

An aerial photograph of a circular road winding through a dense forest. The road is a light grey color and forms a large, irregular circle in the center of the frame. The surrounding forest is lush green, with some areas of darker green and some bare earth visible. The overall scene is a natural, outdoor setting.

Monitor
Deloitte.

**Circularity in
Automotive:**
*A European
playbook*

2023

Foreword



Guillaume Crunelle
Partner
Automotive Sector Lead
France



Jean-Michel Pinto
Partner
Automotive Consulting Lead
France



Aled Walker
Partner
Automotive & Mobility Lead
Belgium

Circularity has existed in the European Automotive industry in varied forms, such as parts remanufacturing, repair & refurbishment, EOL dismantling, and used car refurbishment. However, the historically limited focus of major auto players resulted in a large and thriving independent/informal ecosystem. Over the past decades, certain major players ventured into this space, attempting to capture value organically (e.g., OEM's Approved Used Car programs) or inorganically (e.g., Stellantis' acquisition of Aramis). Yet, the maturity of most large auto players in circularity remains limited so far.

As the industry gears up for a paradigm shift to an electrified future, we believe that the stage is set for a new era in sustainable automotive manufacturing, one that reimagines the entire lifecycle of vehicles. Several tailwinds are accelerating this transition, including revamped circularity regulation (e.g., for ELVs & batteries), stringent emission targets, an erosion of traditional value pools (i.e., EV's impact on aftersales), and a growing imperative for resilient European supply chains.

A transformation of such scale would require investments, reimagined business models (B2B vs. B2C), partnerships, new org. capabilities, etc. As with all transitions, there are likely to be winners and losers. Those that move rapidly to develop scalable circular ecosystems, and those that will remain dependent on others' ecosystems at exorbitant cost to comply with regulations and to weather supply chain crises. Today, fortune favors large OEM incumbents with large retail networks, access to a large car parc, scalable reverse logistics infrastructure, etc. However, only time will tell which player has the foresight, innovativeness, and agility to create and capture maximum value.

In this publication, we delve into the dynamics of circularity and the potential white spaces of opportunity for auto players, posing key questions about the future Automotive landscape and winning business models. This is part of a broader initiative by Monitor Deloitte to address this exciting, evolving topic of circularity in the Automotive industry, as part of its sustainable transformation. To find out more about these topics, please contact us or visit our website.



Agenda

1

Current state of circularity
An under-tapped opportunity

2

Evolution of the ecosystem
Several tailwinds at play

3

Key future considerations
Strategies that suit potential scenarios

4

Conclusion

1

Current state of circularity

*An under-tapped
opportunity*



There is a **massive business opportunity for circular business models** in the European Automotive ecosystem



Varied circular models have been deployed by the industry so far, however many are still evolving in terms of **technology or business maturity**



Among the myriad challenges involved in deploying circular models, the **multiplicity of ecosystem stakeholders and their levels of fragmentation** are key impediments to maximizing value capture



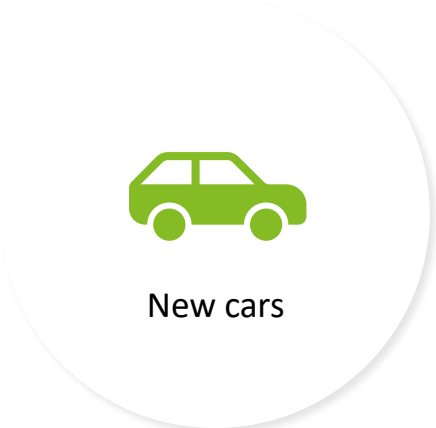
Potentially deterred by the inherent challenges, ecosystem players are at **varied stages of circular maturity**, deploying a **broad range of strategies** that trade off value capture potential for levels of risk and cost



Consequently, **several white spaces exist** for companies to diversify into new circular activities and maximize value realization from circularity

Each year, ~15m cars enter the European market, ~290m are in use and ~10m are scrapped, representing a massive opportunity for circularity

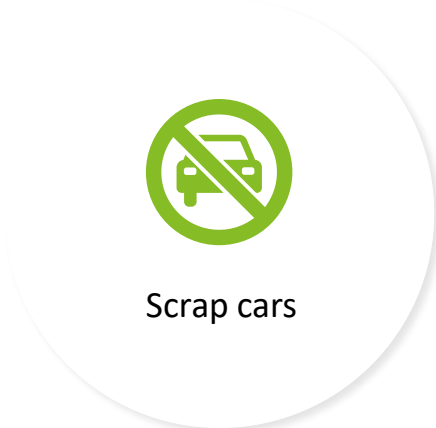
~15m new cars enter the European market



~290m cars in use¹ within a complex ecosystem with multiple stakeholders



~10m cars are scrapped through varied channels




Several circular models for parts/vehicle life extension

 Reuse

 Repair & Remanufacturing

 Retrofit

 Refurbishment

Sources: 1. ['Vehicles in use in Europe'](#), ACEA (2022) – Not including Russian & Turkey

Although automotive stakeholders operate a broad spectrum of circular models...



