whole project lifecycle. Information is built on through each stage of the process with decisions and reasoning data retained. The information should be easily transferable between different companies using a standardised format.

If these key digital environmental assessment outcomes are achieved, the following benefits could be realised:

- Improved retention of information through the project lifecycle, leading to greater efficiency in the environmental process.
- Removal of the need for duplication of work.
- Improved ability to learn from other environmental assessments owing to the standardised format.
- Reduction of risk associated with the assessment.

There are a number of applications available and in development that are progressing towards the digital environmental assessment vision, and these are referenced in the 'interim scenarios' set out in the following sections. They are not necessarily a full digital environmental assessment solution, since they are bespoke solutions and tools predominately covering one aspect of the environmental assessment.

3. Data collection, management and processes

Data underpins all stages of environmental assessment. The data collected and used as part of the environmental assessment is complex, coming from a vast range of sources and in different formats. The data used evolves and increases in complexity as the environmental assessment progresses. Figure 3, below, shows the connection between data types used in an environmental assessment and a central database (see also Table 2).

The data used in an environmental assessment can be broadly categorised as the following (see terminology in Appendix 1 for definitions):

- Baseline data (desktop and survey data)
- Impact assessment data
- Project design data and project information (throughout the whole project lifecycle)
- Data relating to other projects (e.g. for inter-project cumulative effects).

All the above data can be either spatial or non-spatial.

Table 2 overleaf sets out the proposed outcomes for authors to achieve a digital environmental assessment regarding data, alongside a non-digital scenario for contrast and with suggestions for interim measures before being able to achieve the ideal digital scenario. The table has been separated into general data outcomes (data storage and information retention) and outcomes for the data types set out above (note that baseline desktop data is considered within the data storage row).

Figure 3: The connection between data types used in an environmental assessment and the central database

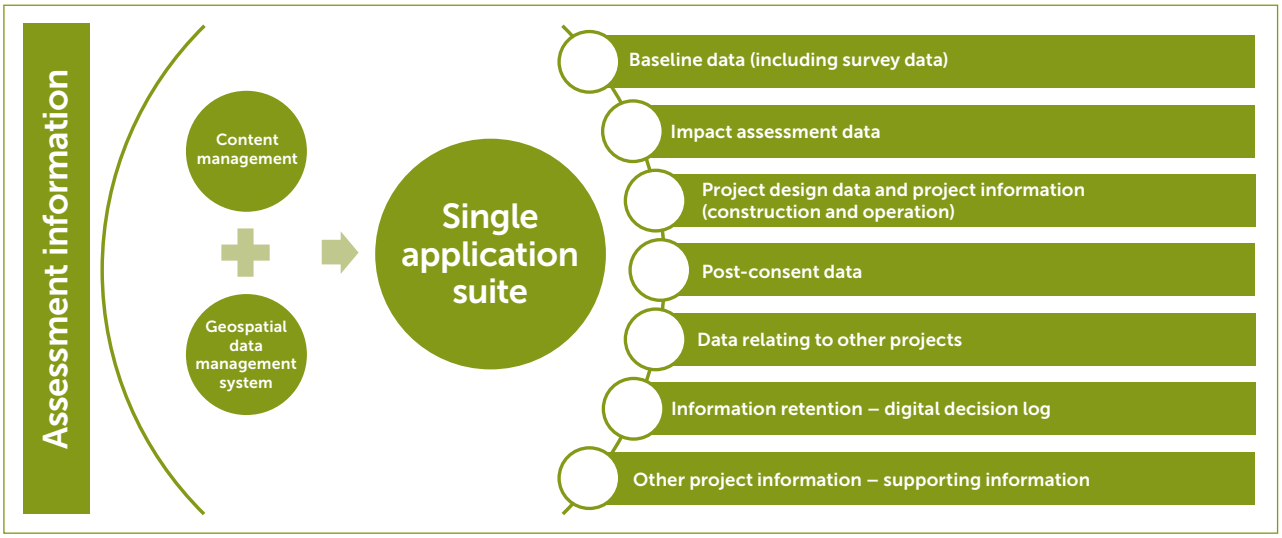


Table 2: Digital outcomes for the data component of an environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Data storage (including baseline data – desktop)	Data is often stored in a variety of formats and different file locations. There is limited visibility of all the data in one environment. The data is often of varying standard and metadata is not consistently recorded. Sharing of data both within the project team and to external parties is through different methods and can result in the sharing of incorrect versions (e.g. emails/large file transfers).	Implement a data storage and sharing strategy for all projects from project conception to completion. The data strategy will define the roles, storage requirements and data schemas and formats. The strategy defines how information is to be shared with all relevant parties. The key items to include in a data strategy are set out in Appendix 2.	A centrally managed process will be in place to ensure all data is collected and stored in an appropriate central location. All the data is available for the team to view in one environment (e.g. an interactive map). Common data standards are available for all data types commonly used in the environmental assessment; these will include specifications for the metadata to be included. A version control system is in place that manages changes to information (e.g. the design) and incorporates a standard overarching process. There is limited potential for human error to affect the process. All those who need to access the data are provided with appropriate access permissions to remove the need to manually share the data, thereby having a single source of trusted information for the whole project team (a common data environment).
Information retention	Information is often not well retained throughout the environmental assessment process. For example, sufficient environmental assessment must be completed and retained when optioneering to demonstrate that alternatives have been considered, and the appropriate option taken forward. Often the reasoning behind decisions (e.g. design choices, scoping, assumptions, etc.) is not easily accessible or is not available.	The data strategy should include provisions for the transfer of information at project stages. A single database of decisions made should be started at the project outset and transferred with other project information at the key stages (this could be as part of the impact assessment database – see **impact assessment data**). This should include retaining the information about why key decisions have been made, e.g. if the scoping out of a receptor is reliant on a certain design assumption.	A database environment for the environmental assessment is established at project conception and includes the decisions made (this could be the impact assessment database – see **impact assessment data**). That database forms the basis of the environmental management process through the construction and operation of the project. The data is held in a format that is transferable between platforms. For each project, appropriate measures will be implemented to ensure that the database can be managed for the duration of the project. The database can export the information to a common file type, which can be read in other database software. This could be similar to the AGS file format (a text file format), which is used to share geotechnical/geoenvironmental information between industry organisations.

