PowerTALK

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Top Stories

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Power Systems Research (PSR) is a world leader in providing power equipment information, whether it's pure data, analysis, forecasting or specific business intelligence. This product information ranges from IC engines to battery-electric and hybrid powertrain technologies. PSR has been providing world class business and market intelligence to industry leaders for more than 40 years. How can we help you? For details, call **+1 651.905.8400** or email **info@powersys.com**. **www.powersys.com**

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PowerTALK现在有中文和日文版本了

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PowerTALKを中国語と日本語でお読みいただけるようになりました

中国語や日本語で読みたいという読者様のニーズに応えるために、アジアから中国語と日本語の記事を提供しています。中国語をご希望の方は**こちら**を、日本語をご希望の方は**こちら**をクリックしてください。

Questions, Comments? Contact Joe Delmont, Editor
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Data Point: *North American Ag Tractors*

118,400

By Carol Turner, Senior Analyst, Global Operations

This is the estimate, by Power Systems Research, of the number of Ag Tractors that will be produced in the United States, Canada and Mexico during 2019.

In 2018, production was 114,813 units, up 6,431 units or 5.9% from 2017.

This information comes from two proprietary databases maintained by Power Systems Research: **EnginLink™** , which provides information on engines and **OE Link™**, a database of equipment manufacturers.

Market Share: With combined plant totals of 82.5%, Deere dominates in production of Ag Tractors in North America. In second position with combined plant totals (Mexico and US) is Case with 10%. Third position goes to Agco with 3.5% (Mexico and US).

Exports:
Canada: Up to 75% worldwide
Mexico: Up to 50% worldwide
United States: Up to 45% worldwide

Trends: Production of Ag Tractors in North America increased 6% in 2017 over 2016, and 5.9% in 2018 over 2017. Production is expected to gain an additional 3% in 2019 over 2018. Despite a weak overall farm economy, sales of equipment increased. Prior year declines are attributed to the overall farm/ag economy that dropped significantly, mostly due to commodity prices.

This has hurt demand for farm machinery and contributed to overall lower sales and profits for agricultural equipment operations. With a little bit of extra cash flow farmers will be seeking new, more efficient models, particularly, large 4wd units. Expect production of Ag Tractors to fluctuate over the next 3-5 years with a possible gain of 10% over the five-year period. **PSR**

Global / North America Report

Joe Zirnhelt Named President and CEO at PSR

Management Transition at Global Research Company

EAGAN, MN—April 19, 2019—Joe Zirnhelt has been named president and CEO at Power Systems Research (PSR), a global research company. He replaces Dennis Huibregtse, who has retired from day-to-day management responsibilities but will remain as a Director of the company. The change is effective immediately.

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> *Huibregtse retired from day-to-day management recently after 36 years with the company.*

Joe Zirnhelt

Dennis Huibregtse

Edward Hadingham

PSR has been tracking the worldwide production of engines and engine-powered equipment for more than 40 years. Since 1976, Power Systems Research has been providing hard-to-find data, forecasts and intelligence on power equipment markets to industry leaders. It operates a global network of field offices in Ann Arbor, MI, Brussels, Beijing, Tokyo, India, Moscow and Brazil from its headquarters in Eagan, Minnesota.

PSR established the Eagan, MN headquarters in 1983, and later opened key offices in Brussels, Belgium in 1986 and Ann Arbor, MI in 2002. The other field offices have since been established to further serve the market needs of clients requiring data and market intelligence throughout the world.

Zirnhelt has served as the company's Chief Operating Officer & Strategist since 2015. He joined the company as a Senior Consultant in 2005.

Huibregtse retired from day-to-day management recently after 36 years with the company. Huibregtse has played a major role in the development of PSR since it was founded by George Zirnhelt as a small engine research firm in 1976 in Grantsburg, WI. Huibregtse will continue to serve the company as an advisor in the coming years.

Also retiring from day-to-day management is Edward "Ted" Hadingham, president of the company's European operations. Hadingham joined PSR in 1989 and has managed PSR's European operations since 2002. Hadingham resides in the UK and will continue to provide project services for PSR's clients in the UK and Europe.

Both Huibregtse and Hadingham will continue as members of the company's Board of Directors.

The change is the final step in the transition that was started several years ago as the company planned for its future leadership transition. No other immediate changes in company organization or operations are expected.

"George showed his foresight in developing a management transition plan that would enable him to seamlessly move into retirement," notes Zirnhelt. "His foresight as a leader proved invaluable with his untimely passing in February 2015."

Zirnhelt added: "We have a strong, experienced management team in place, and we're looking forward to an exciting future for the company and the clients and industries we serve."

Joe Zirnhelt's responsibilities have included management and oversight of the company's operations as well as leading the implementation of strategic initiatives. He has extensive experience in the power sector and has led and provided

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IHS Markit is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide.

expertise to advanced research projects in the power generation and other engine related industries.

Over his 24-year professional career he has served as an Officer in the U.S. Navy including training in the Naval Nuclear Propulsion Program followed by experience with Alstom Power, a leading French power plant developer, before joining Power Systems Research.

Zirnhelt holds an undergraduate degree in Mechanical Engineering from the University of Notre Dame and an MBA from the University of Texas at Austin.

