Extended reality — XR

**European spending on AR/VR products and services**

![Graph showing European spending on AR/VR products and services.]

- **2017**: $1.06 billion
- **2022**: $16.84 billion
- **CAGR**: +74%

**Virtual Reality — VR**

Immerses user in an entirely virtual world, replacing user’s physical environment.

**Mixed Reality — MR**

Lends digital content with user’s physical environment in a way that allows digital and physical to coexist and interact.

**Augmented Reality — AR**

Overlays digital content on top of user’s physical environment.

**Where in the product life cycle are XR technologies used?**

- **UK manufacturing industries in 2018**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing &amp; assembly</td>
<td>26%</td>
</tr>
<tr>
<td>Design</td>
<td>23%</td>
</tr>
<tr>
<td>Training</td>
<td>19%</td>
</tr>
<tr>
<td>Stakeholder engagement</td>
<td>19%</td>
</tr>
<tr>
<td>Maintenance &amp; repair &amp; overhaul</td>
<td>7%</td>
</tr>
<tr>
<td>Disassembly</td>
<td>6%</td>
</tr>
</tbody>
</table>

**What business executives say about XR**

- **80%** of executives believe XR is important to close the physical gap.
- **79%** believe XR will have widespread impact across most industries over next 5 years.
- **53%** are already building an XR strategy for implementation.
- **54%** expect ROI for XR solutions to be one year or less.

**The most commonly implemented XR use cases in industrial repair and maintenance**

**Frequency of use case implementation among all companies implementing AR/VR**

- Consult digital reference materials: **31%**
- Seek remote expert assistance: **30%**
- Visualise components and functions behind physical barriers: **30%**
- Superimpose step-by-step instructions: **29%**

**Technician training: over 85% preferred VR**

Participants preferred visual, 3D walk-through instructions offered with VR, especially if the assembly procedure was more complex and difficult to understand.

**75%** of organisations with large-scale AR/VR implementations realise over 10% operational benefits.

**25%** overall time savings are typical for manufacturing tasks using AR.

![Chart showing the frequency of use case implementation among all companies implementing AR/VR.]

![Diagram showing the distribution of the frequency of use case implementation among all companies implementing AR/VR.]


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