



Automotive's latest
model: Redefining
competitiveness through
the circular economy

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and Mark Pearson

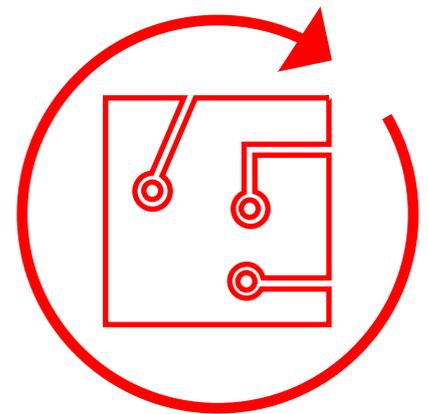
High performance. Delivered.

At any given point in time, \$7 trillion worth of passenger cars are unused around the world.¹ This waste became wealth when viewed through a circular economy lens as original equipment manufacturers (OEMs) like Daimler capitalized on it to create a car sharing businesses, car2go.² But the possibilities of new revenue streams from the circular economy stretch way beyond car sharing. By creating a circular economy value chain, automotive players gain efficiency, increase profitability and improve customer loyalty.

The circular economy breaks the old linear patterns of "take, make, waste," and reimagines the concept of waste in every link of the value chain—from car design to car decline. The industry's most recent circular engagement is in car and ride sharing, which many incumbent OEMs now offer along with traditional vehicle sales. The result: Upwards of three to five times higher usage rates and a massive jump in resource and asset efficiency. Turning wasted capacity into a new revenue source for established OEMs and new entrants alike.

With lean manufacturing many carmakers have made great strides in recycling as well. But a broader view of waste reveals much more potential still to be mined from the circular economy. Along with sharing and recycling, further approaches from product as a service, product life extension and circular supply chain (see "Circular showroom") are set to transform the automotive industry's business models. Moving OEMs, in particular, out of the low-margin manufacturing end of the automotive game.

By going the extra mile, and creating a circular economy value chain, automotive companies not only gain efficiency in their supply chains, they increase profitability and improve customer loyalty. Making these approaches possible are technological advances in areas like machine-to-machine communication, analytics, artificial intelligence and modular design. Thanks to advances in digital technology, the time is right—right now—to harness the power of the circular economy.



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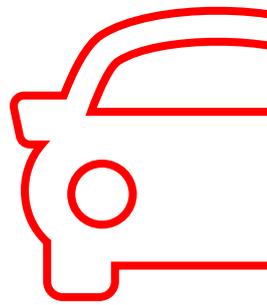
Circular showroom

Accenture analysis revealed five circular business models the automotive industry needs to invest in now to pave the way for future growth³

- **Product as a service:** Prizes performance of a product over volume sales and charges customers for performance delivered instead of "nuts and bolts".
- **Recovery & recycling:** Creates production and consumption systems in which everything that used to be considered waste is revived for other uses.
- **Product life extension:** Lengthens products' useful lifecycle by generating revenue through longevity instead of volume.
- **Sharing platform:** Helps consumers save and make money through things like car sharing.
- **Circular supply chain:** Introduces fully renewable, recyclable or biodegradable materials that can be used in consecutive lifecycles.