Table 2 (cont): Digital outcomes for the data component of an environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Baseline data – survey	Information may be collected in a paper format and requires manual transfer to a digital format. Locations may be recorded on a static map, or through manual recording of a global positioning system (GPS) location. Data recorded for similar surveys between projects or consultancies are inconsistent. This method increases the risk of inaccurate data mapping.	Tablets and in-field offline data capture software (e.g. Survey 123/Field maps/ Collector Application provided by ESRI) can be adopted on projects. Technology such as drones and imagery are used where appropriate to gather data more efficiently. Before surveys, topographic/satellite mapping can be done to assign unique references to the key features.	All survey information is collected through digital means (as stated in the interim scenario), which automatically transfers the information to the common data environment, using set schemas, with an integrated quality assurance process. The system has sufficient fail-safes to ensure the information is not lost (with appropriate backup) and works in all weather conditions in an online and offline environment. Location data is gathered by default, and key features have tags to enable survey information to be linked (e.g. site photos).
Impact assessment data	Impact assessment data is often not collected consistently. The impact assessment is generally presented in wordy documents, perhaps within a table. Between topics in the same report, the level of detail provided for each receptor is often not consistent. The spatial location of receptors assessed is often not clear. Between topics and even within topics, the same receptor may be referred to in different ways. It is not always clear what mitigation relates to which receptor and impact.	An impact assessment database (e.g. in a spreadsheet) is established from the project outset (see Appendix 3). A unique spatial reference is assigned to each receptor in the impact assessment database. The environmental assessment coordination team reviews early lists of receptor names to establish consistency across topics.	All impact assessment information is collected in a database format. All receptors that can be spatially referenced are, and this process is automated. Each receptor has a unique reference and receptor names are commonly defined across topics. The relationships between receptors are clearly defined. For example, if one topic assesses the impacts on a single residential house, and another topic assesses the impacts on residents of a neighbourhood, it is clear that those impacts are being experienced by the same residents. The receptor is the common theme linking all other impact assessment information, including the baseline, impacts, mitigation, monitoring and any other pertinent information.

Table 2 (cont): Digital outcomes for the data component of an environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Project design data and project information	Project design data and project information are often provided in several different ways and locations. The design itself may be completed in Computer Aided Design (CAD) software, to which the environmental teams often don't have access. Manual conversion of data formats is likely to be required. Other project information may be contained in lengthy documentation. Managing the visibility of changes to the project is often complex. It is rare to be able to view the design overlaid with environmental information.	Interactive mapping is available which shows the key elements of the project design, and the project design is updated at key points in the project lifecycle. The interactive map holds the previous design versions and different versions of the designs can be overlaid to understand changes. There may be a requirement for manual conversion of file formats to enable data to be used in the interactive mapping.	All project information is stored in a common data environment, which intuitively links together different formats of design information (e.g. design drawings and management specifications). This common environment is linked to the environmental data so it can be overlaid where necessary. Iterations of the design information are stored logically and changes between iterations are easy to understand. All the design information is easily viewable by the team.
Other project information (Note that this element is influenced by external factors)	The collection of information on other projects is often completed by manually searching planning portals, and information provided in spreadsheets or a PDF document. Spatial information is often not available or is provided as point locations. The information available on other developments is variable and often does not give information on anticipated construction timescales or environmental impacts. Visibility of changes to this data is poor. The impacts are not consistently reported.	A data schema for other project information is applied consistently across projects. Therefore, although data is still gathered manually from the planning portal (or other information source), the data gathered is consistent and information gaps visible. The update cycle for other project information is specified in the data strategy.	External changes to the sources of other project information are required to reach the ideal scenario (for example by the local planning authority). In this scenario: Lists of projects can be downloaded automatically from the planning portal and can be filtered based on key criteria (e.g. development size). Spatial information comprising the application site boundaries for the other projects is available. Information is consistently gathered across the projects in a standardised impact assessment database. The other project information can be refreshed automatically at the appropriate timescales.

4. Assessment process

The assessment process is how those involved in an environmental assessment, including coordinators, topic specialists, GIS specialists and reviewers (both internal and external), complete their assessments. The process can be complex for an environmental assessment and might differ between projects, depending on many factors – the consenting regime, for example. Digital environmental assessment seeks to streamline and remove uncertainty from the assessment process, by guiding users through parts or all of the process through a digital user interface. There are limited options of interim scenarios to improve the internal user interface without developing bespoke applications. However, the applications developed can focus on smaller parts of the process rather than the whole of the assessment process (Figure 4).

