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# Suspension Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Component Type (Coil Spring, Leaf Spring, Air Spring, Shock Absorber, and Other Components), By Vehicle Type (Passenger Car and Commercial Vehicle), By Type (Passive Suspension, Semi-active Suspension, and Active Suspension), By Regional, Competition

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## Abstracts

Global Suspension Market has valued at USD 129 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 6.4%. The global suspension market is a highly dynamic and rapidly evolving industry that has witnessed remarkable growth over the past few years. This growth can be attributed to a multitude of factors, including the soaring demand for superior quality suspension systems for vehicles, the ever-increasing number of automobiles on the road, and the continuous advancements in suspension technology. As the automotive industry undergoes a transformative shift towards electric and autonomous vehicles, these driving forces are expected to work in synergy, further propelling the growth trajectory of the suspension market. This shift not only presents new opportunities but also necessitates innovative solutions to meet the unique requirements of these emerging vehicle technologies.

Furthermore, the expanding global middle class, with its enhanced purchasing power, continues to play a pivotal role in bolstering the overall growth of the suspension market worldwide. As more individuals join the ranks of the middle class, there is an increased demand for comfortable and smooth rides, driving the need for advanced suspension systems. In summary, the global suspension market is poised for continued expansion

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and development, driven by factors such as the demand for high-quality suspension systems, the growth of the automotive industry, the advancements in suspension technology, and the rising global middle class. This presents a compelling landscape for stakeholders and industry players to capitalize on the numerous opportunities and stay at the forefront of this thriving market.

Key Market Drivers

Vehicle Comfort and Ride Quality

A primary driver for the Global Suspension Market is the unwavering focus on vehicle comfort and ride quality. Consumer expectations for a smooth and comfortable ride have led automakers to invest in advanced suspension technologies.

Suspension systems are designed to absorb shocks and vibrations from the road, providing passengers with a comfortable and pleasant driving experience. The demand for enhanced ride comfort continues to drive innovation in suspension design and components.

Handling and Performance

Superior vehicle handling and performance remain paramount in the automotive industry. Consumers seek vehicles that provide responsive and predictable handling characteristics, especially in high-performance and sports cars.

Suspension systems play a pivotal role in determining a vehicle's handling characteristics. Innovations in suspension technology, including adaptive dampers and active suspension systems, contribute to improved vehicle stability, cornering performance, and driver confidence.

Safety and Vehicle Stability

Safety is a top priority for both consumers and regulatory bodies. Suspension systems significantly influence a vehicle's stability, traction, and handling during emergency maneuvers and adverse road conditions.

Advanced suspension technologies, such as Electronic Stability Control (ESC) and Dynamic Chassis Control (DCC), enhance a vehicle's ability to maintain stability and control, reducing the risk of accidents. Compliance with stringent safety standards and

regulations drives the adoption of safety-focused suspension features.

Regulatory Compliance

Stringent regulations regarding vehicle safety and emissions are a major driver for the Global Suspension Market. Governments worldwide impose regulations that mandate the integration of advanced safety and environmental technologies.

To meet regulatory requirements, automakers invest in suspension technologies that not only enhance vehicle safety but also contribute to improved fuel efficiency and reduced emissions. Compliance with safety and emissions standards drives the development and adoption of advanced suspension systems.

Market Competition

Fierce competition within the automotive industry compels automakers to differentiate their vehicles by offering superior ride comfort, handling, and performance. This competition drives the continuous improvement of suspension systems.

Automakers partner with suspension component manufacturers to develop innovative suspension solutions that set their vehicles apart from competitors. This collaboration fosters advancements in suspension design and technology.

Technological Advancements

Ongoing technological advancements in materials, design, and manufacturing processes are driving the evolution of suspension systems. Innovations such as lightweight materials, air suspension, and adaptive dampers have a significant impact on market growth.

These technological advancements result in suspension systems that are not only more effective at managing ride comfort and handling but also lighter in weight, contributing to improved fuel efficiency and reduced environmental impact.

Vehicle Electrification

The rise of electric vehicles (EVs) and hybrid vehicles is reshaping the suspension market. EVs have unique suspension requirements due to the distribution of heavy battery packs and the absence of traditional internal combustion engines.

