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# World Pipe & Tube Market: Current factors influencing the present situation

## Dr. Gunther Voswinckel – Update as per September 2019

In this article, in a consecutive way, several economic consequences for the tube and pipe industry are discussed.

It must be realized by analysts that forecasts on the oil price level may heavily be overruled by political interventions of the stake holders. Strategical measures consequently are quite demanding. Lean and agile organizations with flexible and customer orientated production facilities are adequate to prompt the demanding market requirements. Agile digital solutions in the sense of "Industry 4.0" offer further opportunities to stay successful.

The presented figures show, especially US tube and pipe producers took great advantage from the business trends on the oil and gas market. Particularly the increased pumping and exploration activities in the US are driving forces. If we believe the US experts, this will remain even throughout the year 2019. To a smaller degree in 1st quarter 2019 also Chinese tube and pipe producers participated in this positive trend. Other tube and pipe markets such as the automotive (15 %), mechanical engineering (9 %), building and construction industry (5 %) are also attractive market segments for our industry. Despite actual turbulences, the world automotive market has been characterized by a stable growth. The proportion of tubes and pipes built into cars at the same time is steadily growing, causing increased attractiveness of this market segment.

The mechanical engineering market with its uncounted applications represents many interesting growing segments, such as hydraulic cylinder tubes or ball bearing tubes.

The building and construction industry market is even growing by about 4 %/year. Here we can see a competition between steel/tube structures and concrete elements. Lobbying activities are required, especially to further enlarge the steel/tube penetration for skyscrapers and bridges.

World production of steel tubes and pipes in 1st quarter 2019 showed a new record height of extrapolated 174.600 tons/year. In detail a growth of +4 %

is reported for the USA, supported by political trade barriers for tubular products and the strong growth of the shale gas exploration.

For welded tubes and pipes below 406 mm diameter, a production increase of +1 % in 1st quarter 2019 was registered. For welded tubes and pipes of 406 mm or larger 1st quarter 2019 production showed a total decrease of -1 %. But USA (+40 %) showed a remarkable production increase. For seamless tubes and pipes 1st quarter 2019 has seen production growth by +1 %. The USA after another booming year 2018 (+17 %) now reports a reduction of -4 %. India with its smaller production capacity reported an increase of +20 %!

This is a remarkable trend, since now for the third time for years, the US tube and pipe production is showing remarkable growth. It seems that the US trade barriers policy is showing its significant results. The pipe prices after an increase of 23 % in 2018 are now declining by 7 % in 1st quarter 2019. Still the overall plant utilization is on a low level.

Demanding high-tech products are the strategic targets rather than commodity-grade tubes and pipes. Limiting factors are sometimes the availability of steel quality for strip, plate and billets as well as the tube plant infrastructure regarding machines and the applied quality standards.

Finally, the impact of currency exchange rates on the tube and pipe market is discussed. The strong EURO during 2017 and early 2018 was causing export disadvantages. Since then the Euro is weakening again, being able to compensate some of the disadvantages. Anyhow the trade conflict between the US and China is creating an atmosphere with great danger for a global economic recession.

The main and dominant market segment of the steel tube and pipe suppliers is the OCTG industry with 51 % market share. Besides this dominating market the automotive (15 %), mechanical engineering (9 %) and construction industry (5 %) are also strong market segments for the steel tube and pipe suppliers (Figure 1).

OCTG, oil and gas, as the largest target market of steel tube and pipe suppliers. This market is subdivided in pipes used for oil and gas rigs, such as drill pipes, joints, tubing and casings and further downstream the line pipes to transport oil and gas.

The number of new oil and gas rigs is heavily depending on the oil price. There is a strong correlation between the oil price and the number of oil and gas rigs in operation (see also ITA tube Journal 2019/1). The OCTG tube and pipe consumption is depending on the number of rigs, but also the depth of drilling and the capacity of the rigs. After a long period of raising oil prices from early 2016 (30 US\$/barrel) to October 2018 (85 US\$/barrel), the oil price fell again down to 52 US\$/barrel in only 2 months, to recover to about 72 US\$/barrel until April 2019. Since April the oil price fell down to 58 US\$/barrel (Figure 2). The volatility of this price is quite impressive and a consequence of nervous reactions to the political measures taken.