Figure 4: Digital environmental assessment application

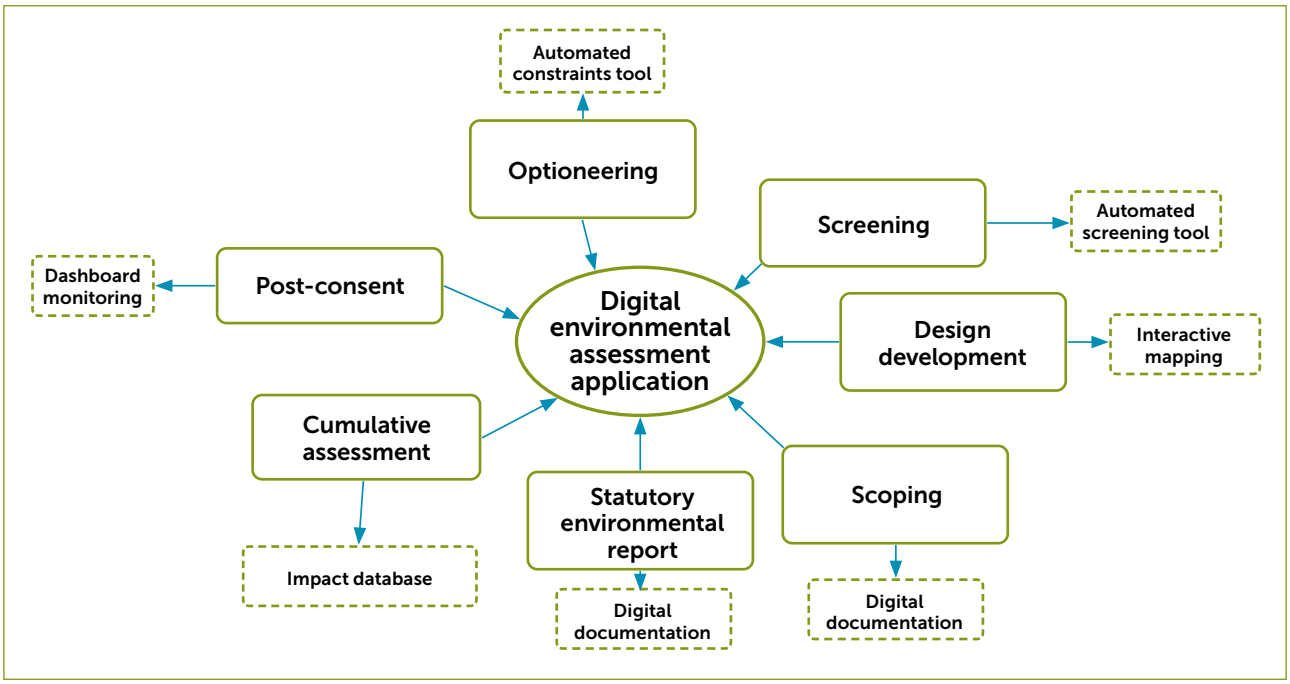


Table 3 sets out the proposed outcomes for authors to achieve a digital environmental assessment with regard to the process, alongside a non-digital scenario for contrast, and with suggestions for interim measures which could be implemented before being able to achieve the ideal digital scenario. In the ideal digital scenario, the entire assessment process is carried out in a single application that covers all parts of the process and has standard functionality, which is available as relevant for all parts of the process. The table has been separated into parts of the process, and functionality of the application.

Table 3: Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Digital user interface	From project inception through to decommissioning and everything in between, project information and environmental assessment would be handled by different groups. Each group has varying software and use requirements. Thereby this process necessitates a lot of manual information transfer, resulting in the loss and misunderstanding of information. The information transferred is often not supported by metadata.	Development and/or use of software system that implements a digital process for some elements of the assessment process (see rows below).	The environmental assessment is completed in a single application suite from start to finish. Information can be transferred between software packages and exported to the appropriate format (e.g. PDF, websites, Word documents) without duplication of labour. The application suite can be used by multiple people at the same time. The single application suite includes all parts of the assessment process (key parts identified below) and contains all the functionalities set out within this table.
Functionality of the digital environmental assessment application			
Coordination and consistency	Consistency of formatting and writing style/terminology is applied through the provision of templates, authors' guides and the review process. Often these guides are not followed or issues arise resulting in lengthy amendment processes.	Use of an impact assessment database (see **impact assessment data**). even in a basic format such as a spreadsheet, allows the definition of standard terminology and lists – for example, standardisation of impact reporting, mitigation, naming terms and effect terminology.	The assessment coordinators can define standard terms and methodology which auto-populate within the application suite. If authors require different terminology to the standard terms or methodology the coordinators are notified and this can be agreed early in the assessment process.

Table 3 (cont): Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Collaboration between topics	Collaboration between topics can be variable between environmental assessments and is often dependent on the topic author or coordination team setting up meetings between topics with potential interactions. Issues can arise, such as two topics assessing the same impacts on certain receptors, or specifying mitigation that is not compatible.	The adoption of an impact assessment database (see **impact assessment data**) and particularly spatial referencing in some format, even a basic spreadsheet, can improve collaboration between topics. For example, a standard list of receptors could be prepared early in the project stage, with input from all topics. When completing the assessment, rather than each topic specifying their own receptors, they would select which receptors from this list would be assessed in their topic.	The impact assessment database (see **impact assessment data**), completed through the application, has spatially assigned receptors that are linked to other related receptors. The receptors are assigned unique references, which allows the application to highlight which receptors, or linked receptors, are subject to impacts from multiple topics, e.g. if a heritage receptor is relevant to both heritage and landscape assessors, both teams would be notified to prompt collaboration. Key points where collaboration between topics is likely to be required could be identified within the application, e.g. when the air quality team is preparing their methodology to remind them to ensure they understand the assumptions of the traffic modelling (see Section 4 of the IEMA (2023) *Environmental Assessment of Traffic*
Duplication of information across projects	Often the impacts to be assessed, and information on legislation and policy are replicated from previous assessments or manually compiled in a time-consuming process. This leads to a risk of outdated information being within the environmental assessment.	Preparation of digital libraries of standard information used in the environmental assessment process, e.g. impacts, legislation, policy, and mitigation requirements that can be used across multiple environmental assessments. Therefore, only one location needs to be updated and can be consistently reported in each environmental assessment.	Libraries of impacts and legislation/policy are available for authors to select from, and updates are managed through an automated process. Consistent reporting is being undertaken for all projects.

