Article:

Digital EIA: Delivering more effective, efficient, engaging assessments

Introduction

One of the main challenges when discussing digital environmental assessment is how to define it. Environmental assessment practitioners are looking to work within a digital environment, but there are challenges, particularly regarding submission of project documents to support the consenting process both here in the United Kingdom (UK) and across other jurisdictions. In practice, when EIA practitioners talk about digital environmental assessment, they are referring to digital innovation and application throughout the end-to-end process, whether that be for data collection, management and processing or communication and reporting, highlighting the broad range of potential innovative digital opportunities within the environmental assessment process.

Taking a step back, environmental impact assessment (EIA) itself can be defined as a process used: "*…to protect the environment by ensuring that a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision making process"* (UK Government, 2020). This reinforces the need for impact assessments to be communicated effectively so that not only decision-makers, but other stakeholders involved in the consenting process such as statutory consultees and the public, are made fully aware of the likely significant environmental effects. However, this need has introduced additional challenges to EIAs, including that of proportionality.

In their paper "Delivering Proportionate EIA", the Institute of Environmental Management and Assessment (IEMA) 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 (IEMA, 2017). A consequence of this challenge is that EIAs have become disproportionate in terms of their length, scope and treatment of risk (IEMA, 2017, p23). Furthermore, with EIAs being produced as printed copies, or as Adobe Portable Document Format (PDF) deliverables, they are, in some cases, tens of thousands of pages long which makes engaging with the documents and the findings of the environmental assessments challenging, particularly for non-specialists, such as members of the public, and especially within fixed consultation periods.

IEMA's 2017 findings are reiterated three years later in their 2020 paper "A Primer for Embracing Innovation and Digital Working", where it is reported that *"…Communicating the findings of the IA in a proportionate and clear way that supports modern methods of interaction is a challenge. Environmental Statements (ES), EIA Reports and other Environmental Reports are often of considerable length and this can inhibit the ability of those involved to interact and interpret the information contained therein"* (IEMA, 2020, p2).

It was this need to deliver more effective, efficient and engaging assessments, in the face of ever-expanding EIAs, that has prompted the industry further explore and develop digital environmental assessment capabilities. This paper presents a case study of Jacobs' Digital Environmental Assessment tool and its application on the M60/M62/M66 Simister Island project in the UK.

Communication, stakeholder engagement and reporting

An important part of the EIA process is public engagement and participation, and requirements for these activities were strengthened following translation of the Aarhus Convention principles into European Union and domestic legislation (Hartley and Wood, 2005). Several years later, when challenging how environmental assessment can be modernised to be more effective, efficient and engaging, "Embracing Innovation and Digital" was identified as one of the four main themes in IEMA's "Delivering Proportionate EIA" paper (IEMA, 2017). As a result, rethinking our approach to undertaking and reporting environmental assessments, we have developed an innovative and unique Digital Environmental Assessment tool, supported by an interactive web-hosted Smart Report.

The disruption caused by the coronavirus (COVID-19) pandemic also accelerated the progression of digital reporting. Many of the traditional places where paper copies of reports were made available for inspection, such as libraries and town or village halls, were closed, temporary restrictions on movement were in place, and temporary legislative measures were introduced. If the applicant of an EIA development was not able to provide hard copies of environment statements, at published addresses because of COVID-19 constraints, relevant documents had to be made available on sponsored websites.

The M60/M62/M66 Simister Island project forms part of an important pilot project for the UK's Planning Inspectorate, informing the UK Government's broader strategic initiative, Project Speed, to develop digital processes and use data as a resource to accelerate and transform the delivery of infrastructure projects following the COVID-19 pandemic.

Prior to the submission of the M60/M62/M66 Simister Island Environmental Scoping Report, digital submissions in the UK's EIA sector have generally been limited to a website, providing signposting and hyperlinks to the more traditional PDF chapters and appendices.

Jacobs' Digital Environmental Assessment tool significantly advances this idea by providing a map-based overview of the environmental constraints, which is interactive and enables readers to click on receptors to explore the information about them in greater detail. Each chapter of the EIA is presented alongside interactive maps and tables, enabling the public and stakeholders to easily access and examine the assessment. This improves the ease of reviewing and understanding of the assessment outcomes.