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Suspension systems for EVs are designed to manage the additional weight and unique weight distribution characteristics of battery packs. This trend drives innovation in suspension design and component materials, particularly for electric and hybrid vehicle platforms.

Market Globalization

The globalization of the automotive industry has led to the standardization of suspension components and technologies across regions. This trend promotes collaboration among manufacturers, leading to cost-effective and standardized suspension solutions.

Standardized suspension components enable automakers to streamline production processes and reduce costs while maintaining consistent quality and performance. This globalization trend benefits consumers by ensuring that vehicles meet the same safety and quality standards worldwide.

Demand for Off-Road and SUV Vehicles

The growing demand for off-road and SUV vehicles is driving the need for specialized suspension systems capable of handling challenging terrain. Consumers seek vehicles that offer both on-road comfort and off-road capability.

Suspension manufacturers are developing rugged and adaptable suspension systems suitable for off-road adventures. This trend broadens the application of suspension technology beyond traditional passenger cars.

Autonomous Vehicles

The development of autonomous vehicles is influencing the design of suspension systems. Autonomous vehicles require precise control and stability to ensure passenger safety and comfort.

Suspension systems are being adapted to meet the unique requirements of autonomous vehicles, which may involve advanced sensor integration and real-time adjustments to ensure a smooth and stable ride during autonomous operation.

Key Market Challenges

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## Balancing Ride Comfort and Handling Performance

One of the primary challenges in the suspension market is striking the right balance between ride comfort and handling performance. Consumers expect vehicles to provide a comfortable and smooth ride, while also delivering responsive and sporty handling characteristics.

Suspension manufacturers must continually refine their designs and technologies to achieve this delicate balance. Advanced systems like adaptive dampers and air suspensions help address this challenge by allowing for on-the-fly adjustments to suit different driving conditions and preferences.

## Weight Reduction for Fuel Efficiency

Automakers are under increasing pressure to reduce vehicle weight to improve fuel efficiency and reduce emissions. However, weight reduction can pose challenges for suspension systems as they must support the vehicle's weight while maintaining performance and comfort.

Suspension manufacturers need to innovate in materials and design to create lightweight yet robust components. The use of advanced materials like high-strength steel, aluminum, and composites is essential to meet these weight reduction goals without compromising safety or performance.

## Electric and Hybrid Vehicle Integration

The growing adoption of electric and hybrid vehicles presents unique challenges for suspension systems. Electric vehicles (EVs) have heavy battery packs that can impact weight distribution, while hybrid vehicles combine internal combustion engines with electric powertrains, requiring specialized suspension designs.

Suspension manufacturers must adapt their products to accommodate the specific needs of electric and hybrid vehicles. This may involve adjusting suspension geometry and components to account for the weight and distribution of batteries, as well as developing systems that complement regenerative braking technology.

## Integration of Advanced Driver Assistance Systems (ADAS)

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The integration of Advanced Driver Assistance Systems (ADAS), such as adaptive cruise control, lane-keeping assist, and collision avoidance systems, poses a challenge for suspension systems. These systems rely on sensors and cameras that require precise alignment and calibration with suspension components.

Suspension manufacturers must work closely with automakers to ensure that suspension systems do not interfere with the operation of ADAS sensors and cameras. Proper integration is essential to maintain the accuracy and functionality of these safety features.

Regulatory Compliance and Safety Standards

Stringent safety and emissions regulations around the world drive the need for advanced suspension systems. These regulations necessitate the inclusion of safety features like Electronic Stability Control (ESC) and compliance with emissions targets.

Suspension manufacturers must invest in research and development to meet these regulatory requirements. This includes developing systems that enhance vehicle stability and comply with emissions standards, which can add complexity and cost to suspension design.

Technological Complexity

The integration of advanced technologies, such as adaptive dampers, air suspensions, and active anti-roll systems, into suspension systems adds complexity to design, manufacturing, and maintenance.

Suspension manufacturers must invest in specialized engineering expertise and production capabilities to handle the technological complexity. Training and service infrastructure must also be in place to ensure the proper maintenance and repair of these advanced suspension systems.

Cost-Effective Solutions

While consumers expect advanced suspension systems, automakers are under pressure to keep vehicle costs competitive. Balancing these demands can be challenging, as advanced suspension technologies often come with higher production costs.