THEMES¹

PRODUCT LIFE EXTENSION

Prolong product lifespan for mobility & non-mobility applications

MODELS

- Parts Reuse & Resale
- Parts Repair & Remanufacturing
- Vehicle Refurbishment
- Retrofit
- Second Life

DRIVERS²

Incremental revenues	Cost savings
Inherent Customer Value Proposition	Differentiated positioning
Supply chain resilience	Sustainability imperatives

WHO³

BMW	Mercedes-Benz	Volvo Cars
Renault	Jaguar Land Rover	ZF Friedrichshafen
Forvia	Valeo	Hyundai Mobis

PRODUCT AS A SERVICE

Retain product ownership and offer mobility as a service for medium to long-term needs

- Leasing
- Subscription
- Shared Mobility

Incremental revenues	Cost savings
Inherent Customer Value Proposition	Differentiated positioning
Supply chain resilience	Sustainability imperatives

Volkswagen	Renault	Volvo Cars
BMW	Mercedes-Benz	Stellantis
Ford	VinFast	

RESOURCE RECOVERY

Recover materials during manufacturing & across the vehicle lifecycle for resale or to feed supply chain

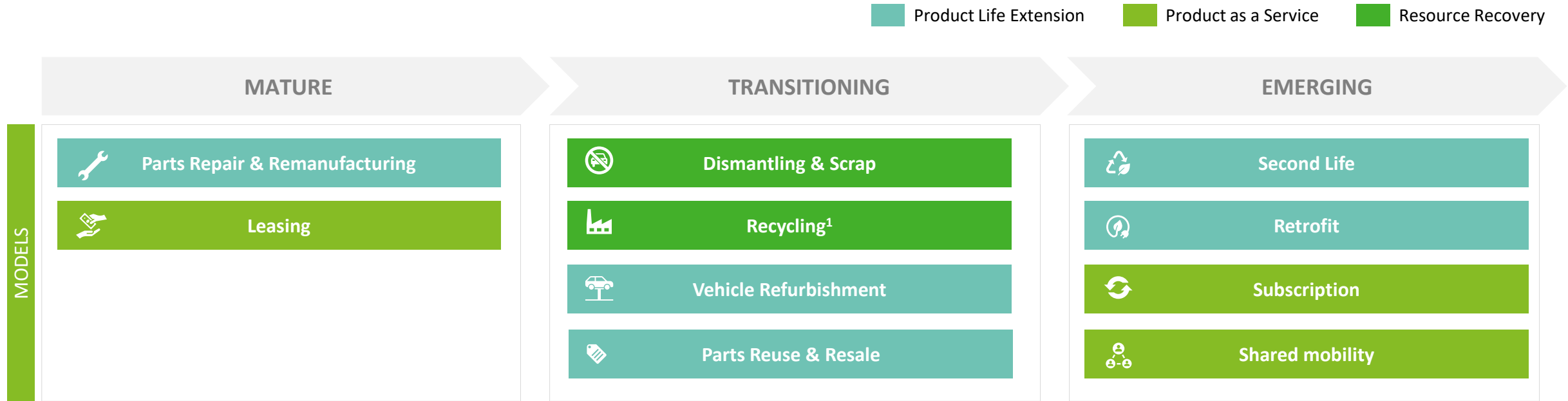
- Dismantling & Scrap
- Recycling

Incremental revenues	Cost savings
Inherent Customer Value Proposition	Differentiated positioning
Supply chain resilience	Sustainability imperatives

Toyota	Mercedes-Benz	Volvo Cars
Jaguar Land Rover	Michelin	Valeo
Forvia	Continental	Plastic Omnium

Notes: 1. These represent key circular business model themes, with Sustainable Design & Circular Inputs as key enablers or catalysts of circularity; 2. Includes only key drivers for adoption and not all benefits (e.g., cash flow improvement, feedback loop for design, etc.) – Regulation is assumed to be a key underlying driver for all circular themes; 3. This represents a non exhaustive list of companies leveraging this model
Source: Based on publicly available information

