have led to the insufficient capacities of many car manufacturers, which have been also worsened by the short supply of chips. In addition, the price hike of int' 1 . crude oil and the regulations formulated by the EU, UK, USA, Japan and many other advanced countries aiming at gradually making fuel vehicles withdraw from the market within a few years have both boosted the development of the EV industry. Several external factors all deeply influence the development and transformation of the supply chain of the automotive industry and are also closely tied with the future trends of the global automotive industry.

According to the detailed 2021 statistics of car production and sales in countries and regions OICA recently released, the originally expected pandemic-incurred declining car purchasing demand and slump in global car production did not happen and even appeared a slight growth, which is beyond everyone's expectations. The reasons are worth further observation and discussion in the future.

Now let's review together the global car production and sales statistics for 2021 below and compare them with those in 2019 and 2020 to observe if there is any changes and possible trends in the global automotive industry.

In 2021, $80,145,988$ units of vehicles were produced in the world, slightly up $3 \%$ from 2020; in terms of global sales, $82,684,788$ units of vehicles were sold, slightly up $5 \%$ from 2020 but still below the production and sales recorded in 2019.

Below are the global car production and sales in 2019-2021:

## Total Production

| World Motor Vehicle Production By Country/Region And Type |  |  |  | $2021 / 2020$ |
| :---: | ---: | ---: | ---: | :---: |
| Regions/Countries | Q1-Q4 2019 | Q1-Q4 2020 | Q1-Q4 2021 |  |
| EUROPE | $21,575,118$ | $16,942,248$ | $16,330,509$ | $-4 \%$ |
| Germany, cars and LCV only | $4,947,316$ | $3,742,570$ | $3,308,692$ | $-12 \%$ |
| Spain | $2,822,632$ | $2,268,185$ | $2,098,133$ | $-8 \%$ |
| France, cars and LCV only | $2,175,350$ | $1,316,371$ | $1,351,308$ | $3 \%$ |
| Czech Republic | $1,433,961$ | $1,159,151$ | $1,111,432$ | $-4 \%$ |
| Slovakia | $1,107,902$ | 990,598 | $1,000,000$ | $1 \%$ |
| United Kingdom | $1,381,405$ | 987,044 | 932,488 | $-6 \%$ |
| Italy | 915,291 | 777,057 | 795,856 | $2 \%$ |
| Poland | 649,864 | 451,382 | 439,421 | $-3 \%$ |
| Romania | 490,412 | 438,107 | 420,755 | $-4 \%$ |
| Hungary | 498,158 | 406,497 | 394,302 | $-3 \%$ |
| Portugal | 345,688 | 264,236 | 289,954 | $10 \%$ |

## Production in Europe (Incl. UK)

Europe (incl. UK) is the world's 2nd largest car manufacturing area with the annual production in 2021 reaching 16,330,509 units, only second to China. Compared with 2020, car production in Europe contracted by $4 \%$. Top 5 manufacturers in Europe were Germany, Spain, France, Czech Rep., and Slovakia (representing 54\% of Europe's total). The country showing the most significant drop was Slovenia, while the country showing the most significant increase was Portugal. The total production in Europe was in a slight decline, making it the only region in the world appearing a drop.