He has been a regular contributor to Diesel Progress magazine and other industry publications often featuring the North American power generation market. He also is actively involved in the Electrical Generating Systems Association (EGSA) where he has contributed content for its Powerline magazine and recently completed his term as Chair of the Market Trends Committee. **PSR**

Power Systems Research and IHS Markit Form Partnership

Two leading global research firms have formed a marketing partnership to produce unique high quality regional-focused industry equipment reports. Together, Power Systems Research and IHS Markit are developing a portfolio of industry-leading equipment reports by region.

IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. IHS Markit is headquartered in London.

Power Systems Research is the leading source of global production, forecasts and population data for engine-driven vehicles and equipment.

Under the new partnership, PSR provides information from its proprietary databases supported by its analysis of equipment and regional market forces. IHS Markit contributes its global analysis and outlook of off-road equipment focused on the construction and agricultural markets.

The PSR-IHS Markit Partnership was founded in 2018 after the two companies worked together for several years for the purpose of producing industry-leading unique, detailed industry segment reports by region.

The reports provide timely and targeted market insights into defined regions by specific industry segments, with reasonable pricing that provides high customer value.

The first product of the PSR-IHS Markit partnership is the ***Construction Equipment Report: India*** published May 2018. An updated version of this report is planned for this Spring, and a report on the Agricultural segment in selected countries of Africa is being developed. A segment report on the Brazil market also is being studied.

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The 26-page India report is typical of the types of reports that will be produced by the Partnership. It contains two sections: the Macroeconomic and Industry overview section discusses the region's economic background, the key drivers for the Construction industry, and an outlook for the industry.

The second section is the Equipment Market Analysis and Forecast. It contains important equipment information and trends, emissions regulations, a description of the Construction equipment market, and an analysis of the Construction market challenges.

For more information contact your PSR sales representative, or email **reports@powersys.com**. **PSR**

World Economy Seems To Be Weathering Changes

By Yosyf Sheremeta, Director Product Management & Customer Experience

Yosyf Sheremeta

SUMMARY. The end of 2018 exposed several challenges on the horizon and approaching world economy, but the growth trend is showing a strong level of support. Global uncertainties, geo politics and trade wars have put significant pressure on the markets and economic activities, so that many continue to feel the "wait and see" approach is the safest bet at the moment.

Trade policies scheduled to take place during Q2 2019 as well as Brexit will play a significant role in the short term and will define a direction for the next few years.

During 2018, world economies posted solid growth globally in most segments, but they raised warning flags and set up cautious expectations going into this year. In comparison to our forecast last quarter, PSR expects slower growth in 2019 and 2020, as we believe the word economy reached its short term peak last year.

Markets in European and North America enjoy record low unemployment, historically very low interest rates and low inflation. However, several risk factors to this continued growth exist, including the geo-political environment, higher expected interest rates and inflation, as well as a possible economic cold war, further trade disagreements and new political tensions.

With the growth of economic uncertainties, we expect to continue to see rapid shifts in political situations and money capital between industries and markets going forward.

When our analysts study current and future market trends, we do not speculate on rumors or proposed future policies—although we consider their possible effects—so we have not made any significant changes in our projections related to escalated global trade tensions and economic disagreements.

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Our forecast largely is based on current and future demand analysis as well as our proprietary forecasting algorithm.

As we look at Q2 2019 and the rest of the year, we have slightly adjusted our previous forecast to be more cautious and conservative. New proposed global trade policies will certainly have an impact on current markets and future growth; however, these changes will not be immediate and will depend greatly on the outcome of such policies in the long run.

Most markets are growing at modest rates, and we are in the middle up-trend of the global growth cycle in the developed economies, such as Europe, and in developing markets, such as India. The North American economy is still strong; however, it seems to be riding the top of the economic cycle and a slowdown will be on the horizon within 6-18 months.

During the next few years we will see increased growth and adoption of new technologies such as autonomous driving and electrification. Some markets will adopt these new technologies quickly, which will disrupt some industries. Key segments that will experience the most rapid change will be Lawn and Garden, On-Highway and some Recreational Products.

AGRICULTURAL production worldwide suffered a major slump in 2014 and 2015, and the recovery in 2016 was not near the earlier projected levels. We believe the overall market reached its bottom in 2016, especially for lower HP equipment, which saw some double-digit growth in sales in 2016 vs 2015.

At the same time, increased demand and level of activities did not produce much of the expected recovery in 2017; 2018 started very slowly, but as the year progressed the level of activities improved significantly.

Sales of higher HP equipment gained traction in 2018, and we expect the overall level of activity for this equipment to increase and a recovery to take place over the next two years (2019-2020).

However, the global machinery production for the Agricultural sector declined 5.2 % in 2018, down slightly (by 0.6%) from the previous quarter. This trend will continue in 2019, slipping 2.1%. This decline is mainly due to the replacement in China of 2-wheel drive tractors with larger HP machines. Overall, machinery production within the Chinese Agricultural sector showed a decline of 15.5% in 2018, and we project an additional drop of another 8% in 2019.

Globally, we do not expect any rapid recovery or high growth until 2020, mainly due to current economic conditions, ongoing trade rhetoric in the segment and record low commodity prices. We forecast the recovery will be very slow and the market will not reach its prior high levels in the foreseeable future.

Future trade tensions might impact the global commodities trade, and that will have a direct impact on the segment at the regional level. Key regions that will experience significant changes will be Greater China, North America and Central/South America.

