

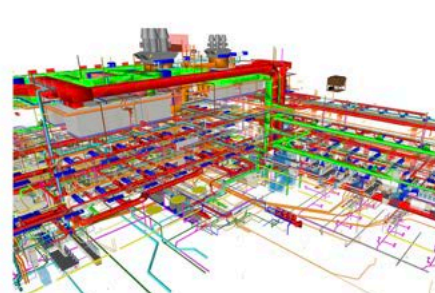
## Edinburgh Group Workshop 7 November 2019

### Round Table Discussion Topics:

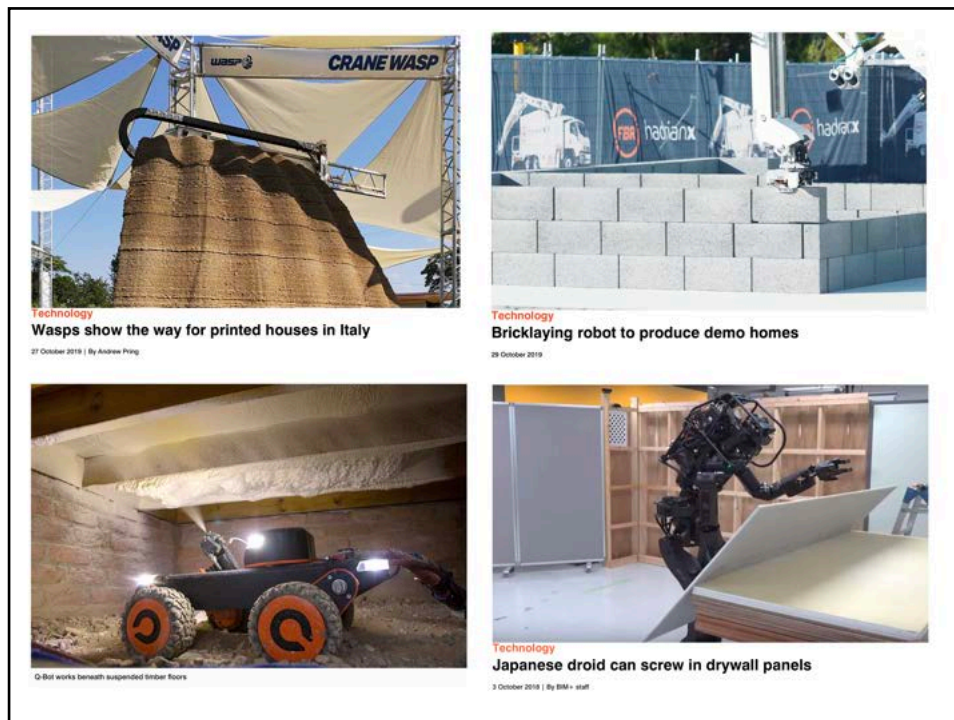
#### Digital Heritage: Anticipating an Integrated Way Forward

 <p>Digital solutions in the field of cultural heritage</p> <p>A Policy Brief from the Policy Learning Platform on Environment and resource efficiency</p> <p>August 2018</p> <p>interreg Europe</p>	 <p>Cultural heritage</p> <p>Digitisation, online accessibility and digital preservation</p> <p>REPORT on the implementation of Commission Recommendation 2012/711/EU</p> <p>2013-2015</p>	 <p>Cultural Heritage Innovation</p> <p>Opportunities for international development</p>
<p><a href="https://www.interregeurope.eu/fileadmin/user_upload/plp_uploads/policy_briefs/2018-08-06_Policy_brief_on_digital_technologies.pdf">https://www.interregeurope.eu/fileadmin/user_upload/plp_uploads/policy_briefs/2018-08-06_Policy_brief_on_digital_technologies.pdf</a></p>	<p><a href="http://ec.europa.eu/information_society/newsroom/image/document/2016-43/2013-2015_progress_report_18528.pdf">http://ec.europa.eu/information_society/newsroom/image/document/2016-43/2013-2015_progress_report_18528.pdf</a></p>	<p><a href="https://www.unesco.org.uk/wp-content/uploads/2019/07/Cultural-Heritage-Innovation-2.pdf">https://www.unesco.org.uk/wp-content/uploads/2019/07/Cultural-Heritage-Innovation-2.pdf</a></p>

