

HOW THE CIRCULAR ECONOMY IS

Unleashing New Sources Of Business Value For OEMs



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Adopting a circular model is not only an environmental imperative but also a catalyst for **innovation and sustainable growth**”

Toyota's Commitment to Circular Economy and Recycling, 2023

THE SOURCE OF PROFITABILITY IS *SHIFTING*

Three powerful trends are catalyzing a paradigm shift in how OEMs do business that hasn't been seen since the advent of the Internet.

The synergy of these trends offers massive opportunities with new business models evolving to take advantage.

The source of profitability and competitive advantage is no longer primarily the manufacture and sale of equipment like excavators or planes.

Digitization, data and artificial intelligence:

embedding intelligent, automated, data-driven processes throughout the product lifecycle is creating unprecedented opportunities to drive efficiencies, open new product opportunities and generate novel revenue streams

Servitization:

adding services to products as consumer preferences shift away from owning and towards use-based models, such as leasing, which lend themselves to more service-based business models

Sustainability:

a need for *efficient* use of resources and *sustainable* manufacturing in the face of growing legislation and environmental standards in response to climate change

Profitability is moving down the value chain to the use phase of the lifecycle and towards greater circularity in three ways:



Reusing, refurbishing and remanufacturing parts: recapture value from returned products



Repair, maintenance and service contracts: support services to extend the longevity of equipment in the field



Selling equipment as-a-service (EaaS): entirely bypassing the ownership model and leasing equipment direct to the customer

250

300

350

400

450

SERVICE-BASED BUSINESS MODELS ARE HIGHER ROI, HIGHER MARGIN AND CREATE HIGHER VALUE BUSINESSES

There is significant business value potential for companies shifting to these new service-based business models.

Higher ROI:

businesses with significant services segments **deliver greater returns to shareholders compared** to those without

Higher margins:

up to **four times higher** for services than for equipment

Greater value:

each percentage point of service business growth correlates to an **increase in enterprise value of about 50%**

For example, Ricoh—an electronic goods manufacturer—adopted a model of leasing products built and managed on circular economy principles. These **secure margins that are as much as twice as high** as comparable new products, without a reduction in quality.

And we can see this shift happening across a whole range of different sectors:



Construction giant Caterpillar is going all in on its Cat Reman[®] program to return end-of-life products to “same-as-new condition...at the fraction of the cost of a new part”.



Lighting company Signify now offers ‘Light-as-a-Service’, providing full lighting experiences without any upfront investment, just paying for usage.



IKEA is testing furniture leasing in certain markets, which allows customers to rent furniture and return it when it’s no longer needed, whereupon it is refurbished and leased again.

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Integrated and complimentary capabilities allow manufacturers to **gain greater visibility** into their production processes, equipment wear-and-tear, and energy usage, improve predictive maintenance, and minimize material waste”

DELOITTE
Sustainable Manufacturing: From vision to action

Sun

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The Circular Economy is generating economic, environmental and societal benefits that result from adopting recovery, reuse, recycling, sharing and collaboration practices that redefine the corporate business model”

CILIBERTO ET AL.

Enabling the Circular Economy transition:
a sustainable lean manufacturing recipe for Industry 4.0

CIRCULAR ECONOMY PRACTICES ARE THE KEY TO UNLOCKING THE VALUE OF NEW BUSINESS MODELS

Unlocking these valuable new revenue streams in manufacturing means a shift from waste-generating 'take-make-dispose' logic and towards a value-generating 'closed loop' model.

Closed-loop systems “[maximize] the creation of value during the entire life cycle of a product with dynamic recovery of value ... over time”.

This is the Circular Economy, which beautifully aligns incentives between the manufacturer and the customer much more tightly, resulting in benefits for both sides:

Manufacturers

are incentivized to design products that are robust and reliable, but also sustainable and efficient. As well as to maintain those products with high-margin replacement parts and services.

Customers

are incentivized to invest the money they save on upfront capex costs in high-quality services that enable them to provide a more reliable service to their end user and focus on their core competency (rather than fixing equipment).



**Happier customers. Higher margins.
That's the Circular Economy
in a nutshell.**

The business value of this lies in a two-fold shift.



Firstly, maximizing lifetime customer value.

If you provide robust, long-lasting equipment that you maintain impeccably... your customer will be very satisfied and the equity of your brand will skyrocket. That person or even that whole business will continue to buy from you for *decades*.



Secondly, shift these high-value customers into higher-margin services.

You can afford to take an initial hit on upfront equipment sales because you are now making your profits by selling your long-term, high-value customers high-margin parts and services instead.

0310
October

HIGH COMPLEXITY, HIGH RISK, HIGH REWARD

So, what's the catch?

Well, these new service-based business models—based on digitization, servitization and circular economy principles—are more complex and potentially carry more risk than traditional cost-plus models.

The stakes are higher.

For example, manufacturers now need to make predictions about the lifetime service costs for a range of different pieces of equipment. But each of these is being used by a different customer, in a different way, in divergent environments and in different geographies.

- How do you price all those considerations into a contract that isn't too expensive to repel customers but not so cheap you end up making a loss?
- How do you know what unexpected maintenance to plan for when you haven't provided that service before?
- How much do you charge for the possibility of sending rare and expensive spare parts to different parts of the world?
- And without hiring an extra 20 people to figure it out?
- And on and on...