7 IEMA (July 2023). Environmental Assessment of Traffic and Movement.

Table 3 (cont): Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Guidance	Authors will often use a previous environmental assessment to guide them through the process and will refer to the latest relevant environmental assessment guidance for their project (e.g. the *Design Manual for Roads and Bridges*[8]). A key part of the review process will be to confirm that the relevant guidance has been followed correctly.	A flow chart or process diagram could be prepared, which provides each topic with the appropriate guidance. This could be used as a checklist by the authors.	Elements of the guidance are embedded into the application, e.g. the significance of effect terminology able to be selected is prescriptive and relevant to that topic's guidance and methodology.
Consultation and quality assurance	Consultation is often undertaken by sharing static versions of the deliverables, e.g. PDFs of documents and maps. Feedback may be received in multiple formats but is often an email or letter. Reviews may be completed by making comments and changes directly in the documents being prepared, or potentially through the preparation of comment logs (often in a spreadsheet format). There is often a requirement for an audit trail to ensure that all comments are closed out and for revised versions to be shared with changes shown to allow the reviewer to accept the updates that have been made. If multiple people are reviewing at the same time this can be complex and could result in multiple versions of the same report.	Limited options for interim measures are available. Using a cloud-based software medium (e.g. SharePoint) would allow multiple reviews at the same time. However, there is a risk of information being lost by accidental deletion and no clear embedded quality assurance process.	Options are available to incorporate the consultee comments into the application. This could be by allowing consultees access to the application and enabling comments to be made within a spatial mapping environment. This should be explored in tandem with digital engagement methods. The standard of quality assurance and auditability of reviews needs to be as good as, or better than, that available in the current system. This means that reviewers can review within the application, and comments and changes are captured in a single version of a document. Version control is implemented in a standardised and transparent way, ensuring that changes to reporting are recorded. Quality assurance is embedded within the application with a clear workflow process.

8 Standards for Highways (2020). *Design Manual for Roads and Bridges – Environment and Sustainability.*

Table 3 (cont): Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Reporting	Reports are prepared using Word processing software and published using PDF. If parts of the report are duplicated across documents (e.g. project descriptions or conclusions) these are manually copied and pasted/rewritten.	Use a 'single source of truth' system to avoid duplication, e.g. by using an impact assessment database (see **impact assessment data**) where information can be exported to provide the significant effect tables.	The information can be exported from the system to a variety of formats, including PDF and digital reports all from the single source of truth. The statutory authorities can be confident that if reviewing an interactive version of the reporting, it contains exactly the same information as the PDF version.
Parts of the environmental assessment process			
Feasibility and optioneering stages (pre-EIA screening)	The early stages of a project often include manual identification and measurement of project constraints from publicly available mapping and datasets. Options are likely to be compared using mostly qualitative considerations in a report or spreadsheet format.	A library of constraints information is available, and the process of confirming which constraints are relevant is automated. An automated constraints tool can analyse the site boundary and output which constraints are within a certain radius and the distance/direction to constraints. This can form the initial basis of an impact assessment database by identifying receptors. Interactive maps showing all pertinent layers for the project are provided in one place. Automated analysis of routing and site selection tools can be created using constraints data to aid competent experts in assessing options. E.g. the Optioneer tool developed by Continuum Industries for linear infrastructure projects.	Within the single application suite: • A library of constraints information is available and automatically updated with the latest information. • An application boundary can be uploaded, and a list of constraints is auto-generated to create the initial impact assessment database. • Optioneering processes are automated, e.g. GIS programmes generate initial heatmaps of 'better' and 'worse' areas using constraints information and calculate route options, which can then be reviewed by competent experts. • Constraints/optioneering information automatically feeds into reporting templates. • Updates, e.g. to the site boundary, automatically update the constraints information and distance data in all relevant locations.

Table 3 (cont): Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
EIA screening	The EIA screening process is completed by manually comparing the project description and location against the thresholds set out in the EIA regulations. It can be time-consuming and requires professional judgement to interpret the EIA regulations.	A semi-automated EIA screening tool can guide the user through the EIA screening process to inform the potential need for EIA screening and direct the user to advisers as necessary. An example of this is the application developed by Quod (www.eiascreening.co.uk). The tool automatically utilises a centralised environmental dataset and the user responses to a series of tailored questions to calculate if EIA screening is likely to be required and to inform decision-making. An impact assessment database approach can be developed from constraints identification to identify receptors, mitigation and likely significant effects.	Within the single application suite: • EIA screening is semi-automated using the results of constraints analyses, and the relevant thresholds and boundaries from the pertinent legislative regime. • The initial impact assessment database generated at the constraints stage forms the basis of the EIA screening process. • The information automatically feeds into suitable templates.
Design development	The design is often developed in one software suite (e.g. CAD) while constraints information is developed in another system (e.g. GIS). Design reviews from an environmental perspective are often undertaken in an ad-hoc manner through phone calls or markups of PDFs. There is a risk of design changes being missed.	Key spatial constraints can be manually transferred into the software used for design development. A library of common information can be prepared that sets out the potential consequences of design decisions.	Within the single application suite: • Design information and environmental datasets are all available in a single spatial visualisation environment. Design updates can be tested in real time to get feedback on the potential environmental impacts of the design change, e.g. if excavation works were to be expanded further, archaeological investigation would be required. • A history of the design changes is available. It is simple to compare versions of the design, and the identification of design changes is automated. Notification of design changes could trigger automated notifications to the relevant people. • The application includes a user interface to capture the logic behind design changes. See **Information retention** for how the logic of these design changes can be stored.