World Motor Vehicle Production By Country/Region And Type

| Regions/Countries | Q1-Q4 2019 | Q1-Q4 2020 | Q1-Q4 2021 |  |
| :---: | :---: | :---: | :---: | :---: |
| Belgium | 285,797 | 267,293 | 261,038 | -2\% |
| Sweden, yearly only | 279,000 | 249,000 | 258,000 | 4\% |
| Austria | 179,400 | 125,000 | 136,700 | 9\% |
| Netherlands, yearly only | 176,113 | 127,058 | 105,458 | -17\% |
| Slovenia | 199,114 | 141,714 | 95,797 | -32\% |
| Finland, cars only | 114,785 | 86,270 | 93,172 | 8\% |
| Serbia | 35,120 | 23,375 | 21,263 | -9\% |
| CIS + Turkey | 2,527,810 | 3,121,340 | 3,216,740 | 3\% |
| Russia | 1,719,146 | 1,435,551 | 1,566,317 | 9\% |
| Turkey | 1,461,244 | 1,297,878 | 1,276,140 | -2\% |
| Uzbekistan | 277,967 | 284,885 | 241,649 | -15\% |
| Kazakhstan | 49,400 | 74,831 | 92,417 | 24\% |
| Belarus, cars only | 20,427 | 21,295 | 29,891 | 40\% |
| Ukraine | 7,266 | 4,951 | 8,153 | 65\% |
| Azerbaijan, cars only | 2,360 | 1,949 | 2,173 | 12\% |
| AMERICA | 20,160,401 | 15,692,927 | 16,151,639 | 3\% |
| NAFTA | 16,822,606 | 13,374,404 | 13,427,869 | 0\% |
| USA | 10,892,884 | 8,821,026 | 9,167,214 | 4\% |
| Mexico | 4,013,137 | 3,177,251 | 3,145,653 | -1\% |
| Canada | 1,916,585 | 1,376,127 | 1,115,002 | -19\% |
| South America | 3,337,795 | 2,318,523 | 2,723,770 | 18\% |
| Brazil | 2,944,988 | 2,014,055 | 2,248,253 | 12\% |
| Argentina, cars and LCV only | 314,787 | 257,187 | 434,753 | 69\% |
| Colombia | 78,020 | 47,281 | 40,764 | -14\% |
| ASIA-OCEANIA | 49,333,841 | 44,276,549 | 46,732,785 | 6\% |
| China | 25,750,650 | 25,225,242 | 26,082,220 | 3\% |
| Japan | 9,684,507 | 8,067,943 | 7,846,955 | -3\% |
| India | 4,524,366 | 3,381,819 | 4,399,112 | 30\% |
| South Korea | 3,950,614 | 3,506,774 | 3,462,404 | -1\% |
| Thailand | 2,013,710 | 1,427,074 | 1,685,705 | 18\% |
| Indonesia | 1,286,848 | 690,176 | 1,121,967 | 63\% |
| Iran, yearly only | 821,060 | 880,997 | 894,298 | 2\% |
| Malaysia | 571,632 | 485,186 | 481,651 | -1\% |
| Taiwan | 251,304 | 245,615 | 265,320 | 8\% |
| Pakistan | 186,751 | 117,375 | 238,702 | 103\% |
| Vietnam, yearly only | 176,203 | 165,568 | 163,250 | -1\% |
| Philippines, yearly only | 95,094 | 67,297 | 83,852 | 25\% |
| Australia, yearly only | 5,606 | 4,730 | 5,391 | 14\% |
| Myanmar, yearly only | 15,496 | 10,753 | 1,957 | -82\% |
| AFRICA | 1,113,651 | 800,001 | 931,056 | 16\% |
| South Africa | 631,921 | 447,213 | 499,087 | 12\% |
| Morocco | 403,218 | 328,280 | 403,007 | 23\% |
| Egypt, yearly only | 18,500 | 23,754 | 23,754 | 0\% |
| Algeria | 60,012 | 754 | 5,208 | 591\% |
| TOTAL | 92,183,011 | 77,711,725 | 80,145,988 | 3\% |

## Production in Africa

Africa's share in the global car production is quite low. Although in 2019 its production exceeded a million units, its production scale has dropped to below a million units since 2020. However, its production of around 930 thousand units in 2021 was still $16 \%$ higher than the record in 2020. Major car manufacturing countries in this region were South Africa and Morocco and both countries appeared two-digit YoY growths. Other countries such as Egypt and Algeria also produced certain units of vehicles, but the volumes were quite low.

## Production in Russia/Central Asia/E. Europe

Production in Russia/Central Asia/E. Europe in 2021 reached over 3.2 million units, up $3 \%$ from 2020, not to mention that the production in this region appeared 3 consecutive years of growth since 2019. Nearly $50 \%$ of the region's car manufacturing capacity was in Russia (around 1.57 million units and up 9\% from 2020). Turkey, following after Russia, showed the record of nearly 1.3 million units, a slight $2 \%$ YoY drop. However, with the war between Russia and Ukraine which has been launched for months, sanctions from the West against Russia that made car manufacturers stop operation in Russia, plummeting depreciation of Ruble that weakened Russian people's purchasing power and demand for new cars, it is estimated that Russia's car production in 2022 may appear a significant drop and Turkey may take advantage of this opportunity to become the largest car manufacturing country in the region.