It's all about managing risk. As academics Reim et al., put it: *"Risk retention requires advanced skills in calculating offers as well as developing complex contractual agreements with customers."*

The potential upside is huge in terms of reward.

But, if you don't get the balance right—if you get the wrong pricing, fail to calculate risk correctly, don't track parts or inventory effectively—you'll end up stuck with a load of loss-making service contracts, angry customers and stressed workers.

It's high risk, high reward.



In order to succeed, you need to be able to manage the complexity and risk much more quickly, accurately and reliably than you can now.

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The vast majority of the world's manufacturers have **a wealth of opportunities** to make more money and increase returns to shareholders by using fewer resources”

MCKINSEY

More from less: Making resources more productive

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A differentiated commercial engine focused on just a few digital and analytics levers can more than **double aftermarket revenues** for industrial companies”

MCKINSEY

Five digital and analytics battlegrounds for B2B aftermarket growth

DATA AND ANALYTICS HOLD THE KEY

The key to profitably adapting to these new business models is *data* and *analytics*.

In the past, manufacturers have been held back by inadequate data and limited analytic tools that could only handle so much complexity and risk. As well as the cognitive limits of their people, who were doing most of the work manually.

Now, however, you can leverage the power of data to improve, automate and scale your decision-making and risk management.

You can use advanced analytics to calculate the risk of more sophisticated business models, automate the complexity of variables involved and streamline the user experience for your people, your suppliers and your customers.

There are endless variables and parameters: *commodity prices, equipment model and configuration, customer data, market data, geographic information, process changes, inventory and stock data.*

By accessing and combining these data from across the company, you can develop powerful new insights, improve organizational performance across the board and develop innovative new use cases.

And this approach can be scaled across your entire business in a way that was previously impossible. Creating an ecosystem of automated processes to:

- Accurately predict lifetime service contract costs
- Optimize pricing to ensure profitability
- Manage the complexity of product and customer lifecycles
- Actively monitor live contracts and adjust to market conditions



If you can get that right then you'll enjoy more contracts with higher margins, happier customers that are more tightly linked to your business and clear visibility of performance and risk.

100

100

110

120

130

REAL-WORLD EXAMPLES OF DATA-DRIVEN SERVICE BUSINESSES IN MANUFACTURING

Let's take a look at companies that are doing this successfully in the real world.



Airbus

Airbus built a data ecosystem that integrates in-flight data and maintenance information to reduce maintenance issues and prevent technical delays, identify defect patterns and predict failures using AI, increase fuel efficiency, optimize part replacements reducing operational costs, minimize flight schedule changes.

The ecosystem represents a service they offer to over 100 airline customers and is a major part of their ambition to reach **\$10bn of services revenues by 2028**.

In their own words, *"aircraft-focused lifecycle services represent the largest segment of growth ... this market represents a cumulative value of \$2.2 trillion over a 20-year period."*

\$10bn 
of services revenues by 2028.



Johnson&Johnson

Another intriguing example is the joint-reconstruction arm of Johnson&Johnson. It leverages AI to predict the most likely product range needed by surgeons for major surgeries. They can predict these with **90%+ accuracy**, leading to a **60% reduction** in excess instrument storage and sterilization costs.

At the same time, the company's orthopedic surgery factory in China has been transformed with digital analytics to optimize productivity, improve prediction of customer demand and make the supply chain more agile.

As a result, productivity **increased by 15%**.

15% 

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Yet, in a survey by the World Economic Forum, nearly two-thirds of manufacturing companies have not managed to scale data-driven use cases beyond a single product.

And many companies become disillusioned by their attempts to extract value from it.

So how can companies get started?

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Value creation will be driven by data-and-analytics applications – such as advanced optimization tools, machine learning algorithms and simulation software – across all company functions”

FRANCISCO BETTI

Head of Shaping the Future of Advanced Manufacturing and Production World Economic Forum for B2B aftermarket growth, McKinsey

Emissions
26%

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Manufacturing is shifting towards a hyperconnected network of assets, factories and supply systems”

FRANCISCO BETTI

Head of Shaping the Future of Advanced Manufacturing and Production
World Economic Forum

Lifespan

HOW TO UNLOCK NEW SERVICE REVENUES WITH CIRCULAR ECONOMY PRINCIPLES

So when they attempt to shift to value-based service models, they run the risk of losing out by misjudging the risk of their contracts, warranties, pricing etc.

Here are three things you need to have in place to unlock these new service revenues:

Cloud-based data sharing:

A cloud-hosted platform facilitates data sharing within the company and across boundaries to unlock data siloes

Single source of truth for trustworthy data:

Ease of accessing and combining data from different sources (databases, sensors, logic controllers) enables you to leverage analytics to find insights and opportunities at the crossroads of multiple datasets rather than only from a single one

Machine learning and artificial intelligence:

The engine room of your new business models is being able to leverage machine intelligence in order to do the heavy lifting around calculating risk and spotting opportunities

About Synchron

When it comes to service transformation, Synchron connects, improves, and continually enhances your overall service value chain. We can do this through new business models, servitization, and EaaS models.

Our CSX Cloud platform delivers integrated and connected solutions that help create streamlined processes, greater visibility, and management across key aspects of aftermarket sales and service lifecycle management. Our approach connects aftermarket parts inventory, pricing, and service delivery, for a more robust, future-proofed, intelligent, and cost reductive service execution to your distributors and end-customers.



**If you want to learn more,
visit our website: www.synchron.com**

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