Table 3 (cont): Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
EIA scoping and environmental assessment report (including preliminary environmental information reports and environmental appraisals)	The environmental assessment process needs to be iterative, where the ongoing assessments inform the design development to avoid, reduce or mitigate environmental effects (see **Design development**). Design changes required to mitigate environmental effects are identified in a number of ways, potentially through discussion or as the topic authors complete the environmental assessment process. The topic authors will assess the final design, including any mitigation identified. The EIA scoping and environmental assessment reports are prepared by a team of topic specialists managed by coordinators, and written using word processing software. The coordinators provide templates which define how the topic assessments should be structured. The means of assessing effects varies across topics and may include the use of specialised software (e.g. noise modelling), quantitative analysis (e.g. in spreadsheets) or qualitative assessment undertaken within the word processing system. The topic authors will complete their assessments, including baseline understanding, assessment of effects and definition of mitigation, and then submit the documents for review. During this process, the coordinators and topic authors may engage in collaborative sessions to agree on parts of the assessment, e.g. mitigation. The final documents will be submitted to the regulator in a PDF format. The assessment information and mitigation will be provided throughout the document, perhaps with a single summary table at the end for significant effects. Figures showing baseline information are provided in PDFs contained in an appendix/separate volume of the document. Often maps of receptor locations are not available.	See **Design development** and **Information retention** for ideas on how to retain and complete the iterative part of the assessment. The use of an impact assessment database (see **impact assessment data**) system and automated import of information into word processing software could be trialled using a spreadsheet and common word processing software. Automated generation of plans for the reports by the specification of standard templates.	Within the single application suite: • A content management system and databases of information (the impact assessment database, geospatial database, design database and decision database) are linked to enable assessment and explanatory text to be completed together. • Templates for the final deliverables (in the required formats, e.g. PDF, website etc) are available, which correspond to the sections to be completed in the content management system. • Outputs from any specialist software can be imported into the single application suite, and any repetitive processes are automated. • The authors are guided through the impact assessment process to complete the findings in a database format, which ensures that all reasoning is retained in a logical manner. • Supporting information is provided within the content management system. • Both internal and external reviews are undertaken within the application suite, and a system for responding to and closing comments is provided. • Spatial information is displayed for the users of the application suite alongside assessment/written information.

Table 3 (cont): Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Cumulative assessment	There are two parts to cumulative effects assessment: • Inter-project cumulative effects (effects of the project being applied for plus the effects of any other projects coming forward). • Intra-project cumulative effects (effects of different topics within a single project on a shared receptor). The process differs for these two types of cumulative effects assessment. For inter-project cumulative effects, the limiting factor on the depth of assessment possible is often the information available from different projects and the format in which it is provided. Often a manual search of the planning portal or other database of applications is undertaken, and projects that exceed a certain size threshold or are located sufficiently close to the application project are assessed by the topic specialist for cumulative effects. For projects where the information is available, and there is considered to be potential for a significant effect, further detailed assessment may be undertaken, e.g. through reviewing the other projects' environmental assessment or modelling. It can be complex to extract the relevant information from other projects' (see **other project information**) environmental assessment. For intra-project cumulative effects assessment, the process is variable, either undertaken by topic authors using their professional judgement, or by coordinators at the back end of the process. There are often issues with understanding exactly which receptors the impact assessment applies to.	Using an impact assessment database, even if it is in a spreadsheet form, and manually assigning relationships and spatial information can improve intra-project effects assessment by more robustly identifying receptors experiencing multiple impacts. A library of key receptor relationships could be prepared that provides a consistent approach to how receptors interact, e.g. to clarify how impacts on human receptors can be understood (e.g. impacts to residential dwellings and business premises that residents may use).	The single application suite includes cumulative assessment options. Reaching the ideal digital scenario for inter-project cumulative effects assessment is complex and relies on changes to external systems, e.g. to improve the process for finding projects that may result in inter-project cumulative effects in the first place, and then in requiring that environmental information is submitted in a standard manner (such as in an impact assessment database) to enable easier understanding of impacts to receptors for other projects (see **other project information**). Intra-project cumulative effects assessment is automated using the impact assessment database. The spatial and relationship information for receptors allows multiple impacts on receptors to be easily identified. The application flags receptors experiencing multiple impacts while the topic assessments are being completed.

Table 3 (cont): Digital outcomes for the process component of the environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Post-consent	Following consent, the information relied on in the consenting process, and the consent conditions themselves, will often be handed on to another organisation, e.g. a contractor or operator. This includes design information, survey information and mitigation requirements. The means of providing this data varies, but is often through the provision of PDF documents and schedules in spreadsheets, perhaps with some provision of GIS or CAD data packages. The contractor/Ecological Clerk of Works (ECoW)/ Environmental Clerk of Works (EnvCoW) then needs to go through the environmental assessment report and ensure all mitigation measures are being followed while incorporating any planning conditions. If this is not reported clearly, the information can be lost in the reporting and lead to a risk to the receiving environment.	The impact assessment database could be submitted as part of the consenting process, and therefore the contractor will have all the geo-referenced information in one place (see **Information retention**). Creation of a post-consent dashboard or other type of application with interactive mapping elements to identify what mitigation measures or conditions are required spatially. This should be linked to the construction programme. The dashboard can be live updated with the construction information and can track the progress of the construction. The tool can be used to monitor the completion of the project.	Within the single application suite: • Information can easily be transferred to a different organisation. • Any internal correspondence and previous versions that are not relevant to the next organisation are automatically removed. • The reasoning for decision-making is retained in a logical way that is easy to find, e.g. to explain why certain design decisions were made (see **Information retention**). • Information can easily be displayed on a tablet or similar that can be used on site. • Database grows with live site data as construction progresses.