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The Construction segment showed a healthy demand recently in North American markets, especially for smaller equipment, and 2019 looks very promising.

CONSTRUCTION. The global Construction sector performed very well over the past couple of years, posting an overall growth rate of 8.9% in 2018. This rate was unchanged during H2 2018. Some equipment seems to be gaining solid ground in Europe and production was slightly higher by 0.6% against previous quarter projections.

The Construction segment showed a healthy demand recently in North American markets, especially for smaller equipment, and 2019 looks very promising.

China showed a significant increase in the segment during H2 2018, and the whole year posted a solid 24% gain over 2017. Furthermore, the trend continued into 2019, but will follow rather organic growth at 1.2% over next few years. Additionally, Brazil experienced significant improvements in 2018, with 30% growth over 2017, and we project an additional 10% increase annually in 2019-2020.

At the same time, the economy in North America seems to be gaining strength, especially in the Construction segment, and based on current production schedules for 2018-2019 the trend will remain stable. Growth rates are expected to be in line with previous projections in mid-single digits, however, with increased risks.

We now forecast global machinery production for construction markets to achieve 2.0% growth in 2019, which is healthy, but slightly lower than the previous quarter by 0.1%.

Based on the most recent developments over the past year, the mining sector is looking encouraging. Additionally, a proposed increase in infrastructure spending in the U.S. could drive this sector higher.

In terms of the overall economic cycle, we expect most developed markets to remain solid in 2019. Within the Construction segment, we see Brazil, India and China showing very strong performance in emerging markets, and North American, European and Japanese markets supporting this trend.

We expect fast adoption of new technologies and electrification of equipment, especially on the smaller end of HP range. Many OEMs already have introduced new electric and other alternative fuels drive type models or will be doing so soon.

Other **Off-Highway** segments, such as **Industrial**, **Lawn and Garden** and **Power Generation**, will closely follow economic trends, globally. One product application that is especially worth mentioning, Rough Terrain Forklifts, is experiencing tremendous growth. Within this application, one product--Telescopic Boom Forklifts--has shown significant growth, especially in North America and Europe. Following an exceptional growth of 20% in 2018, his product is projected to deliver 9%-11% growth annually over the course of 2019-2020.

For the **On-Highway** sectors, we saw much new development in 2018 in electric technology, and new electric models that are planned to be introduced by most major OEMs. At this point, the overall volume for electric vehicles (both commercial and for personal use) is insignificant in terms of market share, but we

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already see rapid adoption of these technologies, and its growth will accelerate over the next 5-10 years.

During 2018, we significantly increased our near-term projections and growth rates for electric buses as well as commercial vehicles. However, the baseline production volumes remain low in terms of overall market share for these applications. We project that these new technologies, if adopted by the market will have a significant impact and rate of change in 4-5 years and will continue rapidly expand market share. **PSR**

Brazil/South America Report

By Fabio Ferraresi, PSR Director, Business Development, South America

Fabio Ferraresi

CAOA To Acquire Ford Truck Plant To Produce Hyundai Trucks

CAOA plans to acquire the Ford Plant in São Bernardo do Campo, Brazil to produce the Hyundai Xcient line. The first model to be produced is the P440, fighting for market share with Mercedes-Benz, MAN, Scania and Volvo. They also plan to export to all South America and Mexico, increasing production levels in Brazil.

Source: *Gazeta do Povo* **Read The Article**

PSR Analysis: The truck segment is recovering, and production levels are growing year over year. The targeted segment is one that is showing fastest growth and is recognized for superior profitability. With Hyundai technology, CAOA is able to bridge the gap of Euro VI technology development at Ford and establish production competitiveness with the rightsizing of the Ford business, including the elimination of Ford's legacy labor liabilities.

Chinese Foton Considers Buying Ford Truck Plant

Chinese truck manufacturer Foton is another of the candidates trying to acquire the Ford Truck operations in Brazil. The company had plans to build a new plant in South of Brazil, but the Ford opportunity may make them review these plans.

Source: *Valor Economico* **Read The Article**

PSR Analysis: The acquisition of the Ford plant by Foton seems to be more difficult than the acquisition by CAOA Hyundai, since the project of building trucks in the South of Brazil is in an advanced stage and negotiations of CAOA and Ford have the support of the government of São Paulo.

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Brazil/South America Report

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The growth in motorcycle production and sales in the first quarter has led the Brazilian Association of Motorcycle & Bicycle Manufacturers (Abraciclo) to review the projections for 2019.

Motorcycle Manufacturers are optimistic for 2019

The growth in motorcycle production and sales in the first quarter has led the Brazilian Association of Motorcycle & Bicycle Manufacturers (Abraciclo) to review the projections for 2019.

Between January and March, 276,800 bikes were assembled in the Industrial Hub of Manaus, an increase of 6,6% compared to the same period in2018. Sales also increased 15.7%, adding more than 250,000 motorcycles in the country.

In March, daily sales reached 4,400, the best since 2015. Based on these data, the production growth estimate for 2019 rose from 4.2% to 6.1%, or about 1.1 million motorcycles.

Source: *Valor Economico* **Read The Article**

PSR Analysis: Even with great sales numbers presented by ABRACICLO, production could be even better, if there were no effects from the crisis in Argentina. Exports to the Argentinian market continue to fall. All in all, the projection for 2019 is optimistic and predicts a significant increase for the production of motorcycles, after seven years of consecutive declines.