... only a few of these circular models are relatively mature



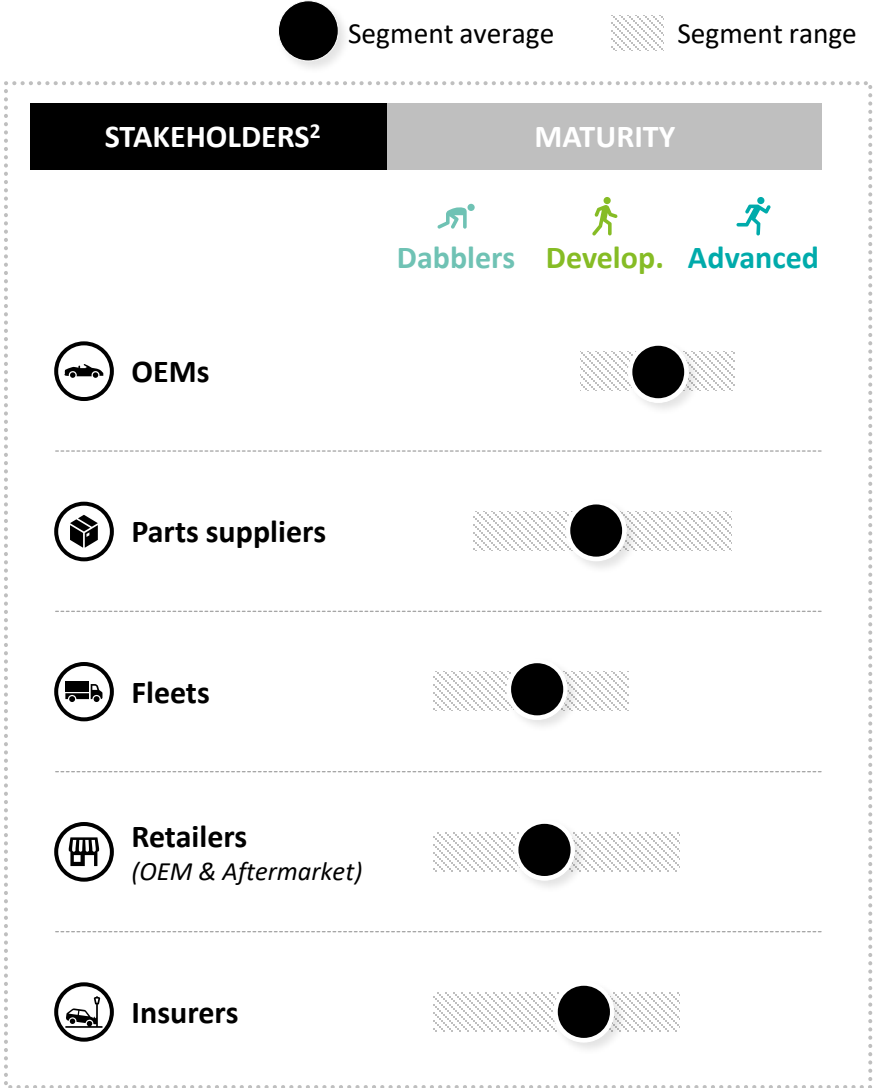
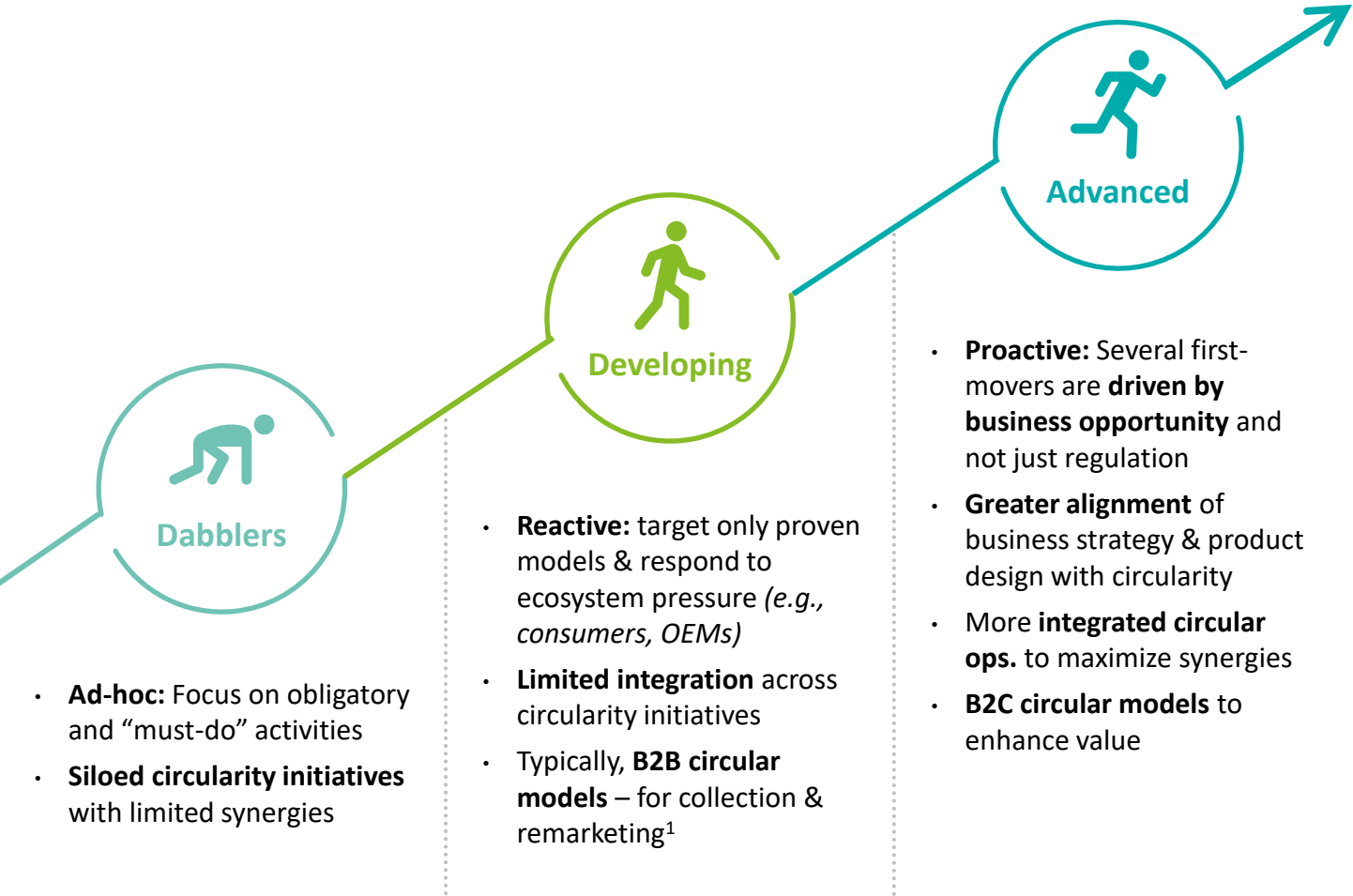
Supported by regulation and market dynamics (e.g., customer preferences), these mature models with **healthy profit margins** (e.g., 30-40% for remanufacturing) are **well established and growing businesses**, although there exists high potential for consolidation in parts repairs.