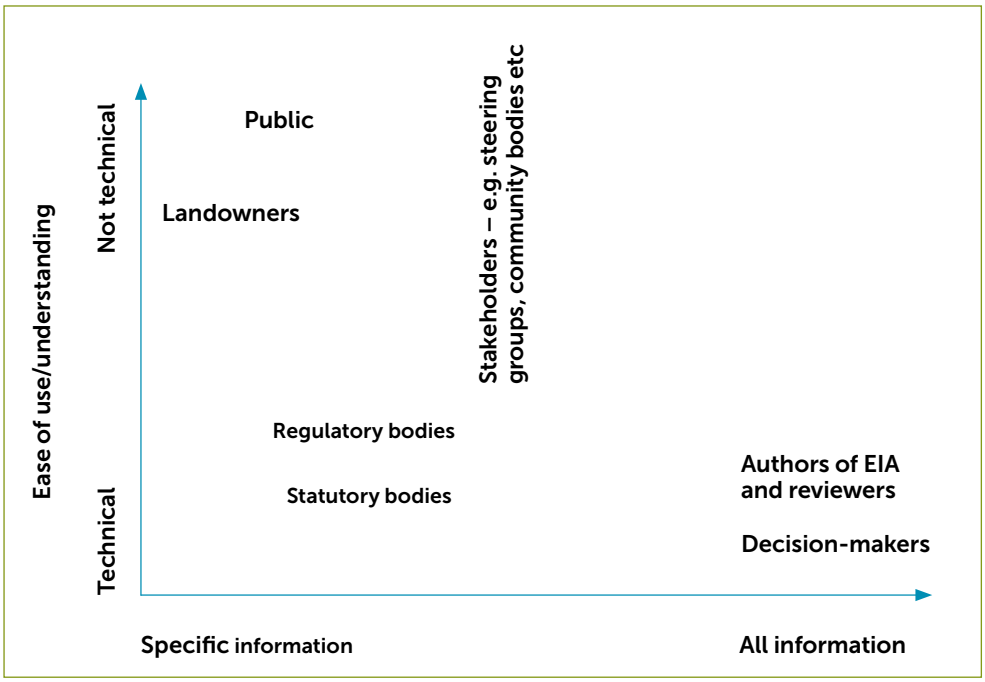
5. Reporting

Digital reporting is often the key output people think of when considering digital environmental assessment. The use of a digital interface for reporting the findings of the environmental assessment is the way the majority of people will interact with a digital environmental assessment. Digital reporting can help present the outcomes of the environmental assessments in a more user-friendly and easy-to-understand format. Therefore, the digital report must be:

- Accessible
- Easy to use and navigate
- Proportionate – provide the right level of information for a variety of readers.

The key requirement is to allow users to easily understand the development and its impacts specific to the needs and interests of the reader, and to intuitively direct the users to more detailed information. For example, if a local resident mainly wants to understand the impacts near to their house, the digital environmental assessment would facilitate easy understanding of this by providing a quick summary of potential impacts to that receptor. The main difference between the different audiences is the level of technical understanding/requirement for ease of use, and the level of specificity of information they are interested in.

Figure 5: A diagram illustrating the likely requirements of different groups when using an environmental assessment



One of the key challenges of digital reporting is to achieve flexibility of information provision for the different readers and their different levels of interest and understanding. Table 4 below sets out the proposed outcomes for authors to achieve a digital environmental assessment with regard to reporting, alongside a non-digital scenario for contrast, and with suggestions for interim measures which could be implemented before being able to achieve the ideal digital scenario.

Table 4: Digital outcomes for the reporting component of environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Reporting media	Reporting submitted through the environmental assessment process is often lengthy, completed in Microsoft Word and made available in PDF format. PDF files frequently have to be split into smaller file sizes for submission, often resulting in multiple files for one chapter, or large file sizes.	Elements of the reporting are presented in an interactive manner (e.g. non-technical summary (NTS)). However, the main reporting of the environmental assessment findings is still largely delivered in PDFs. Examples of digital NTS at time of writing include: • Net Zero Teesside Digital Non-Technical Summary (Aecom) • Oswestry Innovation Park Environmental Statement Summary (WSP) • River Thames Scheme Preliminary Environmental Information Report Summary	All reports are interactive and intuitive to use. All the reporting is accessible in one location with the user easily able to access more detailed information from the relevant sections. The report works on poor internet connections. All information can be cached/downloaded and the interactive report can be archived for as long as required. Media, including interactive mapping, soundbites, videos and 3D visualisations, is used in the report to relay the project information to all readers. The information is presented in several different formats to reach the relevant audience, potentially including virtual reality, games or live dashboards.
Navigation of information	The reporting is often difficult and time-consuming to navigate, even for environmental assessment professionals. The tables, figures and appendices are not displayed alongside related text. This can be complex on smaller screen sizes. Figures are static and it can be complex to understand what the receptors are, and how they are affected by the project.	A digital report can allow viewing of text and figures alongside each other, and the figures can be interrogated for further information. The digital report can be searched. An impact assessment database approach can be followed which allows greater searchability of the **impact assessment data**. Examples of digital reports at time of writing include: • M60/M62/M66 Simister Island Interchange PEIR (Highways England, Jacobs) • Berwick Bank Wind Farm Digital Offshore EIA Report (SSE Renewables, RPS) • Cambridge Waste Water Treatment Plant Relocation Project (Anglian Water, Mott MacDonald)	The report enables an easy understanding of the development and the significant effects of the development. Readers can delve deeper for further understanding of the project. Interactive mapping, tables and appendix information are viewable alongside the main text. The figures are interactive and linked to the adjacent text, and further relevant information can be found by selecting locations on the figures. The report is searchable.