Credits for Agricultural Machines Are Reaching the Limit

While increased sales of 7% in March continued the growth started in H2 2018, the resources provided by the Brazilian government for low interest funding of Agricultural Machines have almost ended. Farmers and OEMs fear the government will not extend the resources and the hot demand will lose momentum until the end of the current Safra Plan, in June 30, 2019.

Source: *Valor Economico* **Read The Article**

PSR Analysis: The risk of the end of credits at low interest rate is also causing an acceleration of purchase decisions in Brazil with a strong impact in Q1 2019 sales. Additionally, the grain crops in Brazil and Argentina will be one of the best in history. The Agrishow in early May will give us a better idea of the market for the year, and we may get good news from government at that time. **PSR**

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China Report
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China Report

By Qin Fen, 秦奋 PSR Business Development Manager-China. 业务拓展经理

China Lubricant Market Focus

Qin Fen

The 12th China lubricant market focus held its two day meeting on the China lubricant market, and companies from addictive, base oil, and trading gathered in Suzhou to share their thoughts on the market.

Sources: *Enmore* **Read The Report**

PSR Analysis: Much like other emerging industries, we see thousands of small and medium companies fighting for survival. If there are fewer government interventions and tax limitations and a more level play field, there definitely will be some companies beginning to compete with companies like Exxon Mobil, Castrol and Shell.

中国润滑油行业聚焦

2019年4月19日 – 苏州—第12届中国润滑油行业聚焦关于中国润滑油市场，两天的会议成功闭幕。来自添加剂，基础油，贸易行业的公司共聚苏州，分享关于行业的看法。

新闻来源： 易贸 – **阅读原文链接**

PSR分析： 和其他过去崛起的行业非常一样，我们看到了成千上万个中小企业都在为生存而竞争。如果政府干预更少一点，税收限制更少一点，竞争更公平一点，那么，一定会有一些公司从竞争中脱颖而出，和伟大的公司如美孚，嘉士伯还有壳牌，同台竞争。

SinoHytec, Beiqi Foton and Toyota Roll Out Hydrogen Fuel Cell Bus

SinoHytec, China's leading hydrogen stack producer, has joined Beiqi Foton, China's leading commercial vehicle OEM and Toyota, the world's leading hydrogen powertrain supplier, to rolls out a new fuel cell bus.

Sources: *SinoHytec* **Read The Report**

PSR Analysis: Since meeting China NS 6 emission standard is becoming increasingly expensive, it makes sense for OEMs like Beiqi Foton to poke around and try new technologies. With economies of scale, Toyota, which has been promoting hydrogen-powered products for years, could very well be on the right path in China. SinoHytec will lock in a significant OEM in bus industry. This is a triple win. **PSR**

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丰田汽车、北汽福田、亿华通三方合作推出氢燃料电池客车

2019年4月22日 – 北京—丰田汽车公司（下称丰田汽车）、北汽福田汽车股份有限公司（下称北汽福田）和北京亿华通科技股份有限公司（下称亿华通）三方在氢燃料电池客车领域展开合作。

新闻来源：亿华通 – **阅读原文链接**

PSR分析：随着满足国六排放法规越来越变得昂贵，对于福田这样的OEM厂商来说，探寻并尝试其他新技术，是有其内在道理的。产品有了规模经济，多年来一直在推动氢燃料驱动产品的丰田汽车公司，很可能在中国找到了一条正确的道路。亿华通也锁定了客车行业的一个大客户。这是一个三方共赢的局面。

Europe Report

By Emiliano Marzoli, Senior Business Development Manager - Europe

Bauma 2019 Record Attendance Tops 620,000

Electrification of Machines and Powertrains Is Popular Topic

Emiliano Marzoli

Read The Article

PSR Analysis: Bauma 2019 set a new record for attendance during the show's seven-day run, April 9-14, as visitors and exhibitors met to discuss trends in equipment electrification.

More than 620,000 visitors attended the event in Munich, an increase of some 40,000 over the 2016 show. More than 250,000 visitors came from countries outside Germany. The top 10 visitor countries after Germany were: Austria, Italy, Switzerland, France, the Netherlands, Russia, Sweden, the Czech Republic, Poland and Great Britain.

The great success of the show was due in part by the strength of the construction industry. 2017 and 2018 were two very positive years according to our database **OE Iink™**.

And while 2019 will see a slowdown, we still forecast a global growth of 2% in demand of new construction machines.

Electrification Is Hot Topic

One of the main topics at Bauma was the electrification of machines and powertrains. Many companies showed new solutions, ranging from partial to full hybrids to full electric.

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Europe Report

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Volvo Introduced prototypes of electric wheel loaders and excavators. By 2020 they plan to introduce the EC15 and EC27 compact electric excavators and the L20 and L28 electric wheel loaders

Volvo Introduced prototypes of electric wheel loaders and excavators. By 2020 they plan to introduce the EC15 and EC27 compact electric excavators and the L20 and L28 electric wheel loaders.

Komatsu also showed hybrid products and an electric excavator prototype. Cummins showed a flexible battery module on the Hyundai compact excavator prototype. You get the drill. A lot of talking about electric, but so far, it's mostly at the prototype stage.

We expect in the short time to see many of these prototypes develop into market products. Compact construction equipment seems to be best suited for the transition. They operate mostly in urban environments, where electricity is available, and they can be recharged easily.

