



Is the Future of SEA Digital?

10 09 2020

Dr. Paola Gazzola (Newcastle University)

Paul Eijssen (Royal HaskoningDHV)

Dr. Rufus Howard (IEMA)



Dr Paola Gazzola

Senior lecturer/DELT
Global Urban Research Unit
School of Architecture, Planning
& Landscape, Newcastle
University

iema.net



Paul Eijssen

Strategic Consultant
Impact Assessment,
Leading Professional
Information Management
Royal HaskoningDHV



Dr Rufus Howard

Impact Assessment
Policy Lead – Institute
of Environmental
Management and
Assessment (IEMA)

Overview

- Digital SEA in Theory – Dr. Paola Gazzola
- Digital SEA in Practice – Paul Eijssen
- Digital SEA in the Future – Dr Rufus Howard
- Breakout Discussion Groups
- Plenary Discussion and Q&A Panel





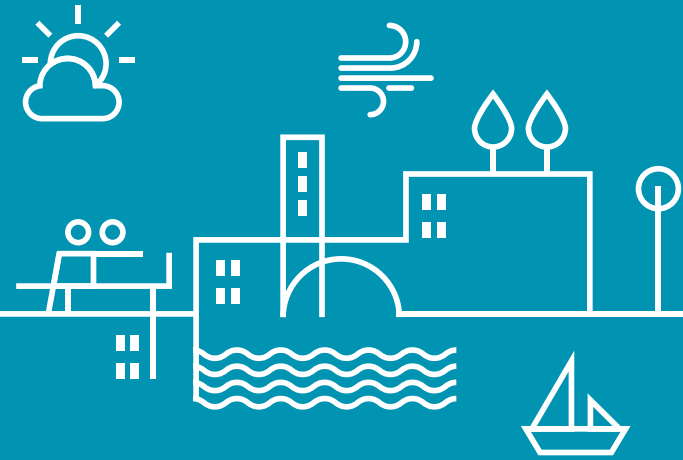
Digital SEA in Theory

Dr. Paola Gazzola



Digital SEA in Practice

Paul Eijssen



Digital SEA in the Future

Dr Rufus Howard

Why?

Why?

Why?

Why?

Why?



Root Issues



Is the Future of SEA Digital?

Why should we care?

Because SEA is important.

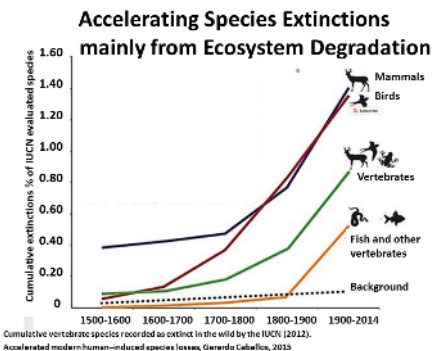
Why is SEA Important?



Societal



Climate



Ecological

Why is SEA important?