Table 4 (cont): Digital outcomes for the reporting component of environmental assessment

Theme	Non-digital scenario	Interim scenario	Ideal digital scenario
Understanding the significant effects	The significant effects of projects are presented at a very high level in the text of the non-technical summary (NTS) (e.g. there are significant effects on a topic during construction), and in more detail in summary tables within the topic chapter. The summary tables rarely relate to spatial information on the location of receptors or mitigation.	Receptor locations could be provided where possible on PDF mapping included within the report, or within interactive mapping if made publicly available. Interactive NTS can provide a summary of significant effects and outline the project information by video – e.g., the Cross Tay Link Road NTS (Sweco), or by showing the significant effects on mapping – e.g. the River Thames Scheme PEIR summary.	Maps and tables of the significant effects of the project are presented interactively and intuitively (e.g. a video or mapping) that allow the users of the digital environmental assessment to easily understand the significant effects of the project. The data should be linked to the relevant background data, e.g. that which makes up the baseline data (e.g. survey information), relevant methodology and any further explanation of how the significance has been calculated. The digital report should provide high-level topic reporting with further technical detail readily available for those who want more detail.
Accessibility	Reports tend not to be very accessible or user-friendly. Not all reports follow the accessibility regulations requirements, and the findings are often lost within large volumes of text.	The accessibility regulations should be followed where possible in both the PDFs and any digital report. Greater consideration can be made of the user requirements of any print or digital documents. User instructions for any digital reporting should be provided.	The interactive report is accessible (in terms of accessibility requirements set out in the Web Content Accessibility Guidelines). The information and language used are considered to be easier to understand and can relay the outcomes of the assessment clearly and transparently. The use of the digital report should be intuitive, with instructions provided for less digitally literate users.

6. Next steps

This roadmap intends to encourage and assist environmental assessment authors in the adoption of digital processes by specifying the ideal outcomes a digital environmental assessment will achieve. The key next step is for more authors to adopt the digital techniques, tools and processes as discussed in the roadmap.

IEMA will continue to share good practice and examples of these digital techniques and tools and how they can be used on a variety of projects. As the practice develops, more prescriptive guidance could be provided identifying best practice approaches and tools.

There are potentially upcoming changes to the environmental assessment process through new legislation such as environmental outcome reports (EOR) under the Levelling Up and Regeneration Act. While the exact timeframe, content and jurisdictional applicability is uncertain, what is clear is that assessments under any future EOR regime will benefit from digital adoption just as much as the existing EIA and SEA regulations will.

Any digital environmental assessment tools developed need to be as adaptive as possible to ensure they can respond to any future changes to the environmental assessment process and the ever-changing developments in technology.

Appendix 1 – Key terminology

Term	Description
Baseline data	Baseline data can include desktop data and survey data. Desktop data will include open data and other reference data which is used to understand the baseline environment of a project. Some data types may need to be purchased and/or licensed. Reference data is collected from third parties to inform the design and assessment of a project. This can include: • National mapping data such as Ordnance Survey MasterMap • Publicly available open data from either government or non-government organisations and bodies • Third-party data from suppliers • Survey data from record centres (ecology surveys, air quality surveys, noise surveys) • Landowner information • Consultation feedback. Survey data includes on-site data collected specifically for a project. This can include ecological surveys, noise surveys and archaeological surveys, among many others. Data collected from remote sensing or unmanned autonomous vehicles can also be used to inform the baseline of the site. The baseline data acts as the foundation for the digital environmental assessment.
Common data environment	A central storage system that contains all information related to an environmental assessment.
Data manager	A person who has the appropriate competencies to be responsible for all the data-related processes associated with an environmental assessment.
Data schema	In the context of digital environmental assessment, the data schema refers to the structure of the database used to store specific information. For example, for an impact assessment database, the schema would set out what fields (or columns) would be required – including receptor names, impact types, significance of effect, etc.

Appendix 1 – Key terminology

Term	Description
Impact assessment data	The impact assessment data draws on the baseline data and uses it for the impact assessment stage. The impact assessment data categorises the baseline data to identify the receptors and the location of receptors. This then enables the assessor to determine the impacts they are likely to experience, the sensitivity of the receptor, magnitude of the effect, pre-mitigation significance of effect, mitigation and post-mitigation significance of effects. Other information may also be considered as impact assessment data, for example, consultee comments on a specific receptor or group of receptors. This information is produced by the environmental teams as part of the environmental assessment process.
Impact assessment database	An impact assessment database stores all the assessment information for an environmental assessment in a structured fashion. The impact assessment database is useful at all stages of a project, and for maximum benefit should be implemented at the early stages of the project and used through to operation and maintenance of the project (see **Appendix 3**).
Metadata	A set of data that describes and gives information about other data.
Open data	Open data is data that can be freely used, re-used and redistributed by anyone. Subject only, at most, to the requirement to attribute and sharealike. In the UK, open data often refers to government data, e.g. that is available on data.gov.uk.
Other developments	There is a requirement in environmental assessment to consider cumulative effects with other developments. Information relating to other developments may include: • Location, size and description of other developments • Layout of the development • Environmental assessment of the other development (ideally including identified receptors and impacts on these).

Appendix 1 – Key terminology

Term	Description
Post-consent data	The post-consent data refers to all environmental assessment related information that is gathered after the project is granted consent. This could include information relating to detailed design development, planning condition discharge or auditing and monitoring of construction and operational practices. Examples that could be included are: • As-built information relating to the design – e.g. noise barriers • Pre-construction surveys • Amount of concrete imported, amount of waste removed • Number, location, area of vegetation cleared • Construction traffic routes.
Project design data and construction information	This data type includes all information relating to the design of the project, and how it will be constructed. This could include a vast range of information, for example: • Site boundary • Number of houses to be constructed • Length of road • Design specification of a bridge • Drainage arrangements • Number of piles required • Construction duration • Construction plant • Construction sequence • Height of noise barriers • Property ownership.
Receptor	The physical or biological resources or user groups that would be affected by the potential impacts of a project.
Spatial data	Spatial data, also known as geospatial data, is a term used to describe any data related to or containing information about a specific location on the Earth's surface. Non-spatial data, on the other hand, is data that is independent of geographic location.
User experience (UX)	The overall experience of a person using a product such as a website or computer application (e.g. a digital environmental assessment), especially in terms of how easy or pleasing it is to use.
User interface (UI)	How the user and a computer system interact, in particular input devices and software.