Often fragmented, and less-technologically mature, these circular models are witnessing significant direct involvement of Auto OEMs, driven by regulation. This could potentially drive industry consolidation and increased capital inflows.

Despite several initiatives being deployed on a small scale, the **long-term viability of these businesses is still to be determined**. Except for shared mobility, few prominent players are present in each circular model. Scalability of the models remain a key success factor.

Notes: 1. Recycling focuses specially on secondary materials relevant to the automotive industry (incl. metals, plastics, battery materials, etc.)

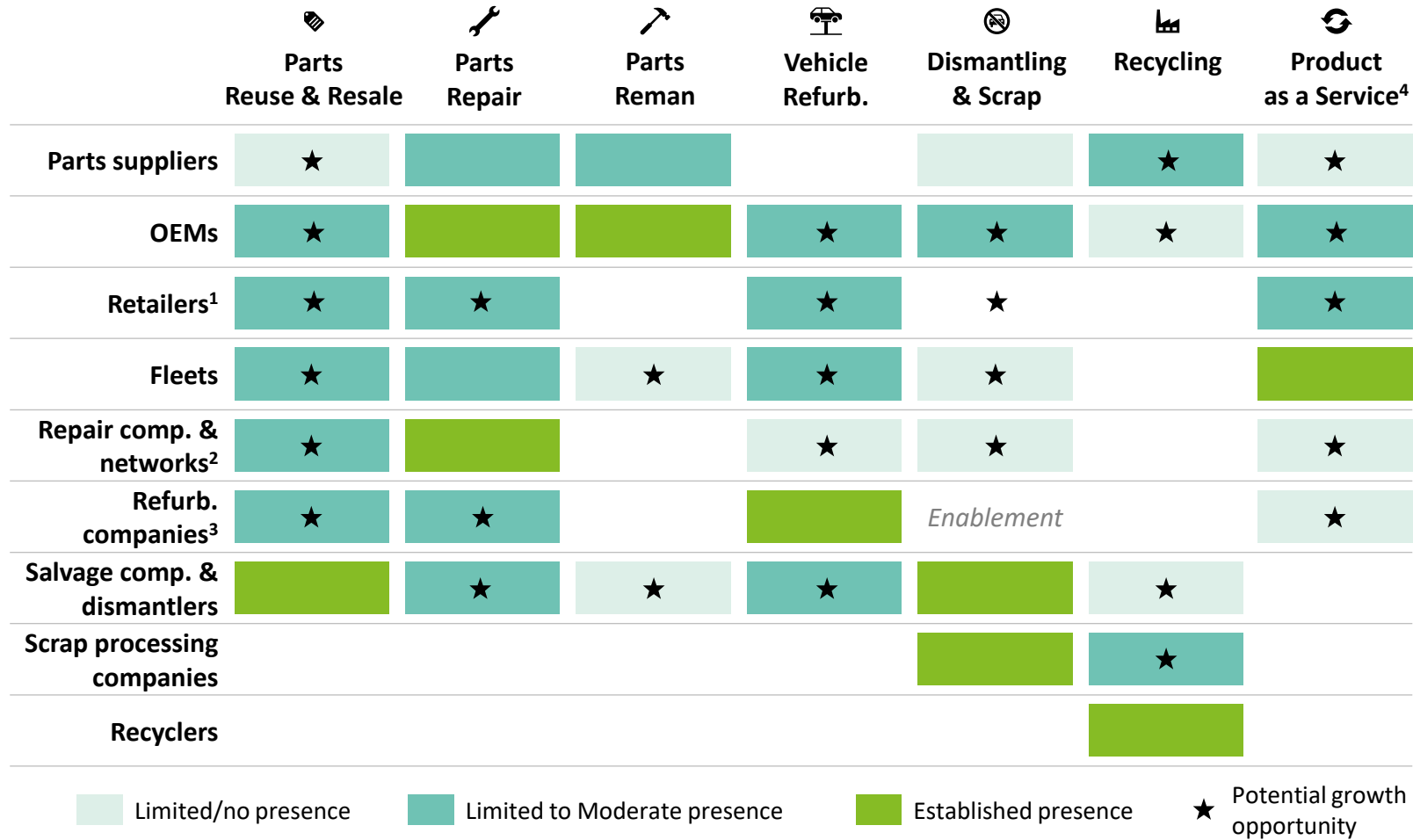
Automotive stakeholders exhibit varied maturity levels regarding circularity...