## Production in America

America was the world's 3rd largest car manufacturing continent. Being very close to its European counterpart, car production in America in 2021 reached $16,151,639$ units, a slight $3 \%$ growth from 2020. Different from Europe's 3 consecutive years of decline in car production, America appeared a significant drop in production in 2020, however, it rose again in 2021, but was still below 2019's record. The U.S., Mexico, and Canada in N. America, as well as Brazil in S. America are the 4 largest car manufacturing countries in the region. Among these 4 countries, the U.S. showed the highest production record at more than 9 million units (around $56 \%$ of America's total). On the other hand, Argentina appeared the highest growth at $69 \%$, though its production was comparatively low.

## Production in Asia/the Oceania

In 2021, nearly 47 million units of vehicles were produced in Asia/the Oceania, up $6 \%$ from 2020, making this region the world's largest car manufacturing heartland. China, in particular, represented over 55\% of the region's total and showed the annual production of over 26 million units. Following after China, Japan, India, S. Korea, Thailand, and Indonesia were also the top car manufacturing countries in the region. Compared to the respective 3\% and $1 \%$ YoY drop in Japan and S. Korea, Indonesia, India, and Thailand all appeared the YoY growths of $63 \%, 30 \%$, and $18 \%$, respectively. In the entire Asia/the Oceania, Pakistan appeared the highest YoY growth of $103 \%$, while Myanmar appeared the lowest one at $-82 \%$ (probably due to the political chaos last year). What's worth mentioning is that, although Vietnam has been one of the investment focuses of many foreign investors, its conditions and scale of car production seem to be not quite mature yet.

Total Sales

| REGISTRATIONS OR SALES OF NEW VEHICLES - ALL TYPES |  |  |  | 2021/2020 |
| :---: | :---: | :---: | :---: | :---: |
| Regions/Countries | Q1-Q4 2019 | Q1-Q4 2020 | Q1-Q4 2021 |  |
| EUROPE | 20,930,716 | 16,712,898 | 16,874,893 | 1\% |
| Germany | 4,017,059 | 3,266,759 | 2,973,319 | -9\% |
| France | 2,755,728 | 2,100,030 | 2,142,284 | 2\% |
| United Kingdom | 2,736,559 | 1,964,660 | 2,044,091 | 4\% |
| Italy | 2,132,630 | 1,564,756 | 1,664,483 | 6\% |
| Spain | 1,501,244 | 1,030,746 | 1,034,063 | 0\% |
| Poland | 656,258 | 510,153 | 554,613 | 9\% |
| Belgium | 642,000 | 509,994 | 462,536 | -9\% |
| Netherlands | 538,739 | 427,162 | 405,061 | -5\% |
| Sweden | 418,478 | 330,215 | 343,880 | 4\% |
| Austria | 371,934 | 301,617 | 306,176 | 2\% |
| Switzerland | 352,968 | 269,391 | 272,249 | 1\% |
| Other Countries | 285,560 | 215,910 | 237,203 | 10\% |
| Czech Republic | 281,423 | 228,834 | 236,221 | 3\% |
| Denmark | 264,073 | 233,271 | 221,937 | -5\% |
| Norway | 189,824 | 180,592 | 217,572 | 20\% |
| Portugal | 265,827 | 173,989 | 183,390 | 5\% |
| Hungary | 190,090 | 153,978 | 150,387 | -2\% |
| Romania | 189,504 | 145,507 | 144,222 | -1\% |
| Ireland | 145,104 | 112,122 | 136,126 | 21\% |
| Finland | 133,505 | 112,988 | 115,291 | 2\% |
| Greece | 122,990 | 88,710 | 112,364 | 27\% |
| Slovakia | 113,863 | 84,909 | 87,349 | 3\% |
| Croatia | 73,862 | 43,800 | 54,330 | 24\% |
| Bulgaria | 44,977 | 29,663 | 34,472 | 16\% |
| RUSSIA, TURKEY \& OTHER EUROPE | 2,506,517 | 2,633,142 | 2,741,274 | 4\% |
| Russia | 1,778,841 | 1,631,163 | 1,741,965 | 7\% |
| Turkey | 491,947 | 796,150 | 772,722 | -3\% |
| Ukraine | 102,542 | 98,986 | 121,772 | 23\% |
| Other Countries/Regions | 133,187 | 106,843 | 96,819 | -9\% |
| AMERICA | 25,384,924 | 20,814,832 | 22,001,152 | 6\% |
| NAFTA | 20,824,602 | 17,445,480 | 18,160,120 | 4\% |
| United States Of America | 17,488,154 | 14,881,356 | 15,408,565 | 4\% |
| Canada | 1,976,440 | 1,586,474 | 1,704,850 | 7\% |
| Mexico | 1,360,008 | 977,650 | 1,046,705 | 7\% |
| CENTRAL \& SOUTH AMERICA | 4,560,322 | 3,369,352 | 3,841,032 | 14\% |
| Brazil | 2,787,850 | 2,058,437 | 2,119,851 | 3\% |
| Chile | 348,575 | 258,835 | 415,582 | 61\% |
| Argentina | 452,200 | 334,316 | 370,283 | 11\% |
| Other Countries/Regions | 346,376 | 253,970 | 337,911 | 33\% |
| Colombia | 248,689 | 173,121 | 229,493 | 33\% |
| Peru | 155,507 | 108,999 | 152,856 | 40\% |
| Ecuador | 119,197 | 78,187 | 109,707 | 40\% |
| Puerto Rico | 101,928 | 103,487 | 105,349 | 2\% |