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 <p>Projects</p> <p>Case study: Integrated project delivery brings efficiencies to US uni project</p> <p>22 May 2019   By Stephen Cousins</p>	 <p>Projects</p> <p>Case study: Digital tech helps deliver contemporary extension to listed property</p> <p>24 September 2019</p>
<p>The construction industry contributes nearly £90bn to the national economy, accounting for 6.7% of the UK's economy and it hires as many as 2.9 million workers in the UK, roughly 10% of its workforce.</p> <p>Yet despite its clear importance to the UK, and indeed to the global economy where it contributes \$8.5 trillion a year, <b>the industry is still yet to undergo any significant digitisation.</b> In fact, the recent digitisation index from McKinsey nearly ranked the industry as the least digitised industry of all, instead, it sits only above agriculture and hunting.</p>	

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What new professions might be anticipated in the future that will sit alongside the heritage sector. What will they be called; how will they be qualified and by what mechanism:

- Algorithm engineer
- Machine learning expert
- Analytical insight consultant

How might the heritage sector integrate with them and the related abilities of the:

- Data scientists and analysts
- IT Project manager

**Technology**  
Fireproof robot can map burning buildings and predict explosions  
23 June 2018 | By BIM+ staff

**Technology**  
Planning and data management software updated  
23 September 2018 | By BIM+ staff

What happens when the technology changes?

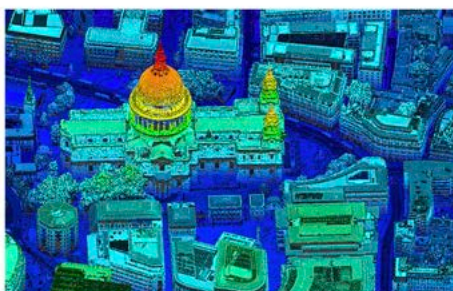
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Estimates for future IT needs suggest a requirement for 12,500 people/year with only 5,000 currently emerging. Does this suggest a considerable digital skill shortage and how might this affect or influence the heritage sectors' training and educational needs?

How will the heritage sector be impacted upon by the growth in:

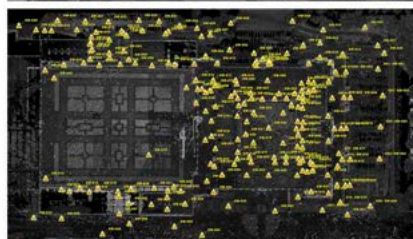
- Predictive analysis
- Data exchange
- Improved machine learning and AI



Technology  
Camera innovation captures UK cities in unique detail

22 November 2018 | By BIM+ staff

The government now has a unified and millimetre-accurate floorplan of this historic building, not only to document its history, but also guide its upkeep and preservation in the future.



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How might the heritage sector client's value and benefit from the intangible benefits of:

- Gathering/validating/certifying/storing/archiving digital data
- Using/updating/interpreting digital data
- Setting private needs against commercial pressures



AI special: 'The potential is enormous'

**BS EN ISO 19650 part 1:** This part outlines the concepts and principles and provides recommendations on how to manage building information.

**BS EN ISO 19650 part 2:** This part supplies information management requirements in the delivery phase of assets

**BSI is aware that the UK industry has benefitted from free downloads of the BIM Level suite of standards; this has been due to government sponsorship to enable the faster adoption of BIM Level 2 in the UK. However, ISO standards do incur a charge, and to assist companies in their transition to the new ISO standards, BSI will be offering the PD 19650 free with the purchase of either BS EN ISO 19650 part 1 and 2. What is this standard about?**

This international standard is the second part in the ISO 19650 series on building information modelling (BIM). This part supplies information management requirements in the delivery phase of assets.

**Who is this standard for?**

- Those involved in the procurement, design, construction and/or commissioning of built assets
- Those involved in delivering asset management activities, including operations and maintenance

**Why should you use this standard?**

It specifies requirements for information management, in the form of a management process, within the context of the delivery phase of assets and the exchanges of information within it, when using building information modelling.

**It can be applied to all types of assets** and by all types and sizes of organizations, regardless of the chosen procurement strategy.

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What will the future interdisciplinary mix of heritage professionals look like?

- How to integrate data scientists/technologists/innovators along with understanding/analysing/rationalising heritage construction decay mechanisms and needs?
- How to integrate the key processes requiring accessibility to knowledge, skills and materials?
- What additional support training and supply needs are required to be developed to make the new approach work?



Technology  
**Eye-tracking glasses now compatible with hard hats**  
 21 March 2018 | By Denise Chevill



Technology  
**VIDEO: Robot 'dog' surveys construction site**  
 17 October 2018 | By BIM+ staff

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Will such an approach require to be guided by new innovative conservation charters, conventions and legislation that might need to be recrafted with a digital emphasis?