Notes: 1. At Deloitte, we define circular models as having 3 key steps – Collect, Value & Remarket; 2. Repair, Salvage, Scrap and Recycling companies are considered as “circular native” companies and hence are not specifically assessed on maturity

...while several growth opportunities remain under-tapped

Figure 2: Presence of automotive ecosystem stakeholders in capturing value from major circular business



- Although OEMs are more consistently present across multiple circular models, directly or via partners, there is **potential for other players to capture more value via aftermarket circular models**
- **Significant untapped opportunity in PaaS⁵ models**, as they are mostly deployed by OEMs and fleets for vehicles, rather than for individual parts
- Due to evolving ecosystem dynamics, **certain stakeholders will possess an edge in enabling selected circular models** (e.g., repair networks as key enablers of part collection and B2C model deployment)

Notes: 1. Includes OEM dealers and general aftermarket retailers; 2. Includes Insurer repair networks – insurers have not been included separately as they do not play a major operational role in circularity beyond operating repair networks; 3. Does not include Dealer-owned Refurb operations; 4. Includes Leasing, Subscription & Shared Mobility circular models; 5. Product as a Service

2

Evolution of the ecosystem

Several tailwinds at play



Evolving regulation is expected to transform stakeholder roles within the automotive ecosystem and the structure of future circular models



Decarbonization will continue to be a major driver for circularity due to the significant carbon footprint reduction achieved via secondary materials



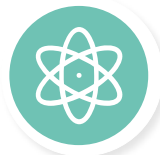
Addressing significant price volatility of key raw materials would increasingly necessitate circular strategies



Electrification will be a catalyst for circularity due to the growing pressure for raw material supply chains and the need to offset high costs & production emissions



Driven by varied trends, the **gradual shift of value generation from new vehicles to vehicle lifecycle management** will enhance the attractiveness of circular business models



Paradigm shifts in the ecosystem will drive higher circularity in the industry, but **each stakeholder group would be impacted differently**

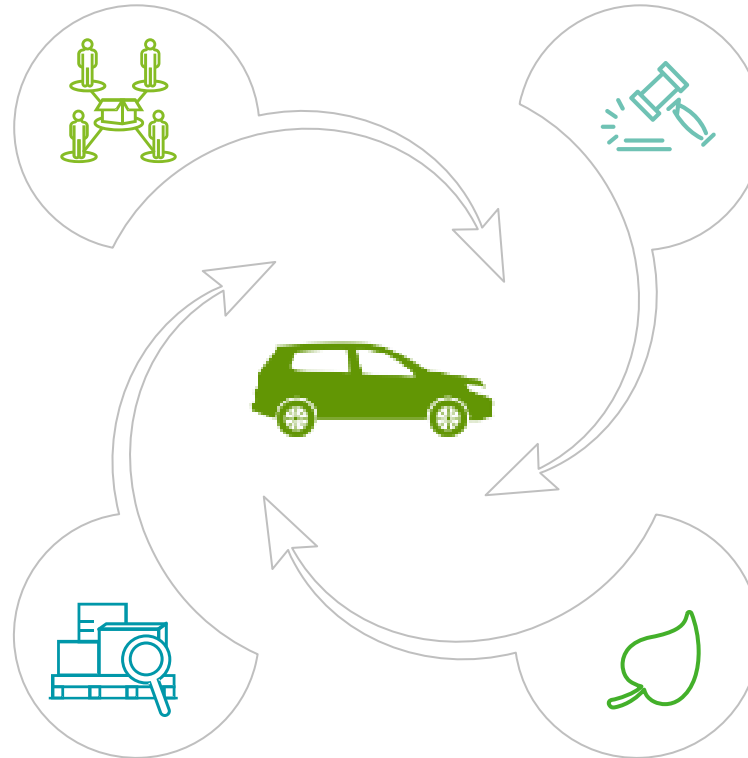
Circularity presents 4 key imperatives for automotive companies in Europe

Avoid dependencies

Minimize dependencies on critical parts and raw materials supply, reducing risks of disruption to supply of semiconductors or battery materials (Li, Co, etc.), and mitigating exposure to price volatility

Ensure sustainable supply

Capture supply from circular channels to ensure minimum volume requirements for profitability by partnering with other stakeholders or creating consortiums to reduce collection costs



