



Smarter Design, Less Waste: The impact of CAD on Material Efficiency

Joanna Louise Shand

Andrew Noble

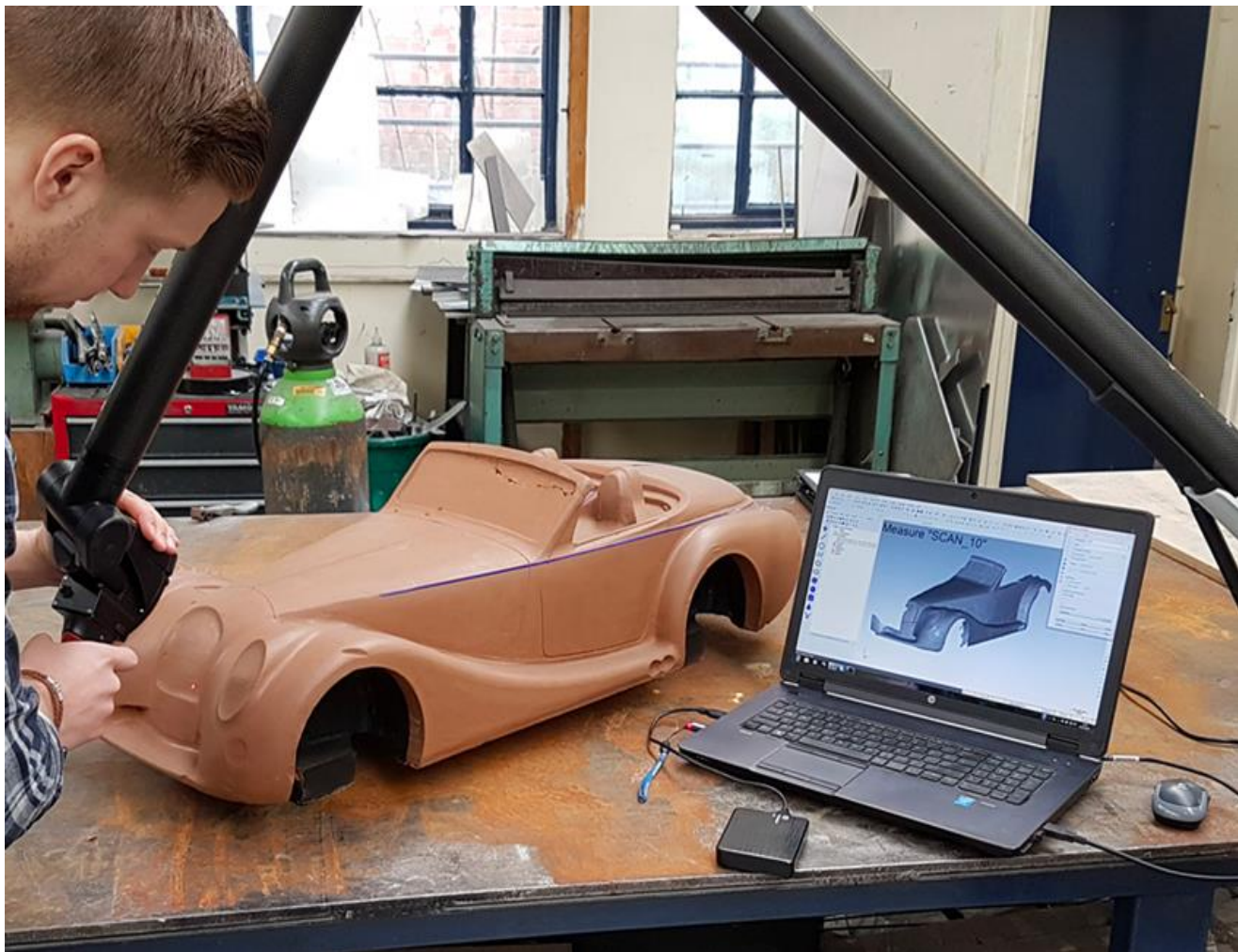
Wales Institute for Science & Art

BEng Motorsport Engineering

What is CAD?

Computer-Aided Design (CAD) is an advanced software, that enables designers and engineers to develop precise 2D and 3D models, increasing creativity and efficiency in every stage of the design process.

Before implementation, CAD offers a platform to define, test and visualise concepts. By speeding up the production time and minimising errors, CAD is at the forefront of transforming the industry by speeding up production time and reducing errors.