Policies

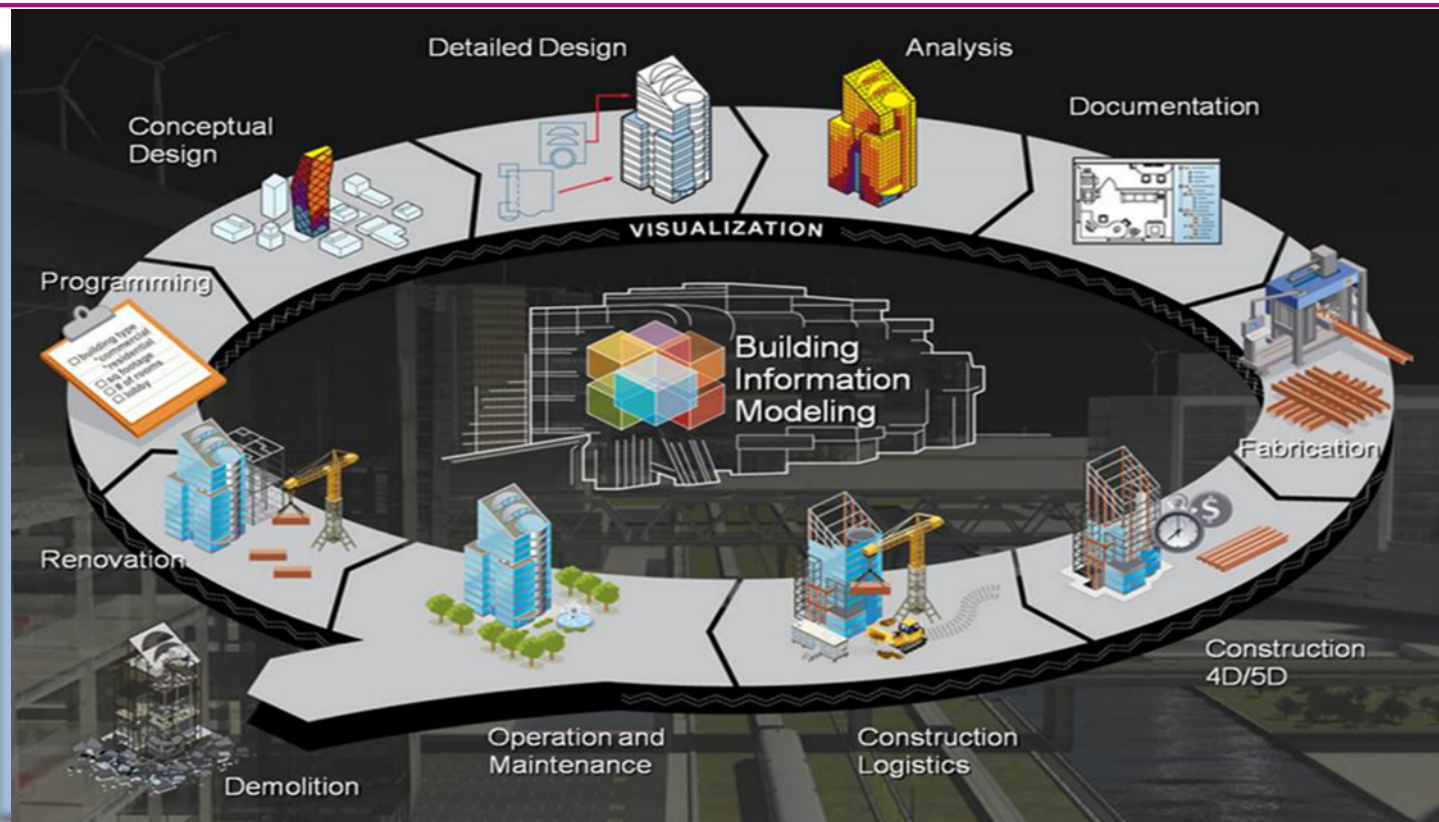
Plans

Programmes

Why should SEA be Digital?



Why Digital SEA?



Why Digital SEA?

EVOLUTION OF HUMAN-COMPUTER INTERACTION

Type



Black and white



Click



Color



Touch



Videos/3D images



iPhone 6 Live Photo

3D interaction



Mixed Reality



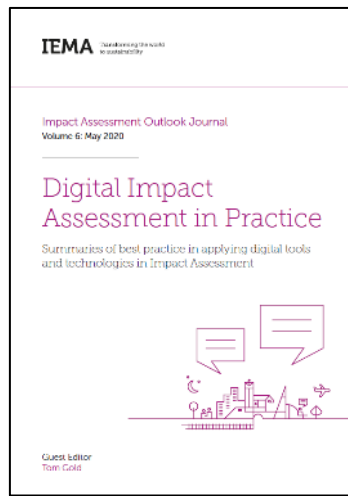
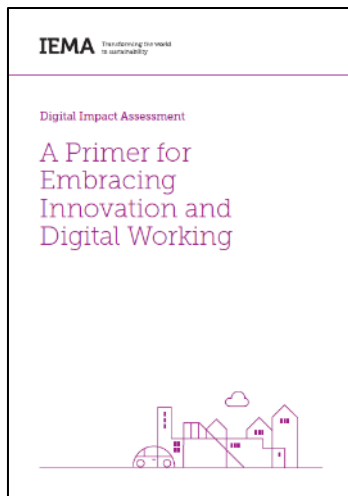
Interactive, sensible,
multi-dimensional
and dynamic

Why Digital SEA?

Manage Change...

Change Management...

Digital Impact Assessment



Digital Impact Assessment

An IEMA microsite to highlight best practice and innovation

This microsite presents IEMA's recent publications relating to Digital Impact Assessment, with additional content beyond that found in the PDIs. For an overview of this microsite see the brief video below

FIGURE 2 - POTENTIAL APPLICATION OF TECHNOLOGY ACROSS THE KEY STAGES OF IA

Technology	Screening	Scoping	Business Data Collection	Impact Prediction / Assessment	Mitigation	Reporting	Consultation	Monitoring	Inspections	Auditing and Enforcement
Mobile GIS / Data Capture	✓	✓	✓					✓	✓	
Data Management	✓	✓	✓	✓		✓		✓	✓	✓
Data Visualisation	✓	✓	✓	✓	✓	✓	✓	✓		
Digital Reporting		✓		✓	✓	✓	✓	✓	✓	✓
Industry Standards	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