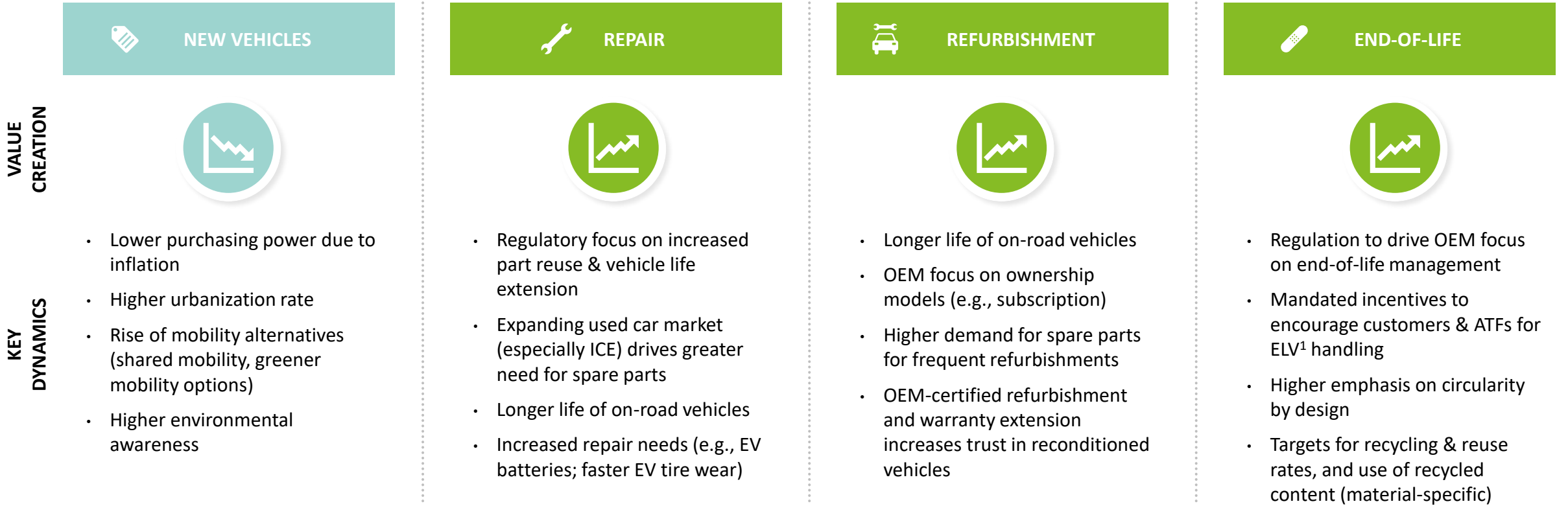
Respect regulations

Ensure future readiness of the business against upcoming regulations on repairability/recyclability, recycled content and End of Life responsibility (i.e., ELV directive)

Reduce carbon footprint

Leverage circular channels as sustainable sourcing, reducing consumption of energy and CO2 in parts creation by targeting key materials that have a major impact on carbon footprint such as Aluminum, Steel, Plastics, etc.

Varied factors will likely shift the balance of value creation towards vehicle lifecycle management



CONSUMER INSIGHT

85% of consumers would **accept green replacement parts in their vehicle repairs** if there is no significant decrease in quality and durability²

26% of consumers are somewhat or very interested in a **subscription service** that allows access to different car models from the same brand³

Notes: 1. End-of-Life Vehicles
Sources: 2. For UK consumers, [Consumer Intelligence \(2022\)](#); 3. For US consumers, '[Global Automotive Consumer Study](#)', Deloitte (2021)

The paradigm shift to circularity has varied, but significant, implications for key stakeholders

		KEY STAKEHOLDER ³ CONCERNS				
		OEMs	Part suppliers	Retailers ¹	Salvage companies & Dismantlers	Scrap processing companies
Electrification	<ul style="list-style-type: none"> Car parc electrification 	Uncertain consumer adoption; revamp of aftermarket model	Need for substitute value streams; investment in ICE aftermarket	Aftermarket revenue impact; Need for new capabilities & services	Long-term impact on used parts opportunity	
Changing regulation	<ul style="list-style-type: none"> Decarbonization regulation Circularity & EOL regulation Eco-design requirements Reporting mandates 	Regulatory compliance; new capabilities & infrastructure; Existing business impact ²	High secondary material expectations; eco-design imperatives	Uncertain role to be played in sustainability shift	Revenue impact due to potentially higher OEM role	Revenue impact due to potentially higher OEM role
Intensifying competition	<ul style="list-style-type: none"> Traditional competition (e.g., low-cost competitors) Non-traditional competition (e.g., vert. integrating players) 	Medium- to long-term impact of low-cost EV competitors	Growing commoditization & low-cost competition	Refer GTM models	Intensifying competition for EOL cars; Need to diversify/vert. integrate	Higher competition for EOL cars; Need to diversify/vert. integrate
Evolving go-to-market models	<ul style="list-style-type: none"> New commercial models (e.g., Agency) Subscription & used car leasing models 	Dealer relations impact; New capability dev.; Financial & risk impact	Develop ability to capture B2C potential (esp. aftermarket)	Agency model	Long-term impact on access to EOL cars due to OEM or Fleet B2C models	Long-term impact on access to EOL cars due to OEM or Fleet B2C models

SELECTED QUOTES

“Regulation will play a major role in driving the mainstream adoption of circular models such as used spare parts
- Major OEM”

“Our margins are under pressure as OEMs are requesting a higher percentage of recycled aluminum
- Major parts supplier”

“The Agency model will have a significant impact. There is a strong need to explore other opportunities
- Major dealer network”

“We actively seek OEM partnerships to capture more value. In parallel, we are investing in electric car dismantling
- Major dismantling co.”

“Our partnerships with OEMs are a major source of value. If OEMs get directly involved, it could impact us significantly
- Major scrap company”

Limited impact Moderate impact Significant impact

Notes: 1. Includes OEM dealers and general aftermarket retailers; 2. Certain circular models such as used parts sale could cannibalize aftermarket part revenues; 3. Only stakeholders whose current operations & value capture might be significantly impacted by these paradigm shifts have been included
Circularity in the Automotive Industry



3

Key future considerations

Strategies that suit potential scenarios



While there are **key certainties** regarding how the automotive ecosystem will evolve, **two major uncertainties** remain



Considering these key uncertainties, **four scenarios** pertaining to circularity for the automotive ecosystem could potentially take place



The **roles and associated bargaining power** of each automotive stakeholder group vary across these different scenarios





Depending on the role they expect to play, automotive stakeholders can **adapt their chosen strategy** to capture value via circular models while balancing risks

Several key certainties & uncertainties will shape the future automotive ecosystem...