Morgan Cars EV3 using CAD. Morgan Cars. Available at: [Case Study - Morgan Car Company](#)

Morgan EV3 development

Morgan Cars is currently developing the EV3. The EV3 embraces new technology and continues to celebrate traditional British motoring manufacturing. The Morgan Is showcasing the final production car, weighing less than 500kg. Engineers at Morgan Cars use CAD in the production and design process. Enabling the engineers to produce up-to-date CAD designs of Traditional legacy car platforms. With this providing great insight into the current build process.

Morgan used CAD to create a model flow work-base. By this, they were able to minimize time in the manufacturing process. Morgan states “It had to be based on a CAD platform”. This proves that CAD is proven to have many positive impacts.

Conclusion

To conclude, CAD plays a crucial role in the Engineering industry. For its enhanced precision, efficiency and collaboration. Enabling a clear visuality before physical construction, this reduces costly errors, production time and waste of materials. Enabling less material waste means less disposal, leading to savings in waste management and landfill.

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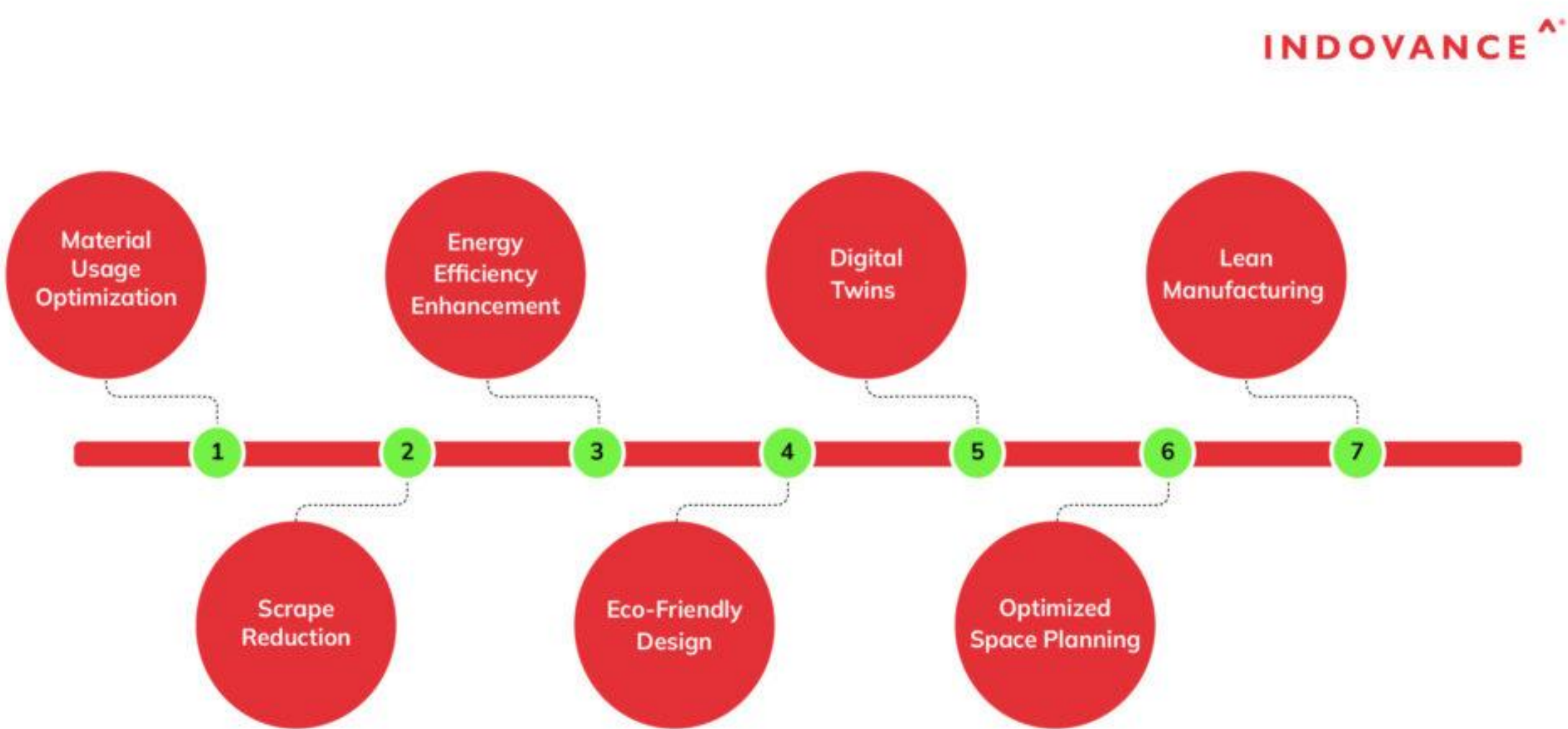
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Timeline stating the beneficial points of using Computer-Aided Design and its positive effects. Available at: [CAD Design Services: CAD Conversion 3D Modeling – Indovance](#)