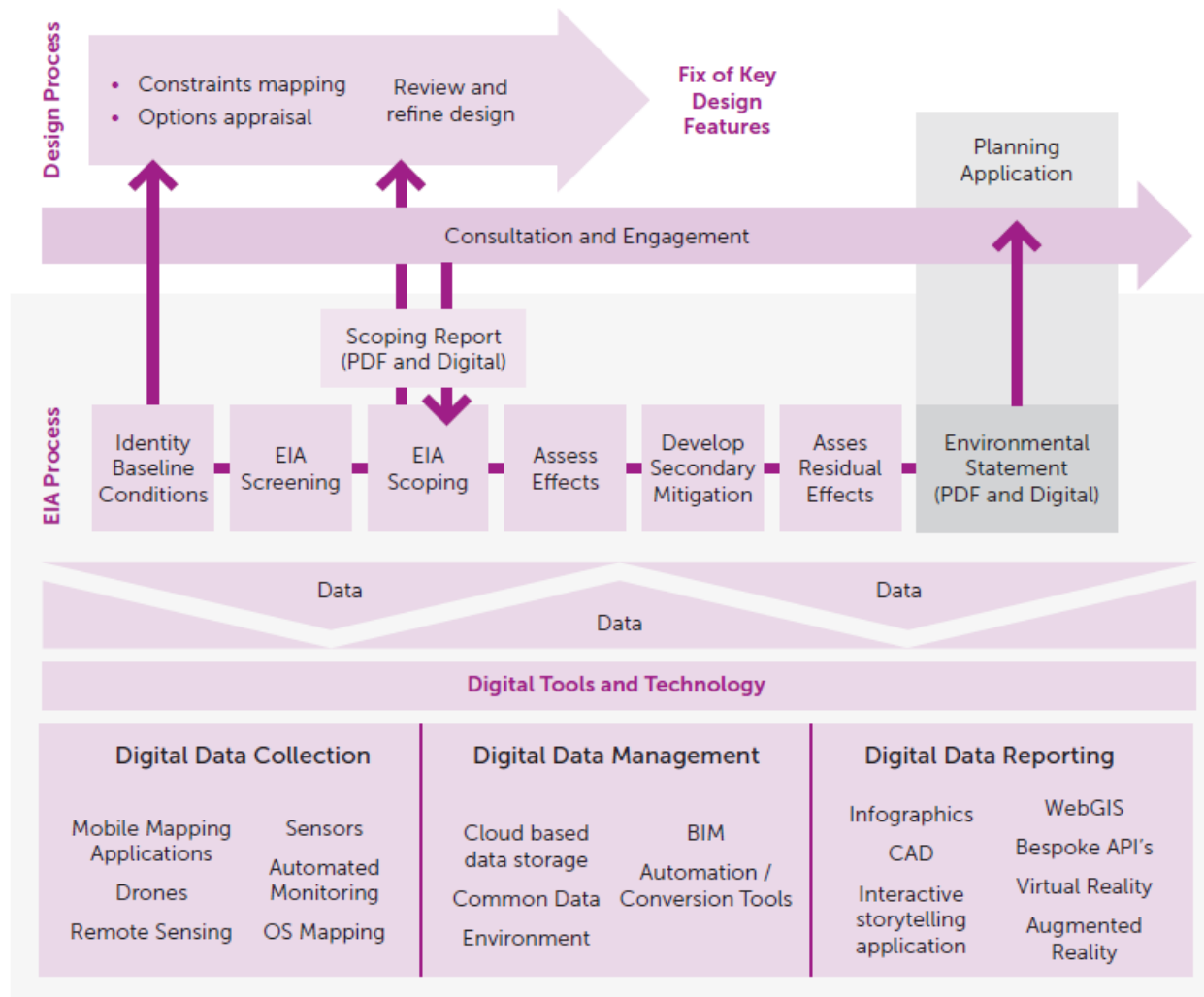


TABLE 1 - DIGITAL TOOLS AND TECHNOLOGY OF USE IN IA

	TOOL	DESCRIPTION
Data Collection/Mobile GIS	Mobile mapping applications	Mobile mapping applications allow for the digital collection of qualitative and quantitative information using mobile devices such as mobile phones and tablets. Applications can be customised to capture different types of data and in different formats, and allow for both offline and online working, making them easy to use and adopt for IA surveying and monitoring.
	Unmanned Aerial Vehicles/ Drones	Drones are more formally known as Unmanned Aerial Vehicles (UAVs). A drone is an aircraft that can be remotely controlled or can fly autonomously through software-controlled flight plans in their embedded systems, working in conjunction with onboard sensors and GPS.
	Remote-sensing	Remote-sensing is the capture of data from platforms mounted on satellites or aeroplanes. The sensors capture data in the form of images using the whole electromagnetic spectrum. Remote-sensing is broken down into active and passive sensing (active sensors have their own light source and passive sensors measure reflected sunlight). Examples of remote-sensing data are light detection and ranging (LiDAR) sensors and Landsat imagery.
	Sensors/ automated monitoring	Sensors and automated monitoring systems allow for real-time and long-term data acquisition. They simply automate the process of data collection and, in some cases, the processing of this data for users. Sensors can measure a wide range of environmental parameters that relate to the IA process such as noise levels, air quality or vibration levels from construction sites.