KEY CERTAINTIES


 **Electrification** of car parc will transform the automotive value chain

 **Scarcity** of critical materials will foster recycling


 **Decarbonization** will drive circularity


 **Electronics & software** will represent a **higher value share**


 **Vehicles** (esp. ICE) will need to **last longer**

 **Direct-to-consumer** models will become more prevalent

 **Eco-design** will enable more circularity potential

 **Competition** will intensify in the **aftermarket** business

 **Recycled materials** will be increasingly used

 **Low-cost competitors** will grow in scale & market share



KEY UNCERTAINTIES

Stagnant adoption

Adoption of **service models** (incl. shared mobility)

High adoption

Stakeholder-specific circularity targets

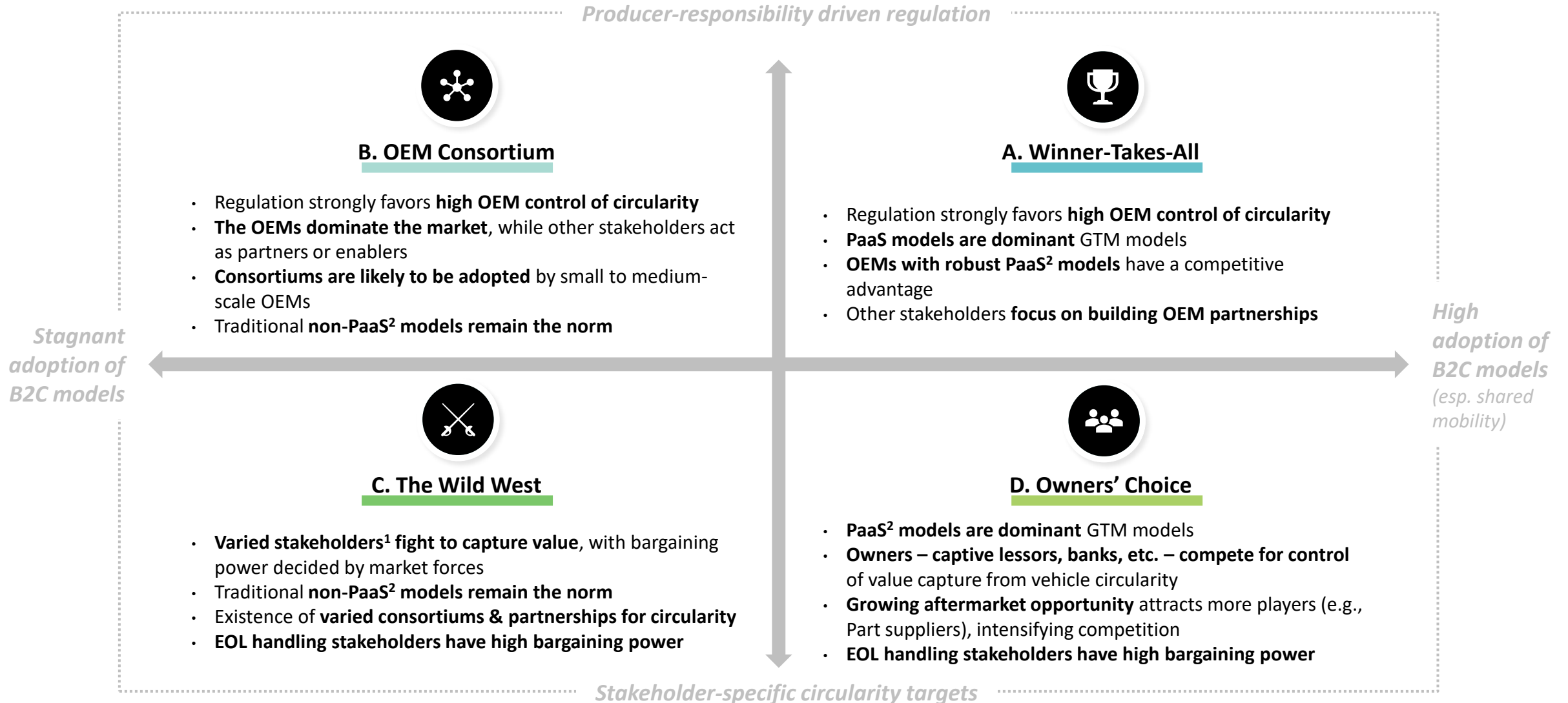
Impact of **Regulation** on circularity & stakeholder roles