Under normal circumstances the world would face an oversupply of oil (see also ITA tube Journal 2019/2), but on the contrary hereto, due the political interventions by the US government, the sanctions imposed on Iran and Venezuela oil exports, created an artificial mood of oil supply shortage creating the recent oil price rally throughout 2018. At the end of 2018 the price sharply fell again to about 52 US\$/barrel. In 2019 the oil price strengthened again which may be caused by the upcoming thread of a political conflict with Iraq and the ongoing conflict with Iran (Figure 3). Now, since the political conflicts seem

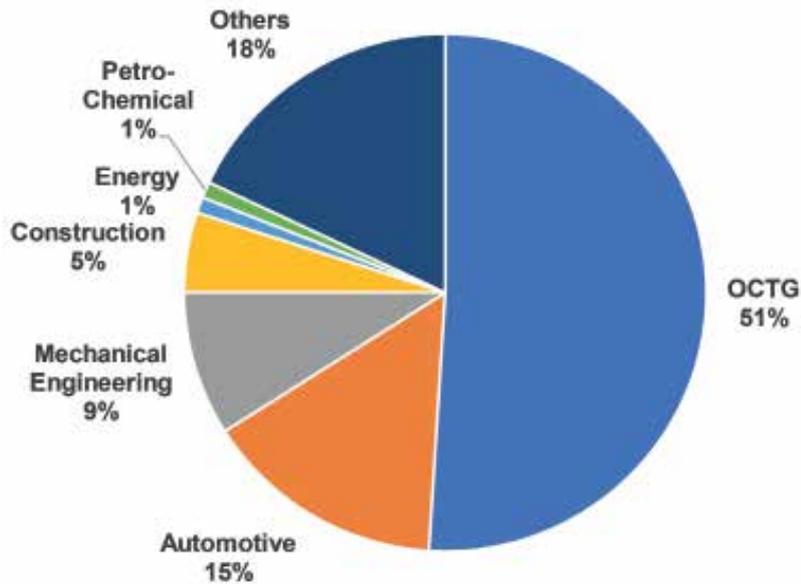


Figure 1: Markets for Steel Tube and Pipes  
Source: ITATube Journal/Wirtschaftsvereinigung Stahlrohr