Their mission uses batteries that are within current technology: Cummins claims their 2X4.4 kWh battery back installed on the Hyundai excavator will provide one day of work for typical operations with a mini excavator.

As for larger machines, hybrid systems will be a better solution. The main advantages will be to reduce the engine size and power, thus lowering emissions and consumption.

Construction equipment will be again at the forefront of the market; there is more space in the machines to fit the different modules and since they operate in many cases in urban areas, they are more subject to noise and emissions regulations.

Three years from now, we expect to see many of the prototypes presented in Munich this year available on the market or launched in their final version at Bauma 2022. We will look forward for the next event with a lot of excitement and curiosity.

Foreign Visitors Increase

The trade fair also experienced a strong increase in attendance from overseas visitors. Significant gains in this group were produced by China, Australia and Japan. More than 5,500 visitors came from China alone.

The number of exhibitors totaled about 3,700 from 63 countries – likewise a record. With its unprecedented 614,000 square meters of space, the largest Bauma ever held was once again a Bauma filled with records.

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Far East/Southeast Asia Report

By Akihiro Komuro, PSR Research Analyst, Far East and Southeast Asia
小室明大　極東および東南アジア　PSRリサーチアナリスト

極東 > 日本:

トヨタ、電動化特許を無償提供　ＨＶ市場拡大へ

Akihiro Komuro

トヨタ自動車は３日、ハイブリッド車（ＨＶ）を中心とした電動化技術の特許を同日から無償提供すると発表した。モーターやパワーコントロールユニット（ＰＣＵ）といった中核技術の特許を含め、約２万３７４０件が対象となる。電動車を開発するのに必要な中核システムを他の自動車メーカーが採用する際、トヨタは技術支援も担う。

世界的に燃費規制が強化される中、競合他社に技術を無償提供し、ＨＶの市場拡大につなげる。トヨタは得意のＨＶ技術を軸に、電気自動車（ＥＶ）やプラグインハイブリッド車（ＰＨＶ）、燃料電池車（ＦＣＶ）を組み合わせて、各地域の環境規制に対応する戦略を他メーカーにも促す。ＦＣＶでは取り込んだ空気をより浄化して排出する「マイナスエミッション」の概念で環境改善への貢献を訴求し、技術の普及拡大を図る。トヨタは今回、自社だけで醸成してきたＨＶ技術を外部に提供することになる。

出典: 日刊工業新聞, 2019年4月4日

PSR 分析: HVはトヨタが1997年にプリウスを投入して以来、グローバル開発をリードしてきた分野だ。これらの無償提供は、トヨタが戦略を転換したことをはっきりと示している。特許の無償公開で他の自動車メーカーがHVに参入すれば、基幹部品である電池やモーターなどの生産数量が増え、コスト低減につながる。そうして普及が加速する。今後はモーターや車載電池の電力を変換するインバーターなどで構成する「パワーコントロールユニット（PCU）」、システム制御などに関する特許を開放する。それだけではなく、導入に当たっての技術サポートをする「車両電動化技術のシステムサプライヤー」を目指すことになる。

EV本格普及へのつなぎ役として、HVの需要は世界各国で伸びると予想されている。ただHVの先駆者であるトヨタが優位に立ち続けられる保証はない。欧州では、従来のエンジン車の構造を流用しやすく、低コストで燃費を改善できる「マイルドハイブリッド」と呼ばれる方式が電動車の新たな主流になりつつある。

トヨタのHVは「ストロング型」と呼ばれている。エンジンとモーターを使い分けて走行することで、燃費の改善効果が大きい一方、機構が複雑で高度な電子制御が必要になり、それは中堅以下のメーカーにとって参入しにくい分野でもある。一方、マイルド型は独ボッシュや独コンチネンタルをはじめ自動車部品大手が関連する部品・システムを積極的に外販しており、米フォード・モーターなど欧州勢以外にも導入する動きが広がっている。トヨタがシステムサプライヤーになると宣言したのは、こうしたメガサプライヤーの攻勢に対する危機感の表れでもある。

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Far East: Japan Report

Toyota Offers Free Electrification Patents

Toyota announced on April 3, 2019, that it will offer a patent for electrification technology centering on hybrid vehicles (HV) free of charge. It covers approximately 23,740 patents, including patents on core technologies such as motors and power control units (PCUs). Toyota also will provide technical assistance as other automakers adopt the core systems needed to develop electric vehicles.

While fuel efficiency regulations are being tightened globally, Toyota will provide technology free to competitors to help expand the HV market.

Toyota is promoting its strategy to respond to environmental regulations in each region to other manufacturers by combining electric vehicles (EVs), plug-in hybrid vehicles (PHVs) and fuel cell vehicles (FCVs) based on its own HV technology. In the field of FCV, they advocate the concept of "minus emission" which purifies and discharges the air taken in by FCV. Toyota has now begun to provide the HV technology that it has fostered on its own to the outside.

Source: *Nikkan Kogyo Shimbun* **Read The Article**

PSR Analysis: These free offers clearly show that Toyota has changed its strategy. Since Toyota announced the Prius in 1997, Toyota has been a global leader in the development of the HV market. If other automakers enter the HV with the patent disclosure free of charge, the production volume of batteries and motors, which are core components, will increase, leading to cost reduction.