UWTSD CAD

Students of UWTSD engineering use a CAD software called SolidWorks to produce various mechanical parts and components. With its straightforward design technique and high digital visuality, the software made it easy to visualise the final product when extruding (creating a 3D solid by extending a 2D sketch) the design. The University’s race team also uses CAD to design and create parts for their race cars. By utilising this approach, the University can reduce material waste. Materials such as metal and hard plastics require disposal by a registered waste disposal company, which incurs additional costs.

Cost reduction

- Lower material costs – minimising material wastage.
- Waste disposal costs – Less material waste means less disposal, and savings in waste management and landfills.
- Fewer mistakes in production – More accurate, leading to a lower percentage of material wastage.
- Consistency – A consistent design. Reducing variances, can lead to waste of materials.

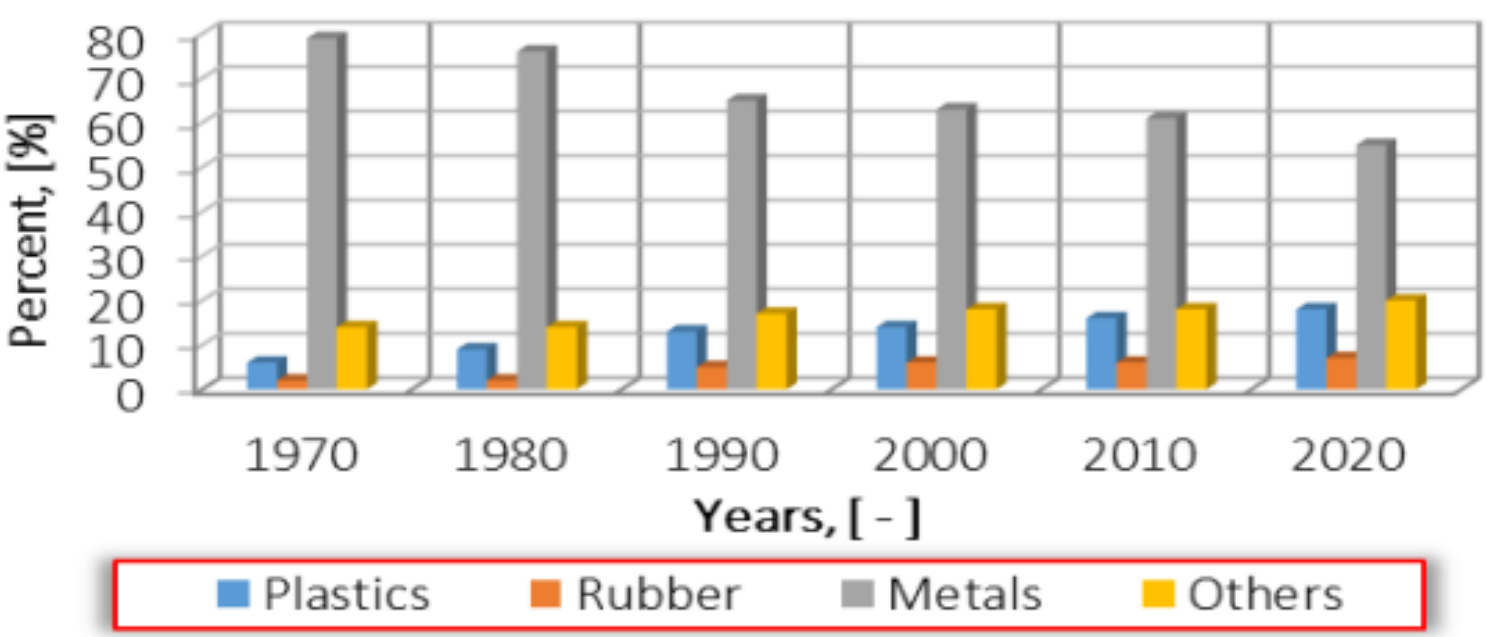


Table showing the ‘Change of Vehicle Composition’ over the years. Available at: <http://article.sapub.org>