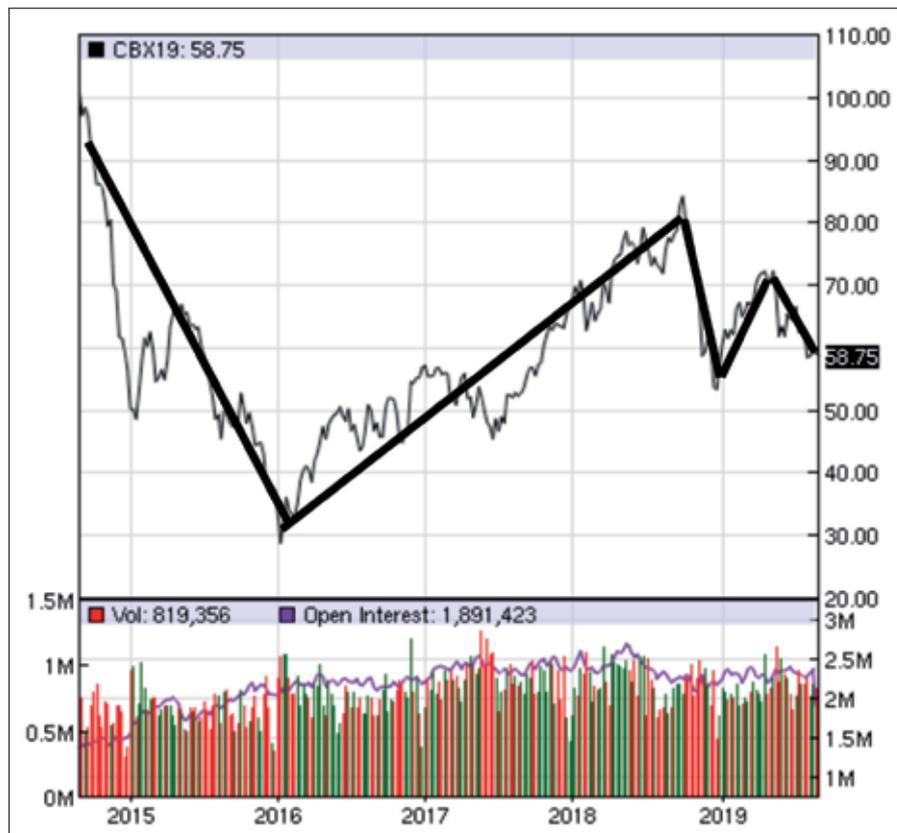


Figure 2: Oil Price Development 2014 until 2019  
Source: Nasdaq

to calm down a bit, the oil price fell to 58 US\$/barrel. It is to be observed what next political interventions are on Mr. Trumps agenda. Since the oil price is heavily depending on political interven-

tions, it is increasingly demanding to give reliable forecasts for the consumption of steel tubes and pipes for this important market segment. Only agile management strategies can counter such challenges.

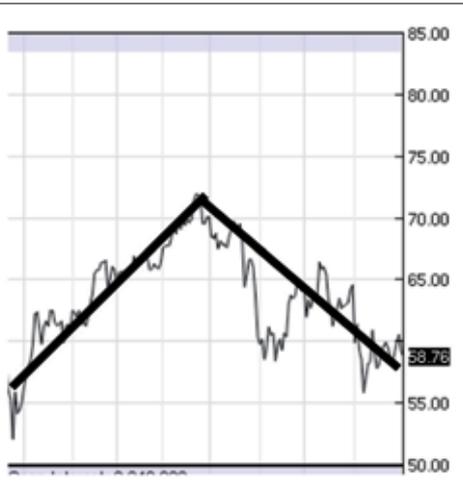


Figure 3: Oil Price development in 2019  
Source: Nasda

The second OCTG market is represented by oil and gas pipelines. The pipeline market is a project-based business with long planning periods and high political determinations. Such projects are planned e.g. in Europe, USA and Asia. In Europe gas pipelines are mainly built to serve gas from gas and oil fields in Russia.

All these projects are intensively discussed on political and environmental platforms. The European project "Nord Stream 2" is a good example, since the US president Mr. Trump and the Polish government are using all their influence to ban this project. The US government is even trying to thread the involved international companies with trade sanctions (see also ITA tube Journal 2019/2). Therefore, also this market can be considered as difficult in regards of reliable forecasts.

Since January 2018 the tube and

pipe prices increased, reflected by the tube and pipe price index raising by ab. 23 % from 288 to 365 in August 2018. Since then the tube and pipe producer index weakened again to 340 as of September 2019 (Figure 4).

Anyhow it must be considered that most tube and pipe producers are facing relatively low plant utilisation at levels of about 62 % for welded tubes and pipes smaller 16-inch diameter as well as seamless tubes and pipes. For welded pipes larger 16-inch diameter the utilisation is even lower on a level of about 35 %. Here we certainly find regional variations, but the overall utilisation is still quite alarming.

The US economy is already growing for an impressive time span of about 10 years. When Mr. Trump became US president, in January 2017, he has taken numerous political measures