Thus, the spread of HV will accelerate. Toyota will release a patent on system control, a "power control unit (PCU)" that consists of an inverter that converts the electric power of a motor or an on-board battery. Not only that, they aim to be a "system supplier of vehicle electrification technology," which will provide technical support for the introduction. Demand for HVs is expected to grow around the world as a link to the full-scale spread of EVs.

However, there is no guarantee that Toyota, the pioneer of the HV, will continue to dominate in the future.

In Europe, a method called "mild hybrid" that can easily utilize the conventional engine car structure and improve fuel efficiency at low cost is becoming the new mainstream of electric vehicles. Toyota's HV is called the "strong type."

Driving by using an engine and a motor separately has a large effect on improving fuel efficiency, but it requires a complex mechanism and high-level electronic control, which is a field that is difficult for mid-sized and smaller manufacturers to enter.

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Auto parts manufacturers such as Bosch Germany and Continental Germany are aggressively selling related parts and systems, and there is a growing movement to introduce them to other than Europeans such as Ford Motor.

On the other hand, in the mild type, auto parts manufacturers such as Bosch Germany and Continental Germany are aggressively selling related parts and systems, and there is a growing movement to introduce them to other than Europeans such as Ford Motor. It can be said that Toyota has a sense of crisis regarding the movement of such mega suppliers and the trend of the mild hybrid. **PSR**

極東 > 韓国:

現代自動車、R&Dと未来車開発へ45兆ウォン投資

現代自動車は未来車を集中的に開発するため大型投資する。ソウルで社長主宰の「ＣＥＯ（最高経営責任者）インベスターデイ」を開き、今後5年間に研究開発や未来技術に45兆3000億ウォンを投資すると発表した。最も力を入れるのは新車開発や自動運転などの未来技術で、2023年まで年平均で9兆ウォン以上の投資を継続する。現代自動車はこの5年間に年平均5兆7000億ウォンを投資してきたが、今回の投資計画はこの1.5倍以上だ。（中略）現代自動車グループの2017年のＲ＆Ｄ投資規模は、世界の自動車メーカーで11位だった。車両生産規模を見れば世界5位だが、Ｒ＆Ｄ投資はやや見劣りした。今回の計画は、果敢な投資で未来車市場を確保するという決意を示すものでもある。

投資計画の内訳は、①Ｒ＆Ｄに20兆3000億ウォン②未来モビリティー（移動手段）と自動運転など未来車技術に14兆7000億ウォン③施設維持保守と老朽設備改善など経常投資に10兆3000億ウォンとなっている。

特に、未来技術分野への投資が急増している。現代自動車は昨年約8000億ウォンを未来車分野に投資した。今年からは年平均3兆ウォン規模に拡大する。

出典: 東洋経済日報, 2019年3月8日

PSR 分析: 自動運転、EVシフト、シェアリングモビリティーなどの次世代技術競争が激しさを増している。現代は積極的に投資を推進しようとしている。最近の現代の次世代技術投資は以下の通り。

１. 現代グループ傘下の現代Mobisは、ロシアのYandexから自動運転ソリューションの技術提供を受けることを3月19日に明らかにした。

２. 現代グループは2019年内に海外に自動運転技術の核心であるAI関連の競争力を引き上げることを目的に、AIリサーチセンターを海外に設立すると発表した。

３. 現代は2018年に米国の自動運転専門企業Auroraと契約した。

４. 現代は2018年5月に米国のレーダー開発企業メタウェーブへ投資した。

この４つの例を見てもわかるように、現代の次世代技術投資はとても積極的だ。多くはアライアンス戦略だが、単に技術を持っているスタートアップを囲

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Hyundai Motor is actively promoting investments in next-generation technologies such as autonomous driving, EV shift, and sharing mobility.

おうとしているだけではない。パートナー選びもよく考えられている。特に1のYandexは興味深い企業だ。「ロシアのグーグル」とも呼ばれるテック企業大手Yandexは、以前から自動運転技術の開発を進めてきた。同社の存在はこれまであまり目立たなかったが、2019年のCESのデモンストレーションではYandexが最も優れた結果を残し注目された。自動運転技術車両のデモ運行で、他社は人間が運転を手伝う場面が複数回あった一方で、Yandexの自動運転車は人間を乗せずに走行し、一般車両に混じって完璧な自動運転を行ったという。限定的な区間であることや、走行データを開示していないために安全性は未知数だということを考慮する必要は確かにある。だが、現代MobisがYandexと提携を結んだことは、Yandexの技術が一定レベルに達していることを示している。

足元を見ると、現代はグローバル競争においてかなりな苦戦をしている。2018年のヒュンダイの通年営業利益は47%減という衝撃的な数字だった。先進国市場の販売不振、中国市場の停滞などが主因だ。だが、非常に大きな動きを見せている自動車業界で、次世代技術開発の競争に参加しないことは死に直結するともいえる。韓国のトップOEMである現代のこれらの投資は、彼らの危機感の高さはもちろんあるが、未来を見据えた極めて現実的なものである。
PSR

Far East: South Korea Report

Hyundai Motor invests US$39 billion in Vehicle R&D

Hyundai Motor will invest heavily in developing future cars, a company executive said in Seoul. He announced that they would invest US$ 39. billion (43.5 billion won) in research and development and future technologies in the next five years.