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Suspension manufacturers must find ways to optimize production processes and materials to offer cost-effective solutions without compromising quality or performance. Efficient supply chain management and economies of scale are crucial in this regard.

Varying Market Demands

The global automotive market is diverse, with varying demands in different regions and for different vehicle types. Meeting the unique suspension needs of various markets and vehicle segments can be challenging.

Suspension manufacturers need to tailor their products to meet regional and segment-specific demands. For example, markets with rough road conditions may require robust suspension systems, while luxury vehicle segments demand advanced comfort features.

Environmental Concerns and Sustainability

Growing environmental concerns and sustainability goals impact the materials used in suspension components, particularly regarding issues related to recyclability and emissions.

Suspension manufacturers must adopt eco-friendly materials and manufacturing processes. The reduction of emissions from manufacturing and the development of recyclable components are essential to align with sustainability goals.

Rapid Technological Advancements

The pace of technological advancements in the automotive industry is rapid. Suspension manufacturers must continually innovate and update their products to keep pace with the latest technologies and consumer expectations.

Staying competitive in the market requires ongoing research and development efforts to incorporate the latest advancements. This can be resource-intensive and necessitates close collaboration with automakers to ensure seamless integration.

Key Market Trends

Advanced Materials and Lightweighting

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The adoption of advanced materials, including high-strength steel, aluminum alloys, and composites, is a prominent trend in the Suspension Market. These materials are sought after for their ability to reduce weight while maintaining strength and durability.

Lightweight materials contribute to improved fuel efficiency and handling characteristics. Suspension components made from advanced materials help reduce a vehicle's overall weight, resulting in better performance and reduced emissions. Manufacturers are also investing in material innovations to further enhance suspension components.

Adaptive Suspension Systems

The integration of adaptive suspension systems is gaining momentum. These systems use sensors and electronic control units (ECUs) to continuously adjust damping rates and suspension settings in response to changing road conditions and driving dynamics.

Adaptive suspension systems provide a balance between ride comfort and sporty handling. They enhance vehicle stability and passenger comfort by automatically adapting to different driving scenarios, such as cornering or rough terrain. This trend caters to consumer preferences for customizable driving experiences.

Air Suspension Systems

Air suspension systems are becoming increasingly popular, especially in luxury and high-end vehicles. These systems use air springs instead of traditional coil or leaf springs to provide a smoother and more adjustable ride.

Air suspension systems offer superior ride comfort and the ability to adjust ride height, making them ideal for luxury vehicles and SUVs. The trend is expanding to other vehicle segments as consumers seek greater comfort and customization options.

Electrified Suspension Components

As vehicle electrification gains traction, suspension components are also being electrified. Electrically adjustable shock absorbers and active anti-roll bars are examples of electrified components.

Electrified suspension components enhance vehicle dynamics and can contribute to energy efficiency in electric vehicles (EVs). For instance, adjustable shock absorbers can optimize ride quality while minimizing energy consumption. This trend aligns with

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the electrification of the automotive industry.

Connectivity and Sensor Integration

Suspension systems are becoming more connected and integrated with vehicle networks. Sensors and data-sharing capabilities are being used to monitor road conditions, detect potholes, and adjust suspension settings accordingly.

Connectivity and sensor integration improve suspension system responsiveness and adaptability. Vehicles equipped with these systems can provide a smoother ride by proactively adjusting to road conditions. This trend enhances both safety and comfort.

Autonomous Vehicle Adaptation

Suspension systems are evolving to meet the demands of autonomous vehicles. Autonomous vehicles require precise control of vehicle dynamics to ensure passenger comfort and safety during self-driving operations.

Suspension systems for autonomous vehicles are being optimized to provide a stable and comfortable ride, even in situations where there is no driver input. This includes adjusting suspension settings to account for braking, acceleration, and steering actions performed by autonomous systems.

Customization and Personalization

Consumer demand for customization and personalization options extends to suspension systems. Automakers are offering adjustable suspension settings and performance packages that allow drivers to tailor their driving experience.

Customizable suspension settings cater to drivers with varying preferences, whether they prioritize comfort, sporty handling, or off-road capability. This trend enhances the overall driving experience and fosters brand loyalty.

