

## Computer-aided design (CAD)

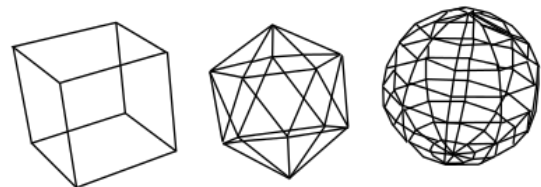
2D and 3D design to create and modify designs and create simulations:

- Can be used to make 2D (techsoft 2D design) and 3D (google sketch up) designs more efficiently than traditional methods

Wire frame models:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"><li>• Faster</li><li>• Less memory space</li><li>• Easier to send</li></ul>	<ul style="list-style-type: none"><li>• Doesn't show colour or final design</li></ul>

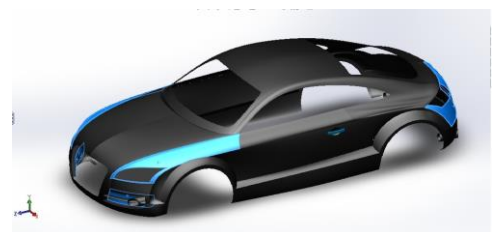
Uses: Structural designs



Surface modelling:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"><li>• Realistic 3D view</li><li>• Easier to understand</li></ul>	<ul style="list-style-type: none"><li>• Needs a powerful computer</li><li>• Time consuming rendering</li><li>• Lots of memory required</li><li>• Does not show internal features</li></ul>

Uses: Models, CGI



## CAD Software:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"><li>• Designs can be created, saved and edited easily (saves time)</li><li>• Designs can be easily copied/repeated</li><li>• Designs can be easily sent to other offices/clients etc</li><li>• Designs can be worked on by remote teams simultaneously</li><li>• Designs can look photo-realistic do gain opinions from clients</li><li>• CAD is very accurate</li><li>• CAD software can process complex stress testing</li></ul>	<ul style="list-style-type: none"><li>• CAD software is complex to learn</li><li>• Software can be very expensive</li><li>• Need a robust IT system</li><li>• Compatibility issues with software</li><li>• Security issues- risk of data being corrupted/hacked</li></ul>

Uses: Design of buildings, bridges, structures

## 3D modelling for creating 'virtual' products:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"><li>• Don't have to wait for parts to dry</li><li>• Reduces development times/costs</li><li>• Can be easily adjusted</li><li>• No material wastage</li><li>• Can be produced on CAM</li></ul>	<ul style="list-style-type: none"><li>• No physics feel of product</li><li>• Weight can't be measured</li><li>• Need a robust IT system</li></ul>

Uses: Gears, complex mechanical parts