## Sales in Europe (Incl. UK)

In the previous paragraphs, we mentioned that Europe was the world's 2nd largest car manufacturing region. However, in terms of Europe's sales, its performance was still behind America and was in the 3rd place. Its sales in 2021 reached around 16.9 million units, a slight $1 \%$ growth from 2020. Top 5 car sales markets in Europe were Germany, France, UK, Italy, and Spain (Germany, France and UK shared over $42 \%$ of the Europe's total car sales). Among these 5 countries, except for Germany with the top sales record appeared a $9 \%$ YoY drop from 2020, the other countries all appeared a growth in the range of $0-6 \%$.

## Sales in Russia/E. Europe/Turkey

Car sales in Russia/E. Europe/Turkey reached 2.74 million units in 2021, up $4 \%$ from 2020. Sales in this region were mainly concentrated in Russia and reached 1.74 million units. So far, Russia has been the world's 9th largest car sales market. Turkey was the 2 nd largest car sales market in the region, but sales in Turkey dropped by $3 \%$ from 2020. The 3rd car sales market in the region, Ukraine, appeared a significant $23 \%$ YoY growth in 2021. However, with Russian invasion of Ukraine in the beginning of this year, economic activities in Ukraine almost stagnated. As a result, car sales in Ukraine may appear a significant decline and it may take a long period of time for full recovery.

## Sales in America

In 2021, more than 22 million units of vehicles were sold in America, up $6 \%$ from 2020. Over 70\% of America's sales were in the U.S. Brazil was in the 2nd place with the sales of around 2.12 million units, better than Canada's 1.7 million units and Mexico's 1.05 million units. Other countries such as Chile, Argentina, Colombia, Peru, Ecuador, Puerto Rico, though with a smaller market scale, were still major car sales markets in the region. Compared with 2020, car sales in all S. American countries appeared growth.