How will GDPR, AI, IPR and © matters be addressed alongside future proofing the heritage archival needs.

Might digital information be added to a personal data bank of digital interests/capabilities held by individual and/or professions

- but how to monitor and integrate these demands with heritage requirements?

<b>Reality Capture track</b> Digital Documentation & Input <ul style="list-style-type: none"> <li>• Photogrammetry, image-based modeling, SFM</li> <li>• 2D scanning &amp; document digitization</li> <li>• 3D scanning (laser, structured light, mcap, etc)</li> <li>• mobile and indoor scanning and sensing</li> <li>• remote monitoring technologies</li> <li>• GPR &amp; magnetometry</li> <li>• Remote sensing and aerial lidar</li> <li>• GNSS (GPS, GLONASS, Galileo)</li> <li>• Low-cost &amp; gaming 3D input</li> <li>• Gigapixel, ultrahigh res &amp; HDR photography</li> <li>• Terahertz, infrared, UV &amp; X-ray imaging</li> <li>• Advanced sensors research</li> </ul>	<b>Visualization and Interaction track</b> Digital Presentation & Output <ul style="list-style-type: none"> <li>• Immersive and Active/Passive stereodisplays</li> <li>• Real + virtual worlds (mixed/augmented reality)</li> <li>• Virtualization of senses (touch, taste, smell, sound)</li> <li>• Haptic &amp; Multimodal interaction</li> <li>• Distributed VR</li> <li>• Local/remote rendering</li> <li>• Innovative interaction systems</li> <li>• Storytelling and design of heritage communications</li> <li>• Usability, effectiveness and interface design</li> <li>• Visual simulation of materials</li> <li>• Emerging visualization technologies</li> <li>• Rapid prototyping, 3d printing &amp; reproduction</li> </ul>
<b>Analysis and Interpretation track</b> Digital Content Management & Analysis <ul style="list-style-type: none"> <li>• Historic Document Analysis</li> <li>• Remote Sensing Analysis (incl aerial image proc.)</li> <li>• Finite element, structural and other analyses</li> <li>• 3D modeling (CAD-based and reality-based)</li> <li>• Building Information Modeling (BIM)</li> <li>• Virtual Reconstruction Issues</li> <li>• Realism and Interpretation in CH</li> <li>• 3D, multimedia and GIS repositories, platforms, &amp; info systems</li> <li>• Digital Curation</li> <li>• Virtual GIS and Mapping tools</li> <li>• Emerging technologies</li> </ul>	<b>Policy and standards track</b> Digital Heritage Policy & Societal Issues <ul style="list-style-type: none"> <li>• Metadata Handling &amp; Management</li> <li>• Digital Rights</li> <li>• Heritage Commons</li> <li>• Cultural Analytics</li> <li>• Heritage at Risk</li> <li>• Heritage Consortia</li> <li>• E-libraries</li> <li>• Digital Humanities</li> <li>• Born digital content issues</li> </ul>
<b>Preservation track</b> Digital Preservation & Standards <ul style="list-style-type: none"> <li>• Metadata, standards, ontologies in Heritage</li> <li>• Requirements and policies</li> <li>• Trusted digital repositories / OAIS</li> <li>• Institutional Repositories, digital libraries</li> <li>• Semantic Web and processing in CH</li> <li>• Long term storage and persistence</li> <li>• authentication, accreditation and DRM</li> <li>• Data formats and compression for preservation</li> <li>• Watermarking, orphan works, copyrights &amp; IPR</li> </ul>	<b>Theory, methodologies &amp; applications of Digital Heritage track</b> Digital Heritage Solutions & Best Practices <ul style="list-style-type: none"> <li>• Integrated solutions and best practices in:                         <ul style="list-style-type: none"> <li>• Virtual documentation</li> <li>• Virtual conservation &amp; restoration</li> <li>• Virtual archaeology</li> <li>• Virtual museums &amp; exhibitions</li> <li>• Serious Games for heritage</li> <li>• Collaborative environments</li> <li>• Internet technologies and social media</li> <li>• 3D sensing</li> </ul> </li> </ul>

**DigitalHERITAGE 2018**  
 New Realities: Authenticity & Automation in the Digital Age  
 3<sup>rd</sup> International Congress & Expo  
 26-30 October 2018, San Francisco, USA

**Congress Themes**  
<http://www.digitalheritage2018.org>

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