They will focus most on futuristic technologies such as new car development and autonomous driving and will continue to invest an average of US$ 7.91 billion (9 trillion won) annually by 2023. Hyundai Motor has invested an average of US$ 500 million (5.700 billion won) annually over the past five years, but this investment plan is more than 1.5 times…

The Hyundai Motor group's R&D investment scale in 2017 was 11th among the world's automakers. Although it is the world's fifth largest in terms of vehicle production, R&D investment has been somewhat inferior. This plan shows the determination to secure the future car market with bold investment.

Source: *Toyo Keizai Nippo, 8 March 2019* **Read The Article**

PSR Analysis: Hyundai Motor is actively promoting investments in next-generation technologies such as autonomous driving, EV shift, and sharing mobility. The investment of Hyundai Motor other than the above includes

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- Hyundai Mobis, a subsidiary of Hyundai Group, announced on March 19 that it will receive technology for an autonomous driving solution from Yandex of Russia.
- The Hyundai Group announced that it will establish an AI Research Center overseas in 2019 with the aim of raising AI competitiveness, which is the core of autonomous driving technology.
- Hyundai signed a contract with Aurora, a US-based company specializing in autonomous driving in 2018.
- Hyundai invested in the US radar development company Meta Wave in May 2018.

As we can see from these four examples, Hyundai's next-generation technology investment is very positive. Many are alliance strategies, but they are more than just trying to enclose startups with technology.

The choice of partner is also considered well. Yandex particularly is an interesting company. The leading tech company Yandex, also known as "Russian Google", has been developing autonomous driving technology. Until now, Yandex has not been very visible, but at the 2019 CES demonstration, Yandex was noted with the best results.

Today's global competition is quite difficult. Hyundai's full-year operating profit in 2018 was a shocking result, down 47% YOY. The main reasons are sluggish sales in developed markets and stagnation in China. However, not participating in the competition for next-generation technology development is directly linked to death. Hyundai's investments have a heightened sense of crisis but are extremely realistic looking at the future. **PSR**

東南アジア >インドネシア

米ライドシェア、インドネシア参入　渋滞解消狙う

(米ライドシェアサービス大手のビア・トランスポーテーションは10日、インドネシア市場に参入した。首都ジャカルタ郊外のブカシ市と提携し、同市内でスマートフォンを使ったミニバスの相乗りサービスを始めた。効率よくバスを配車するシステムの導入は、世界最悪レベルの交通渋滞の緩和にもつながりそうだ。10日から、ブカシ市内を走るミニバス「アンコット」の一部ルートで、スマホによる相乗りサービスを始めた。利用者がスマホで現在地と目的地を指定すると、行き先の近い人同士が相乗りできるようにミニバスが配車される。従来は決まったルートを走るだけだったが、ビアのシステムを活用することで、無駄な運転を減らして交通渋滞の緩和や排ガスの削減につなげる。ジャカルタでは渋滞による経済損失は年間5000億円に上るとの試算もある。ガソリン車の利用も多く、排ガスによる環境破壊も深刻だ。独ダイムラーなどが出資するビアは都市内の相乗りに特化したシステム開発に強みがあり、ニューヨークやロンドン、ベルリンなどで同様のサービスを展開している。

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Via Transportation Inc., a US rideshare service company, entered the Indonesian market April 10.

出典: 日本経済新聞, 2019年4月10日

PSR 分析: エコなライドシェア需要が最も高いのは東南アジアの都市部にある。インドネシアのジャカルタ、フィリピンのマニラ、タイのバンコク、ベトナムのホーチミンなどが渋滞都市としてよく知られている。都市人口の多さとそれに対する公共交通機関の成熟度がマッチしていないことが主因とされてきた。こうした環境であることが、グラブやゴジェックなどの二輪ライドシェアビジネスの成長の背景にある。今回参入したビアのバス配車ビジネスは、4輪のライドシェアである。これは東南アジアにこれまでにあまりなじみがないものだが、ニューヨーク、ロンドン、ベルリンなどの欧米都市では豊富な実績がある。バス自体従来型のライドシェアモビリティーであるという見方もできる。だがViaのサービスがそれと決定的に違うのは、バスストップでバスを待つ従来型のサービスではなく、スマートフォンアプリでバスの呼び出しが可能なサービスであるということだ。スマートフォンの普及率がかなり高い東南アジアではすでにこのシステムは受け入れられており、彼らのサービスは強いニーズを背景に高いポテンシャルを持っているように見える。地下鉄網の発展などにはまだまだ時間がかかるため、このようなスマートフォンアプリを使ったライドシェアサービスにかかる期待は非常に高い。 **PSR**

Southeast Asia: Indonesia

Ride Share Via Enters Indonesia, Aims To Eliminate Traffic Jams

Via Transportation Inc., a US rideshare service company, entered the Indonesian market April 10. In partnership with the city of Bekasi, which is located on the outskirts of the capital city of Jakarta, Via started a minibus ride service within the city using a smartphone system. The introduction of a system that efficiently distributes buses is likely to help alleviate the world's worst traffic congestion.

When the user specifies the current location and the destination on the smartphone, minibuses are distributed so that people near the destination can ride together. A bus that used to run the same route in the past will use Via's system to reduce unnecessary driving and help alleviate traffic congestion and reduce emissions.

In Jakarta, the economic loss due to traffic congestion is estimated to be 500 billion yen ($ 4.5 billion) annually. The use of gasoline vehicles is also frequent, and the environmental damage caused by exhaust gas is also serious. Via, which is funded by companies such as Daimler in Germany, has strengths in system development specializing in carpooling in the city, and has developed services in New York, London, Berlin, etc.