Appendix 2 – Data strategy considerations

For all digital environmental assessment projects, a robust and effective data strategy is required. The data strategy should cover all relevant disciplines, and consider the requirements of all project stakeholders, from the client to the relevant consenting body and the public.

The data strategy aims to not only proactively address the complex data needs through implementing data management standards, but also looks to ensure that data is fit for purpose, adheres to good data management practice and is likely to be accepted by each stakeholder while still adhering to legislative requirements.

A successful digital environmental assessment requires a carefully thought out and thorough data strategy. An appropriately qualified team must be brought together to achieve this. The team should include data management/GIS leads as well as environmental assessment practitioners.

A comprehensive data strategy should consider:

- Deciding data and metadata standards, such as the INSPIRE data Directive, or alternative standard data management practices. This should be led by the data manager for the project once an understanding of the required project outputs is established.
- Setting appropriate formats of data, ensuring interoperability across disciplines where appropriate and ensuring they are compatible with the digital environmental assessment deliverables.
- Setting how and where data should be stored, ensuring a central definitive source of the latest and correct information.
- Setting methodologies and deciding platforms for sharing of data both within the project team, to the client, to key stakeholders, to the public and ultimately with decision-making authorities. This will inform output requirements for each aspect and will require liaison with those involved to ensure accessibility for all.
- Centralising data management and data security alongside the ownership and assurance of data.
- Data lifecycle control (through environmental assessment process).
- Establishing the end goals for the data ensuring it is appropriate and fit for that end purpose.
- Setting standards for project deliverables including templates.
- Adhering to constantly changing legislative requirements.
- Ensuring that the data can be analysed and reviewed by the decision-making authority and consultees.

Appendix 3 – Impact assessment database

What is an impact assessment database?

An impact assessment database stores all the assessment information for an environmental assessment in a structured fashion. The impact assessment database is useful at all stages of a project, and for maximum benefit should be implemented at the early stages of the project and used through to operation and maintenance of the project. The key information the database should store includes:

- Receptor-related information (naming, spatial location, receptor type, sensitivity)
- Mitigation-related information (primary, tertiary, secondary, spatial location, securing mechanism)
- Impact-related information (description, magnitude, duration, type of impact, significance)

The database can be adapted at different project stages to be proportionate to the level of information required. For example, at an early constraints stage the level of detail for the receptor would likely just be 'residential receptors', rather than an address which might be more appropriate at the statutory environmental assessment stage. In the early stages, you likely wouldn't provide detailed mitigation information or the impact significance. Conversely, as the project moves into implementation it might be useful to collect more information on whether mitigation is proving successful or has had to be adapted.

The table below gives an idea of what the impact assessment database template could look like.

Example impact assessment database (headings have been split over two sections)

Topic	Impact	Receptor	Spatial data for receptor	Receptor sensitivity	Phase (construction/ operational)	Duration (ST, MT, LT)	Permanent/ temporary
Biodiversity	Impact of land take	Ancient woodland	LINK	High	Construction	Long term	Permanent
Air quality	Impact of construction dust	Existing residents within 100m of the site boundary	LINK	High	Construction	Short term	Temporary

Adverse/ beneficial	Magnitude of impact (pre-mitigation)	Effect (pre-mitigation)	Significant/ not significant	Additional mitigation	Magnitude of impact (post-mitigation)	Effect (post-mitigation))	Significant/ not significant (post-mitigation)
Adverse	Moderate	Major	Significant	None possible.	Moderate	Major	Significant
Adverse	Moderate	Major	Significant	Adoption of Code of Construction Practice	Low	Slight	Not significant

Appendix 3 – Impact assessment database

How can an impact assessment database be completed?

Fundamentally, the only requirement is that the data in the impact assessment database is collected and stored in a structured format. This could be done through spreadsheet software (like Microsoft Excel or Google Sheets) or through a more bespoke tool to interface with a database.

There are pros and cons to both approaches.

	Pros	Cons
Spreadsheet software	Familiar to a wide range of people Adaptable by coordinators to suit topic/stage No additional software fees	Difficult to ensure that editing rights are limited Risk of losing information More complex to link through to other software, e.g. Power BI, GIS mapping
Bespoke database	The user interface can be designed to help people complete their assessment Limited risk of data loss, or incorrect data being entered Can easily link to other software	May be additional fees More complex to adapt for different projects, particularly once in use

Appendix 3 – Impact assessment database

What are the key considerations when moving to an impact assessment database approach?

To gain the most advantage from using a database approach, before project start the following need to be considered:

- What data outputs do you want? For example, do you want the data to auto-populate word processing documents, produce a dashboard or be visible on an interactive map?
- What methodology do you need to follow? Ensure that your data fields align with the methodology you are adopting.
- What fields do you want to restrict? For example, to ensure consistency for certain fields, such as the magnitude of impact, you could restrict the options so only major, moderate and low could be selected.

The answers to these questions will inform the design of your initial database.

A key challenge that may arise is that initial completion of the database is more time-consuming than more traditional approaches. Using an impact assessment database will force a thorough approach to recording the impact assessment process, which if completed in traditional word processing software may be grouped or glossed over. Although this concern is likely to be valid, there should be time savings during the quality assurance and consistency checking process. Ultimately, as set out above under the 'Ideal digital scenario', the impact assessment database will be an essential component in achieving the benefits of a fully digital approach to impact assessment.

Further information

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