Producer-responsibility driven regulation

Note: Other drivers may also play a role in shaping these 2 key uncertainties

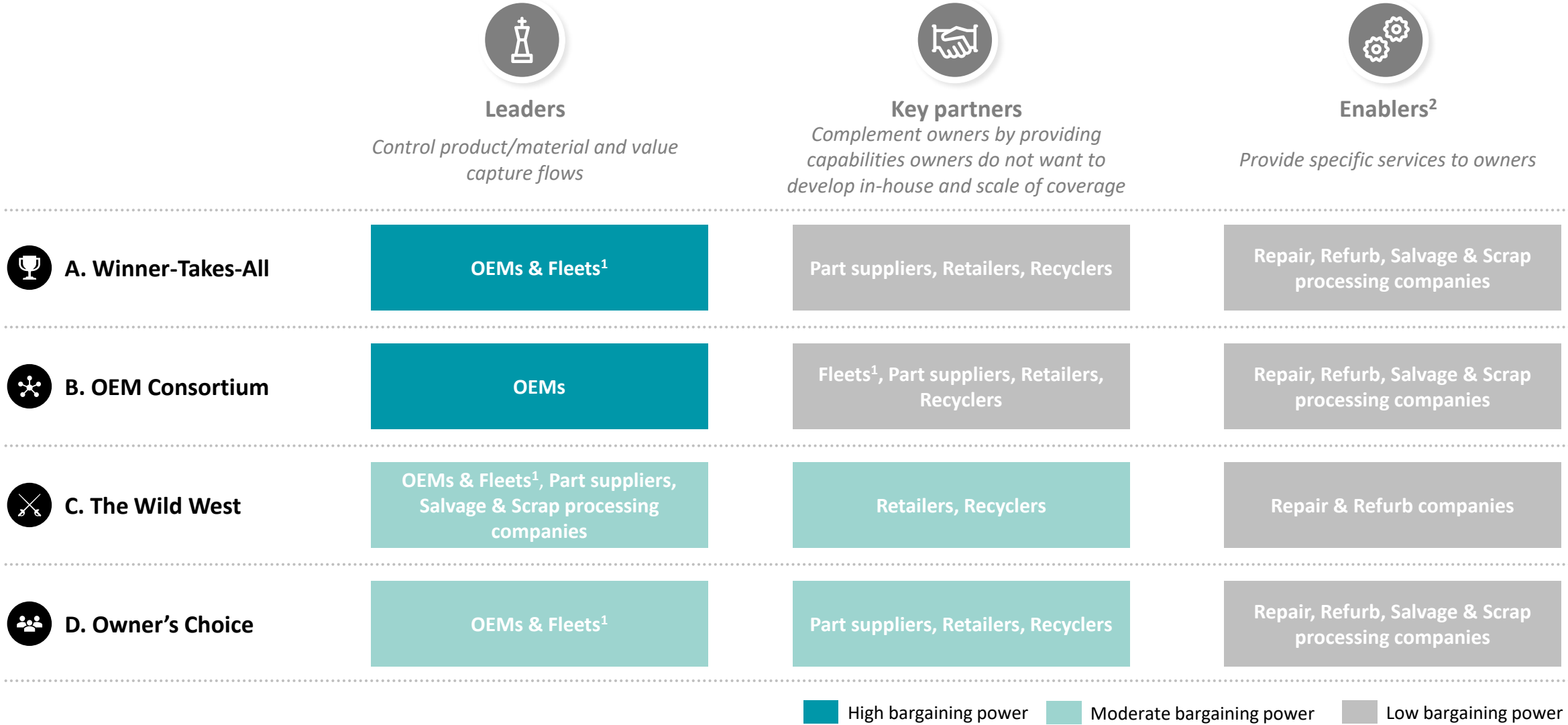
For example, the potentially mainstream deployment of autonomous vehicles may drive higher adoption of shared mobility and the adoption of green hydrogen could impact regulation

... with four major scenarios that are likely to emerge over a 10-year horizon



Notes: 1. OEMs, Fleets, Part suppliers, Salvage companies & scrap processing companies; 2. PaaS refers to Product as a Service

Stakeholder roles regarding circularity are likely to vary across these scenarios



Notes: 1. Including shared mobility; 2. Including logistics companies



4

Conclusion



It is key for companies to set a clear **ambition** for their future circular models, before defining **Where to Play, How to Win, and what capabilities should be developed**



As the opportunities & landscape evolve, companies should adopt an **agile approach** to **test & learn via pilots** to adapt to a new tomorrow

Going forward, companies will need to consider several key choices to define their future circular strategy



Interested in discussing this further? Then, please reach out to us.



Set up a 1-1 discussion

With you and your team to discuss in-depth insights



Organize a workshop

with your Leadership Team to drive the circularity thinking forward



Collaborate together

to define your future circular model and bring your vision to life

Our Team

Authors



Jean-Michel Pinto
Partner
Automotive Consulting Lead
France



Harsha Eashwer Singhraj
Senior Manager
Automotive Consulting
France



Alice Guo
Junior Manager
France

Experts & contributors



Guillaume Crunelle
Partner
Automotive Sector Leader
France



Aled Walker
Partner
Automotive & Mobility Lead
Belgium



Pierrick Drapeau
Director
Sustainability
France

Monitor Deloitte.

To **navigate the future with confidence**, organizations need to make and act upon the right choices: clear, timely and inspirational choices that deliver growth in a dynamic, disrupted world.

Monitor Deloitte's strategy practitioners **combine deep industry insights with cutting edge methods to help leaders resolve their most critical decisions**, drive value, and achieve transformational success.

We work with chief executives and their teams to **catalyze enterprise wide, strategy-led transformation to realize full business value**, leveraging deep perspectives about customers, technology evolution and disruption, sector-blurring ecosystems, and changing sources of competitive advantage.

Contacts

France



Guillaume Crunelle

Partner

Automotive Sector Leader, France

+33 1 55 61 23 05

gcrunelle@deloitte.fr



Jean-Michel Pinto

Partner

Automotive Consulting Lead, France

+33 1 55 61 59 24

jepinto@deloitte.fr

Belgium



Aled Walker

Partner

Automotive & Mobility Lead, Belgium

+32 4 94 54 04 72

alewalker@deloitte.com

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms, and their related entities (collectively, the “Deloitte organization”). DTTL (also referred to as “Deloitte Global”) and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com about to learn more.

Deloitte is a leading global provider of audit and assurance, consulting, financial advisory, risk advisory, tax and related services. Our global network of member firms and related entities in more than 150 countries and territories (collectively, the “Deloitte organization”) serves four out of five Fortune Global 500® companies. Learn how Deloitte’s approximately 312,000 people make an impact that matters at www.deloitte.com.

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms or their related entities (collectively, the “Deloitte organization”) is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in this communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.