Sustainable and Eco-Friendly Solutions

Sustainability is gaining importance in the Suspension Market. Manufacturers are exploring eco-friendly materials and manufacturing processes to reduce the environmental impact of suspension components.

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Sustainable materials and production methods contribute to reducing emissions and waste associated with suspension manufacturing. Low-impact materials and eco-conscious practices align with global sustainability goals.

Off-Road and SUV Segment Focus

The popularity of off-road and SUV vehicles has led to a focus on suspension systems tailored for rugged terrain. Consumers seek vehicles that offer both on-road comfort and off-road capability.

Suspension manufacturers are developing specialized systems that can withstand the rigors of off-road driving while maintaining on-road comfort. This trend broadens the application of suspension technology beyond traditional passenger cars.

Global Collaboration and Standardization

The globalization of the automotive industry has led to increased collaboration and standardization among suspension component manufacturers, suppliers, and automakers. This trend fosters innovation, accelerates development cycles, and optimizes the supply chain.

Collaboration and standardization improve product quality and competitiveness. Manufacturers can efficiently source materials, streamline production processes, and access the latest technologies, benefiting consumers by ensuring consistent quality and performance worldwide.

Segmental Insights

Component Type Insights

The global suspension market is segmented based on different component types. These include springs, shock absorbers/dampers, struts, control arms, ball joints, bushings, bearings, and others. Springs, one of the crucial components, help absorb and mitigate shock. The shock absorbers/dampers, too, play a pivotal role, converting kinetic energy into thermal energy. Furthermore, struts, a component of the suspension system, effectively combine the functionality of two individual components, i.e., a damper and a spring, into one unit. Control arms, ball joints, bushings, and bearings are key parts that ensure smooth movement and stability of the vehicle. Each of these components contributes substantially to the overall suspension system performance,

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thereby influencing the global suspension market's dynamics.

Vehicle Type Insights

In the global suspension market, different vehicle types exhibit varying trends. For instance, the passenger vehicles segment dominates the market, driven by increased demand for comfort and smooth rides. Enhanced suspension systems in these vehicles ensure a more pleasant driving experience by absorbing shocks from road irregularities. Conversely, in commercial vehicles where load-carrying is of primary importance, robust and durable suspension systems are in high demand. With the rapid evolution of transportation technologies, the electric vehicles segment is expected to show substantial growth. The development of lightweight, efficient suspension systems for these vehicles represents a lucrative opportunity in the global suspension market.

Regional Insights

The global suspension market experiences diverse trends and dynamics across various regions. In North America, the market is driven by the robust automotive industry, which pushes for innovation and adoption of advanced suspension systems. Europe, with its strong inclination towards premium vehicles, showcases a demand for sophisticated suspension technologies that offer comfort and safety. Meanwhile, the Asia-Pacific region, led by China and India, is expected to see significant growth due to rising vehicle production and increasing consumer preference for enhanced driving comfort. Latin America and the Middle East & Africa, though still nascent, present potential growth opportunities, underpinned by developing automotive sectors and improving economic conditions.

Key Market Players

Continental AG

Mando Corporation

ZF Friedrichshafen AG

Thyssenkrupp AG

Tenneco Inc.

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Marelli Corporation

Hyundai Mobis Co. Ltd

Hitachi Astemo Ltd

BWI Group

Sogefi SpA

Report Scope:

In this report, the Global Suspension Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Suspension Market, By Component Type:

Coil Spring

Leaf Spring

Air Spring

Shock Absorber

Other

Suspension Market, By Type:

Passive Suspension

Semi-active Suspension

Active Suspension

Suspension Market, By Vehicle Type:

Passenger Vehicles

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Commercial Vehicles

Suspension Market, By Region:

North America

United States

Canada

Mexico

Europe & CIS

Germany

Spain

France

Russia

Italy

United Kingdom

Belgium

Asia-Pacific

China

India

Japan

Indonesia

Thailand

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- Australia
- South Korea

South America

- Brazil
- Argentina
- Colombia

Middle East & Africa

- Turkey
- Iran
- Saudi Arabia
- UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Suspension Market.

Available Customizations:

Global Suspension Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

- Detailed analysis and profiling of additional market players (up to five).

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