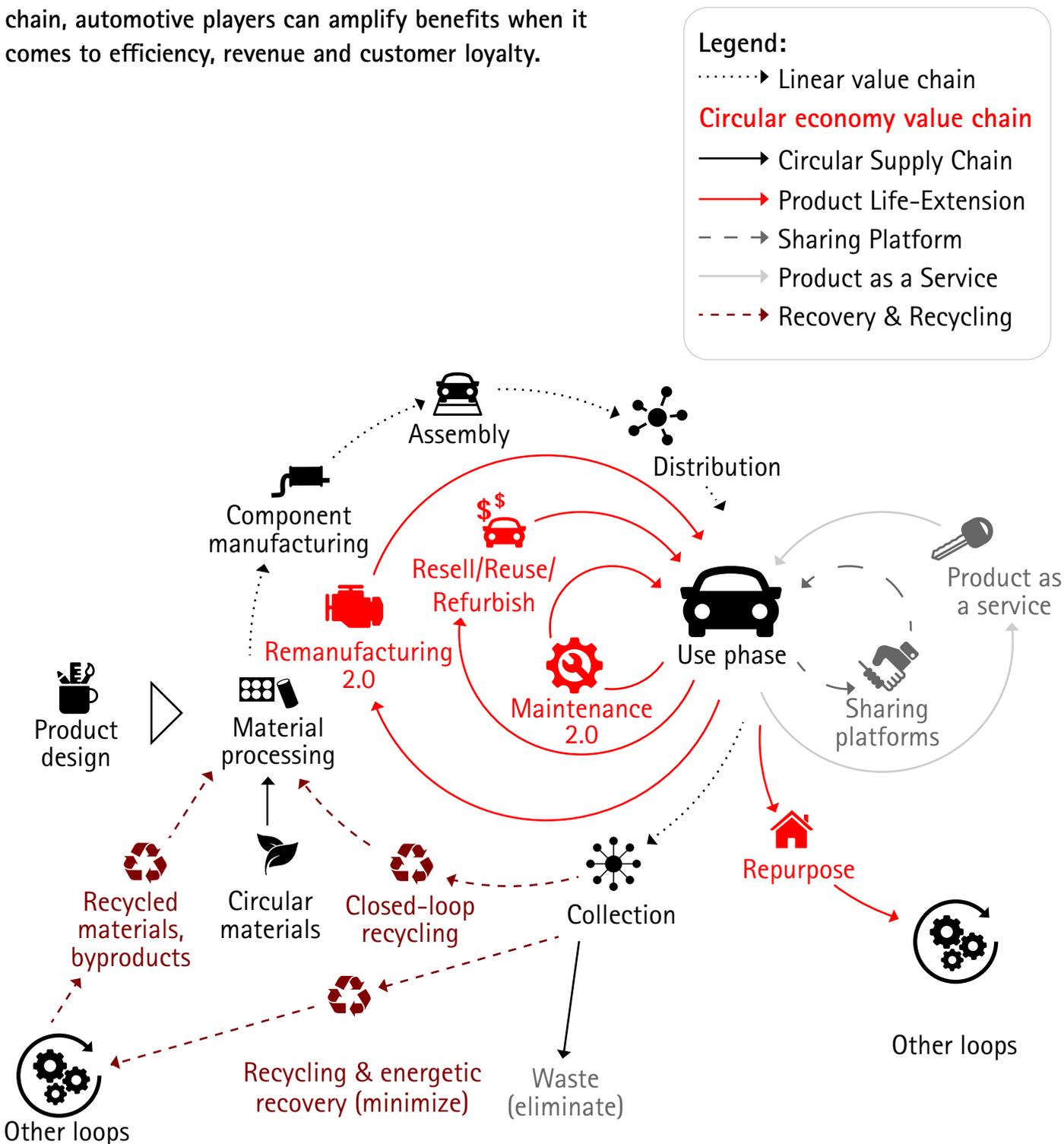
Widening the circle

According to Accenture Strategy research, the potential revenue of selected circular economy business models for automotive companies could more than double by 2030, growing by \$400-600 billion.⁴ In a disruptive scenario, circular models would outpace revenue growth generated through new passenger car sales. And profitability could be more than three times higher than traditional new vehicle sales—making circular economy business models a major profit pool in the automotive industry. That's the good news.



The bad news: Projected new passenger vehicle sales will be threatened. And could be negatively impacted by car and ride sharing and product life extension by up to 10 percent over the same time period in a disruptive scenario.⁵ It's why automotive players—particularly OEMs—need to widen the number of plays they make within the circular economy, amplifying its impact. Doing that requires shaping a value chain that embraces circular principles—from design to material reuse.

Figure 1: By driving circular principles throughout the value chain, automotive players can amplify benefits when it comes to efficiency, revenue and customer loyalty.



1+1+1=Much more growth

By driving circular economy principles throughout the value chain, automotive players get a multiplier effect. Combining vehicle design, manufacturing and distribution with product as a service and product life extension business models, provides the potential to lower the cost base by up to fourteen percent, according to Accenture Strategy research.

Take Jaguar Land Rover as one example. The automaker employs Recovery and Recycling and Circular Supply Chains to expand the value potential of circular.⁶ The result: Better control of the cost base and less waste. Looking across industries to high tech, Cisco launched a pilot, "Cisco Certified," that entails designing products with circular principles in mind.⁷ After launching into the market, these products continue on a near perpetual lifetime as customers take them back to Cisco for easier servicing, refurbishment and ultimately, reuse.

Customer in the middle

For car manufacturers looking to please their most important stakeholder—drivers—the circular economy makes them more competitive on price, quality and convenience, and it increases their access to customers. Today, carmakers are relegated to the least profitable end of the value equation. Manufacturing. Transforming operations to harness the power of circular means gaining a direct connection to the customer. And more profitable revenue streams—ongoing service over one-off sales.

For example, Tesla combines Product as a Service and Product Life Extension circular models through their Tesla Service Stations located throughout key markets, just like their charger stations.⁸ Customers can book prepaid service packages for up to six years in the future and Tesla offers an eight year, unlimited battery and drive unit warranty. Further strengthening the customer bond with the brand.