	TOOL
Data Management, Processes and Monitoring	Automation tools
	Conversion tools
	Building Information Modelling
	Common Data Environment
	Data Register
	Databases

	TOOL
Data Visualisation and Reporting	Desktop GIS
	Computer-aided design
	WebGIS
	Interactive Storytelling Application
	Bespoke web systems

	TOOL
Data Visualisation and Reporting	Dashboards
	3D fly-throughs
	Virtual reality
	Augmented reality
	Infographics

FIGURE 3 - BEHAVIOURS FOR DIGITAL WORKING

- **Communication** – embrace digital without allowing it to cloud the fundamentals of good IA.
- **Understanding** – within individual disciplines and a wider view on other areas.
- **Flexibility** – have a digitised approach which allows the workforce to work in innovative and different ways.
- **Transparency** – share digital methodologies, applications under current development, industry improvements within and outside the company where possible.
- **Interactive** – make IA information available through interactive means.

- **Collaboration** – well-designed digital platforms can nurture more collaboration.
- **Preparedness** – to embrace new ways of working.
- **Efficiency** – seek opportunities for digitalisation and automation to reduce the time and cost of regular tasks.
- **Open-minded** – willing to consider new information or ways of working.
- **Inclusion** – practices which are clear and accessible to everyone.
- **Clarity** – know the data being collected and why.

7 Principles

1. Technology offers opportunities throughout the IA process.

From surveys, input to design and optioneering, consultation, data analysis, reporting and monitoring, the opportunities presented by digital tools and technology should be considered across all stages of the IA lifecycle.

2. Digital working can create a culture that promotes collaboration.

Digital expertise should be a core part of a project team from the outset to help design and facilitate digital working practices. Key benefits of a digital working culture include the pro-active identification of opportunities and constraints that come from working in a common data environment and from multi-disciplinary working in shared digital workspaces. Raising digital awareness and providing guidance and training in digital working to IA professionals will lead to more effective digital cultures.

3. Information management underpins effective Digital IA.

The volume and pace of data generated within the IA sector is growing significantly and requires a structured framework to draw out the greatest value. Data handled without effective structures, ownership and assurance can lead to project risk and inefficiency. Governance around data management, quality and standards is essential for Digital IA to provide outputs such as digital reporting efficiently and deliver the best outcomes.

4. Effective communication increasingly necessitates digital technology.

Digital technologies can make IA outputs more digestible and engaging in a manner that modern audiences are increasingly accustomed to. Furthermore, consultation, stakeholder engagement, access to environmental information and transparency in decision making can all be enhanced through better use of digital communications.

5. Provide accessibility for all needs. Data and digital tools need to be easily accessible, inclusive and understood by a wide variety of audiences while still maintaining security and confidentiality.

6. Regulation should be carefully considered when defining digital solutions, yet also provides an opportunity to facilitate innovation and digital working.

Regulatory requirements can present challenges to digital IA. However, industry regulators and stakeholders also play a key role in facilitating the adoption of Digital IA in order to unify current IA practices with digital processes.

7. Innovation and collaboration across the IA sector can improve outcomes for all.

Good practice across the IA industry and between IA sectors should be shared to inform wider practice. Best practice examples and lessons learned from prototypes should be shared widely to raise standards and promote innovation across the IA community. New data, trends and analysis techniques should be reviewed as Digital IA evolves to continually develop and improve IA practice.

Why Digital SEA?

- Triple Crisis > Major Driver of Impacts is Development and Policies
- SEA > Drives Improvements to Plans, Policies and Programmes
- Gov and Orgs > Adapting to VUCA and Technological Innovation
- SEA > Needs to Adapt to Digital Revolution
- Digital SEA > Opportunity and Need to Deliver Improvements

From Why to How:

- Eliminate – What would you *remove* from SEA?
- Reduce – What would you *reduce* in SEA?
- Increase – What would you *increase* or *improve* in SEA?
- Create – What *new* SEA aspects would you *create*?

- **How** – How can digital/IT/tech aid or hinder SEA improvements?

Breakouts

Is the Future of SEA Digital?

Eliminate – What would you *remove* from SEA?

Reduce – What would you *reduce* in SEA?

Increase – What would you *increase* or *improve* in SEA?

Create – What *new* SEA aspects would you *create*?



Q&A and Plenary



Dr Paola Gazzola



Paul Eijssen



Dr Rufus Howard



Thank You!
on behalf of all our speakers