The first stage of developing this tool was to map out our stakeholders and identify our main objectives, which included:

- Who the users of the tool and outputs will be
- How to present our reports in a proportionate, intuitive, interactive format that can be accessed on different devices to increase potential stakeholder and public engagement
- How to reduce or automate some of the more manual, repetitive tasks, thereby enabling our specialists to focus on where they can best add value to projects
- How to integrate outputs from existing or upcoming tools, such as those used during field survey data collection
- How to maintain currency of data during project life cycles
- How to comply with assessment guidance and regulatory reporting requirements, including accessibility

We also mapped out potential challenges and risks so that these could be considered during the development of potential solutions. To help identify these challenges and risks, we held calls with clients and the Planning Inspectorate, the agency responsible for making decisions and providing recommendations and advice on a range of land use planning-related issues across England. One such challenge facing innovation on UK EIA projects was the required legislative report formats. Historically, there has been the requirement to submit printed volumes of an EIA report, and digital

submissions have almost universally been in PDF. This requirement limited the potential to develop interactive reports and the opportunity to include other types of visual media.

Technical assessment

At the core of our digital process remains our diverse team of technical specialists who contribute to the EIA. The automated upfront process and collaborative common working environment of Jacobs' DEA tool allows the assessment team to work together on deliverables, facilitating real-time collaboration. To enable the production of the interactive Smart Report, we first had to challenge how we undertake our assessments. Working with each of the environmental disciplines to map out their workflows and assessment processes, our in-house team then built a bespoke editor in which each specialist can complete assessments on a receptor or valued component basis (for example, historic building, watercourse or protected woodland) within a common working environment that can be reviewed by other team members.

The digital environmental assessment process aids consistent and collaborative assessment, accessed through our online tools. It provides a common working environment where all assessments are undertaken in a web-based application on a receptor-by-receptor basis, providing a single source for all baseline data and assessments.

By using a map as the starting point for our common working environment, teams can more easily incorporate the outputs of other data collection exercises, such as field surveys, models or other analyses, as the digital tool georeferences the data and enables it to be spatially displayed in a common working environment.

Following the completion of the assessments in the common working environment, the outputs are compiled into a Smart Report. The Smart Report is an online report linked to interactive maps, including design drawings, figures, tables and images. Access can be provided to stakeholder groups, and the whole document can still be provided in hard copy format for those with no access to a computer. The length of written text can be reduced within the main chapter, with the information auto-generated into tables from the interactive map interface.

This information can then easily be shared as part of consultation and engagement. Digital environmental assessment provides a platform for increasing the visualisation of raw data and presenting traditionally complex assessments within a varied stakeholder environment. It provides the ability to have interactive text and figures sit side by side on screen, with viewers able to click features in the maps to explore in greater detail the potential impacts of a project. This could include local residents being able to search for their properties and see whether noise levels or views of the landscape may change, or stakeholders being able to learn how projects may impact on biodiversity, cultural heritage or the water environment within the area. The result is that readers no longer have to sit and compare separate volumes of chapters, technical appendices and figures, to understand the environmental impacts of a project.

Section: Sustainability

Embedded in the philosophy of Digital Environmental Assessment is the ability to increase the accessibility of technical documents for all stakeholders. Digital Environment Assessment now allows stakeholders to engage from their homes, enabling them to explore the receptors or valued components that matter most to them, enlarge or zoom in on text, mapping or graphic outputs, and engage effectively in the EIA process. Providing a varied stakeholder environment creates opportunities to engage with a wider audience, consult more effectively and better visualise effects over traditional methods. Furthermore, the tool avoids the carbon footprint of both printing large documents and travelling to and from council buildings to view paper copies. The tool can be optimised for tablets and smart phones, further increasing the reach of planning documents.

Development of our Digital Environmental Assessment tool also aligns with our commitments to the Principles of the United Nations (UN) Global Compact, of which Jacobs is a member. Principle 9: Environment, is particularly relevant, as it identifies that "*Businesses should encourage the development and diffusion of environmentally friendly technologies"* (UN, 2022).

Going forward, Digital Environmental Assessment is expected to create a real-time workspace for environmental managers following consent of a project. All assessment information can be accessed by contractors on site, georeferencing specific mitigation, management plans and constraints.

Useful references:

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