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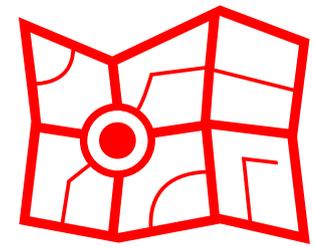
Mobile, social and analytics technologies are key enablers to bring the customer front and center with circular economy business models. Consider the “Mercedes Me” platform.⁹ Although it’s not circular, it has all the functionality to be taken in that direction. Right now it allows customers to access their car and get individualized services and product offers. All accessible via mobile. But imagine if these features were combined with Google’s appointment and travel planning. A shared (and in the future, self-driving) car would be available on demand.

Driving value

So what can OEMs and suppliers do differently—now—to gain the circular advantage? Start by mapping out a clear circular economy strategy. How can circular value be maximized? Should the company manufacture durable products with long lives or easy-to-remanufacture products with rapid lives? Maximize customer revenues by selling services at frequent touch points, or maximize customer value by extending product life and efficiency?

And determining where to position itself in the circular economy value chain. Put simply: Where can the company best utilize its capabilities to outcompete others? Will the business do best by realizing synergies between design and manufacturing? Closing the loop with suppliers? Or, is it better off focusing on new customer facing business models where new profit pools are to be tapped? Companies might choose a variety of options, and could add several promising business areas. Whatever the decision may be, it should be clearly articulated and directly translate into the development of the company’s business models, ecosystem and capabilities.

Create the right ecosystem: When automotive players decide to engage in the circular economy, in whatever configuration of models and approaches, it’s likely they’ll need to partner to gain the horsepower to realize circular advantages. Jaguar Land Rover, for example, partnered with a world leader in aluminum recycling, Novelis.¹⁰ Their collaboration impacts the entire value chain as vehicles are designed from the get go to more effectively utilize aluminum. And manufacturing processes ensure minimal waste. At the end of a car’s life, recycling processes kick in that ensure materials come back to the fold, and are reused again, and again and again.



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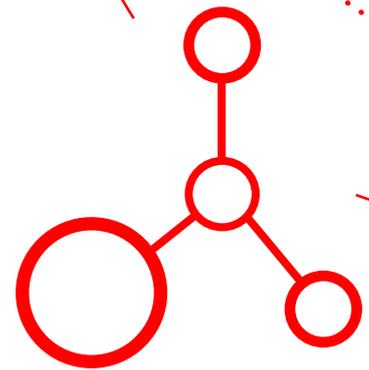
Companies can complement or supplement circular capabilities by working with third-parties. It's what French automaker, Renault, did.¹¹ The OEM built the network necessary to support a closed loop recycling play. It featured three complementary companies working to help Renault embrace new circular principles: Renault, INDRA, a pioneer in automotive recycling and Suez Environment/SITA, a specialist in global waste management and recycling. Or consider how Ford is teaming up with Kraft Heinz—yes the global food manufacturer—to incorporate them into a circular supply chain.¹² Researchers from both companies are collaborating to develop new component parts based on food waste: tomato skins.

Develop the right capabilities: Shifting to a circular business model will have substantial ripple effects across an organization since it requires major changes in how companies operate. The biggest change is that companies will need to embrace the concept of continuous customer engagement. Instead of focusing on one-off product sales, a company pursuing circular principles has to engage customers on an ongoing basis, providing services and helping users maximize a product's utility across its lifecycle. Things like establishing trust and encouraging responsible product use and return or disposal at the end of a product's life will become must-haves.

After-sales service will increasingly play a major role in managing the products' lifecycle. OEMs need capabilities that enable them to continually keep track of assets, optimize products' physical performance and return, and report on a product's impact while in use.

Gearing up

The expansion of car and ride sharing programs is a sure sign that the circular economy is an entrenched part of the overall value landscape of automotive. But it is only one landmark. And beyond it lie nearly endless opportunities to increase profitability, improve customer engagement and improve the impact of cars on the environment. With the maturity of digital, there's never been a better time to get into gear. And companies that do will steer toward a brighter future.



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Notes

¹ Peter Lacy and Jakob Rutqvist, "Waste to Wealth: The Circular Economy Advantage," September 2015 Palgrave Macmillan

² Ibid

³ Ibid

⁴ Accenture Strategy analysis based on expert interviews, company case studies

⁵ Accenture Strategy analysis based on expert interview, company case studies

⁶ Driving World-class Manufacturing and Operations

⁷ Cisco Refresh & the Circular Economy

⁸ Tesla Service Plans

⁹ Mercedes Me

¹⁰ "Novelis' Recycled Aluminum Builds Jaguar's Lightest, Most Aerodynamic Sedan," February 19, 2016, accessed May 9, 2016

¹¹ Peter Lacy and Jakob Rutqvist, "Waste to Wealth: The Circular Economy Advantage," September 2015 Palgrave Macmillan

¹² "You say tomato, we say tom-auto: Ford and Heinz collaborate on sustainable materials for vehicles", June 10, 2014, accessed May 9, 2016

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