REGISTRATIONS OR SALES OF NEW VEHICLES - ALL TYPES

| Regions/Countries | Q1-Q4 2019 | Q1-Q4 2020 | Q1-Q4 2021 | 2021/2020 |
| :---: | :---: | :---: | :---: | :---: |
| ASIA/OCEANIA/MIDDLE EAST | 43,713,696 | 40,322,544 | 42,663,736 | 6\% |
| China | 25,796,931 | 25,311,069 | 26,274,820 | 4\% |
| Japan | 5,195,216 | 4,598,615 | 4,448,340 | -3\% |
| India | 3,816,858 | 2,938,575 | 3,759,398 | 28\% |
| South Korea | 1,795,134 | 1,905,972 | 1,734,581 | -9\% |
| Australia | 1,062,867 | 916,968 | 1,049,831 | 14\% |
| Indonesia | 1,030,486 | 532,077 | 887,205 | 67\% |
| Thailand | 1,007,552 | 792,146 | 748,580 | -5\% |
| Saudi Arabia | 533,904 | 452,544 | 556,559 | 23\% |
| Malaysia | 604,287 | 529,434 | 508,911 | -4\% |
| Other Countries/Regions | 534,707 | 399,580 | 435,754 | 9\% |
| Taiwan | 425,000 | 444,161 | 422,000 | -5\% |
| Israel | 268,220 | 226,338 | 306,012 | 35\% |
| Philippines | 410,406 | 244,178 | 286,734 | 17\% |
| Vietnam | 281,262 | 262,823 | 260,850 | -1\% |
| Pakistan | 187,714 | 124,429 | 237,424 | 91\% |
| United Arab Emirates | 232,305 | 158,711 | 188,844 | 19\% |
| Uzbekistan | 197,103 | 195,000 | 184,500 | -5\% |
| New Zealand | 149,293 | 115,435 | 159,636 | 38\% |
| Kazakhstan* | 71,818 | 89,202 | 113,600 | 27\% |
| Kuwait | 112,633 | 85,287 | 100,157 | 17\% |
| AFRICA | 1,197,846 | 924,046 | 1,145,007 | 24\% |
| South Africa | 532,898 | 372,633 | 464,493 | 25\% |
| Egypt | 170,568 | 219,732 | 277,805 | 26\% |
| Other Countries/Regions | 328,464 | 198,373 | 227,274 | 15\% |
| Morocco | 165,916 | 133,308 | 175,435 | 32\% |
| ALL COUNTRIES/REGIONS | 91,227,182 | 78,774,320 | 82,684,788 | 5\% |

## Sales in Asia/the Oceania

The same as production, car sales in Asia/the Oceania have been in the unbeatable 1st place in the world for years. Its sales in 2021 were around 42.66 million units (up 6\% from 2020) and this figure was even much higher than the total sales in Europe and America. Top 5 car sales markets in this region were China (26.27 million units), Japan ( 4.45 million units), India ( 3.76 million units), S. Korea (1.73 million units) and Australia ( 1.05 million units). During 2019-2021, China being the world's largest car sales market even appeared consecutive years of growth and its YoY growth in 2021 was $4 \%$. India among the top 5 sales markets appeared the most significant YoY growth at $28 \%$. If such a growing trend continues, India is very likely to outpace Japan within a few years to become the 2nd largest car sales market in Asia/the Oceania.

## Sales in Africa

Car sales in Africa in 2021 reached around 1.15 million units, up $24 \%$ from 2020. Major car sales markets were South Africa, Egypt, and Morocco. The production of South Africa was similar to its sales. As for Egypt, its car production was comparatively low (only 23,000 units), but its car sales reached nearly 0.3 million units, higher than the scale of Morocco.

## Conclusions

Observing the global car production and sales, we found that the global automotive industry faced the severe pandemic in 2020 and the pandemic-incurred side effects also made the production and sales to drop slightly. However, starting from 2021, the industry appeared gradual recovery again and both production and sales returned to the level of 80 million units (although still below the record in 2019, the growing trend continues). Germany, France, Spain, and Italy of W. Europe, UK, Czech Rep. and Slovakia of E. Europe, China, Japan, India, S. Korea, and Thailand of Asia, the U.S., Mexico, Canada, and Brazil of America, Russia, and Turkey are all the world's major car production and sales markets. The author thinks that if the global pandemic could be gradually under control after 2023 and more countries open their borders, many problems the industry is facing will be fixed in the end. In addition, if the technology and construction of infrastructure of EV can make a significant breakthrough, people will be more willing to replace their old cars with new ones, which will boost the market demand and purchasing power, then the global car production and sales are very likely to reach the mark of 0.1 bn units within 2-3 years.


