How to drive the circular economy in the automotive sector

Webinar Q&A

A number of questions were asked in our recent webinar 'How to drive the circular economy in the automotive sector'. We ran out of time to answer them all during the live session, but we hope you will find the below useful.

How would you recommend a business can start to incorporate circular economy principles into their work if they haven't yet started the process?

We would recommend a three-step process. First beginning with understanding your current external drivers for transitioning to a circular economy, followed by understanding the business's current scenario (circular baseline), before developing a tailored strategy to get your business to where you want to be.

Key steps would include:

1. **Policy and regulatory Review** – Undertaking a thorough review of current and future policy local to the business and its supply chain. Also developing an understanding of global policy leaders in circularity, to prepare for upcoming and potential policy changes.
2. **Industry analysis/peer review** – Research and benchmarking of global automotive OEMs and Tier 1s to understand what your competitors are doing and where they are heading.
3. **Circular economy roadmap/framework** – Engage and educate various departments on circular economy within your business, develop a baseline for current activity and use to inform the development of a strategy and pathway to achieve these goals.

Ricardo has extensive experience in supporting automotive clients through these processes and developing tailored circular economy strategies.

What are the key elements of circular economy for EVs and businesses producing these?

Almost all automotive OEMs/Tier 1s are moving towards electrified vehicles, so generally the key topics highlighted throughout the webinar, which included:

- Implementing circular business models.
- Increased application of circular materials.
- Digitalisation across the business as an enabler to circular practices.

There is also the question of more effectively managing electric vehicle batteries supply chains; as well optimising their technical integration into vehicles to support circular practices.

What challenges do you see with the new technical materials used in design/manufacturing for vehicle light-weighting?

We see two key challenges around the use of technical materials for light-weighting vehicles (e.g. carbon fibre):

- **Processing challenges** – many of these materials are new and require different processing equipment, techniques and settings. They are not a direct replacement for more traditional materials. This will require upskilling of operators and investment in new machinery and processing equipment. There are also additional ongoing costs for the materials themselves and any additional consumables required for production.
- **Supply chain/sourcing challenges** – Many of these materials are in high-demand, but also in limited supply. For recycled technical materials supply chains and availability can also be variable and less secure. Subsequently, it is important that OEM's and Tier 1's develop strong relationships with raw material suppliers and secure supply agreements where possible. This will ensure supply chain security.

How will the recycling of automotive interior electronics be developed in the future?

Many recycling technologies for waste electricals already exist, but digitalisation and the move towards EV's will see an increase in demand for waste electricals. The priority for development should be around more effective **product design** to facilitate effective dismantling and recycling of waste electricals from vehicles at the end of their life. Currently, recycling facilities face several issues which obstruct their ability to meet recovery and recycling targets. Key themes for consideration include:

- Ease of removal of circuit board and hazardous capacitors.
- Ease of removal of batteries.
- Clear marking and labelling of components.

How do we network to approach collaborative research for future mobility related topics?

- Attending conferences and automotive industry events to make appropriate connections across both industry and academia. Find common interests and future ambitions which you can collaborate on.
- Researching and identifying potential funding routes for research available in your country (e.g. Government funding).
- Joining consortiums or other collaborative groups in the automotive industry.

Will conscious, compulsive switch to Mass (Public) Transport be advised, to alleviate Global Warming (We in Chennai are experiencing sweltering heat during day due to 34-35 deg Celcius temperature)?

Yes certainly, and we are already seeing cities around the world developing and implementing policy to deter people from using ICE vehicles in cities. E.g. in London, we have the Ultra Low Emission Zones (ULEZ) which has a daily charge for using ICE vehicles. These zones are beginning to continually be expanded outside of the central zones and into the suburbs to further encourage use of EVs and mass public transport. In parallel, mass public transport systems are being further developed and electrified throughout cities, alongside the relevant infrastructure to support this.

How many other automakers have a dedicated business unit (or plan to form) of circular economy? I am only aware of my Company Stellantis.

The only automakers we are aware of which have a dedicated business unit (which are publicly announced) focused on progressing the circular economy are: Volvo (publicly disclosed a target to be a circular business by 2040), Renault Group (launched “The Future is NEUTRAL” last November) and Stellantis. There are numerous OEMs and Tier 1s who have circular economy leads and are increasing their activity in the circular economy space.

Please define "circular economy"

The circular economy is an economic system that aims to most effectively manage resource usage and consumption; whilst simultaneously maintaining and improving economic functionality, natural capital and wider social benefits.

Would it not need more legislation, CO2 pricing to prevent OEMs from using cheap/ dirty third country non-sustainable supply materials/ parts instead of investing in a local circular economy?

There is already regulation in place to restrict products/components from entering the EU that have higher embodied carbon than similar domestic products – the Carbon Border Adjustment Mechanism (CBAM). This will need time to bed-down before more regulation is introduced.

If you have any further questions or want to discuss how Ricardo can support your circular economy journey, please do get in touch via email at enquiry-ee@ricardo.com or visit our website for further information on the circular economy and sustainability in the automotive sector.