Source: : *The Nikkei, 10 April 2019* **Read The Article**

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PSR Analysis: Demand for eco-friendly ride share's in urban areas of Southeast Asia. Jakarta, Manila, Bangkok, and Ho Chi Minh are well known as traffic jam cities. The main reason is that the urban population is not matched with the maturity of public transport. Such an environment is behind the growth of two-wheeled ride share businesses such as Grab and GOJEK.

The newly entered Via is the ride share of four wheelers. It's not so familiar to Southeast Asia so far, but Via has a wealth of experience in western cities like New York, London, and Berlin.

What makes Via's service so different is that it's not a traditional service that waits for the bus at the bus stop, but a service that allows the smartphone app to call the bus. The system is already accepted in Southeast Asia, where smartphone penetration is quite high, and their services appear to have high potential in the context of strong needs. Since the development of the subway network takes a long time, expectations for ride sharing services using such smartphone apps are very high. **PSR**

India Report

By Jinal Shah, Regional Director, South Asia Operations

Honda Motorcycle and Scooter India Cuts Q1 Productions

Jinal Shah

Honda projects a 15-20% drop in June quarter production due to weak demand and a squeeze on auto financing.

Read The Article

PSR Analysis: Hero MotoCorp, Honda Motorcycle and Scooter India (HMSI) and Royal Enfield have decided to cut back their monthly production by around 15% for Q2 2019. This comes after a straight six-month long dip in sales and inventories reaching as high as 90 days which happened due to higher insurance premium in September 2018.

Similar cuts in production are expected in coming months by majority of OEMs because of the already stocked up inventory, uncertainties due to election and price hike due mandate for combined braking system and anti-lock braking system. **PSR**

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India Report

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95% of e-scooters Excluded from Subsidies

Approximately 95% of the electric scooters in India do not qualify for the subsidies of the new FAME II funding program. This is partly due to the batteries: Almost 90% of e-scooters that were previously subsidized by FAME-I used lead-acid batteries. **Read The Article**

PSR Analysis: FAME II applies to all the electric vehicle sales beginning in April 2019. The highest selling EV category in India is the two-wheeler. But with these new stringent eligibility criteria, only 5% of the total number of models qualify for subsidies. This would affect the current EV market to a large extent as the OEMs would need to introduce new models satisfying the criteria.

Along with offering discounts to clear-out the existing inventory, OEMs now are forced to localize manufacturing to make up 50% of the total cost of vehicle from local products. The EV industry surely will see turbulence for a while as it develops better, more powerful products. **PSR**

Russia Report

By Maxim Sakov, Market Consultant, Russia

Ford Reserves US$ 200 Million for Compensation

This money is for personnel and suppliers affected by the closing of Ford plants in Russia, according to the sources inside the automaker. Most of the payments will be made in 2019.

The JV of Ford and local partner Sollers is leaving the Russian passenger car market. Car production will be stopped this year with the closing of Ford plants in Chelny and Vsevolozhsk, and the engine plant in Elabuga. **Read The Article**

PSR Analysis: The discussion about Ford's plans to leave Russian market has been going on for several months, but now the final steps are being taken. Passenger car operations are leaving, but LCV Ford Transit remains. What's new in this situation is that the engine production plant will be closed, too. Currently, Ford is involved in a struggle with local the trade union, which is seeking more compensation for laid off line workers.

Putin Participates in Mercedes-Benz Plant Opening

Before the opening ceremony, Russian President Putin was seen visiting the conveyor line. According to the Kremlin press-service, this line is designed following the principle of "flexible assembly", allowing simultaneous assembly of

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Russia Report

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several auto platforms. The first car, assembled here, was the Class-E sedan. In the future other SUVs GLC, GLE and GLS will be assembled here.

Construction started in June 2017, with an investment by Mercedes-Benz Rus of € 250 million. Planned capacity is 25,000 cars annually. **Read The Article**

PSR Analysis: Mercedes cars are very popular among Russia officials. But last year, State units could not purchase them because of legislation that required cars purchased by the State to be made in Russia. Another reason is that Mercedes sees a good potential in the Russian market (usually State organizations do not order SUVs). At the same time, the Russian government likes to co-operate with German companies, especially Mercedes-Benz. It's unusual to see the Russian president at the opening of a car plant.

Volkswagen Plans To Double Engine Production in Russia

VW has disclosed it plans to increase engine production in Russia under a special investment contract. According to Markus Ozegovich, CEO of VW Group Russia, the company plans to localize production of the turbocharged engine 1,4TSI, if the contract with ministry is completed. Also, it plans to increase production of 1.6 liter engines from current 150,000 units annually to 300,000 units.

VW already exports Russian made engines. Last year was exported 44 000 engines out of 161 000 produced. Target countries – Spain, Czech Republic, Poland, Mexico and South Africa. **Read The Article**

PSR Analysis: Russian passenger car market still looks attractive for Global car makers. Of course, state measures, like "special investment contract" push OEMs to localize more operations and bring more technologies, but the companies see the profit in local operations. Increase of component export shows that Russian automotive cluster can offer qualified workforce for a competitive price. In this aspect leaving Ford from Russian market (story #1) is more OEM problem than the trouble on the market. **PSR**

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