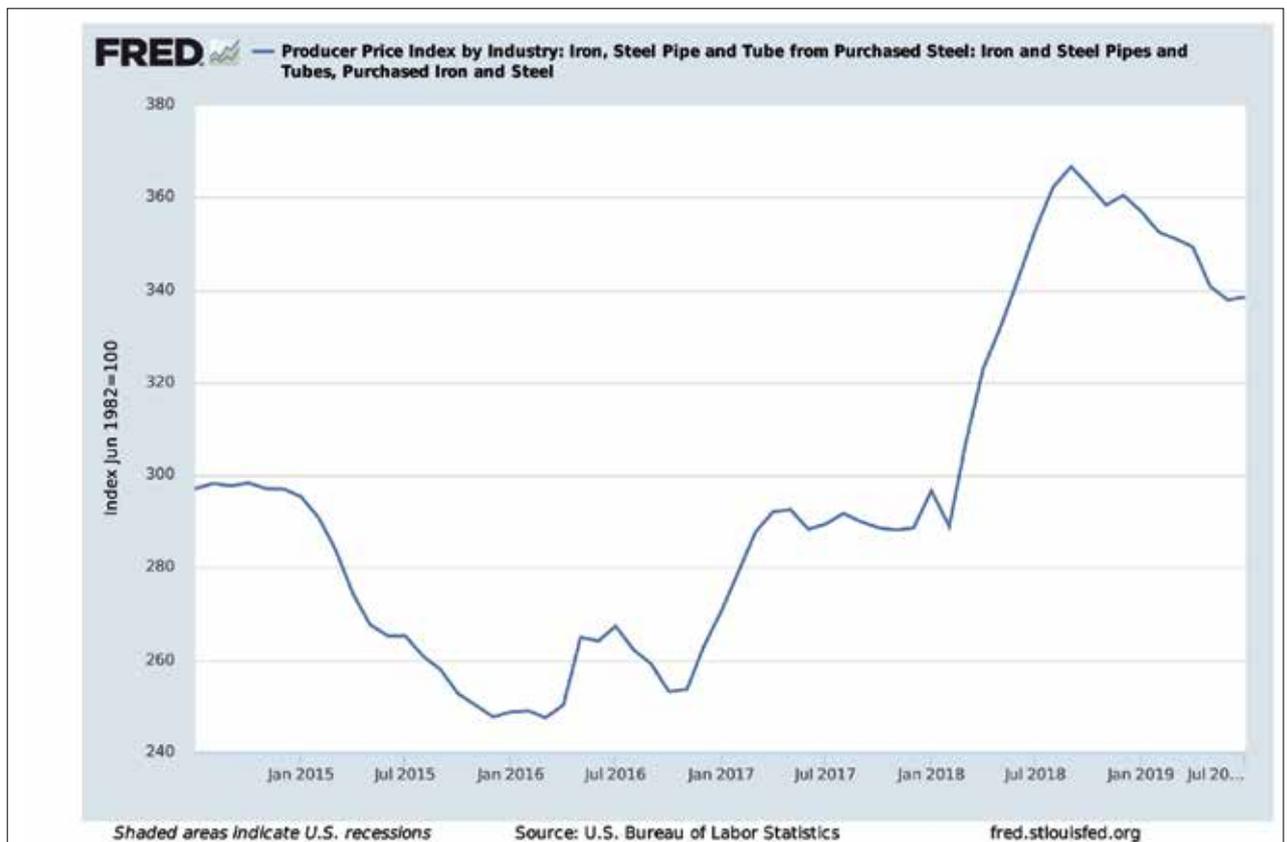


Figure 4: Producer Price Index. Source: FRED US Bureau of Labor Statistics

covered by his doctrine “America First” to strengthen also the traditional businesses such as steel, automotive and electrics. This can impressively be displayed by the US tube and pipe production figures (Figure 5). Due to trade sanctions and the support of the local oil and gas industry, the US tube and pipe industry is quite strengthening.

The US tube and pipe production has increased by 4.600 ktms (+60 %) since 2016, causing new investments in the tube and pipe industry and even tube plants which were previously taken out of operation were restarted for production. This trend may only be sustainable if the US based tube and pipe producers use this positive trend and invest in productivity and product quality otherwise this positive trend may end if the trade barriers will fall again. Anyway, still today some 7.000 ktms of steel tubes and pipes are imported to the US, which is in average still a high volume.

On the other hand, Europe and other regions also impose trade barriers to secure the national industry against imports from other parts of the world. Therefore, the tube and pipe market does need to cope with various political interventions which sometimes challenges strategical management measures.

The second important market with a market share of 15 % is the automotive market. Tubes and pipes with a diameter up to 90 mm are mainly applied.

Despite some weakness in 2018 and 2019, this market is characterized by a relative stable and high demand of +2 %. Due to the ongoing weight saving requirement for cars, it can be expected, that tubes and pipes may be able

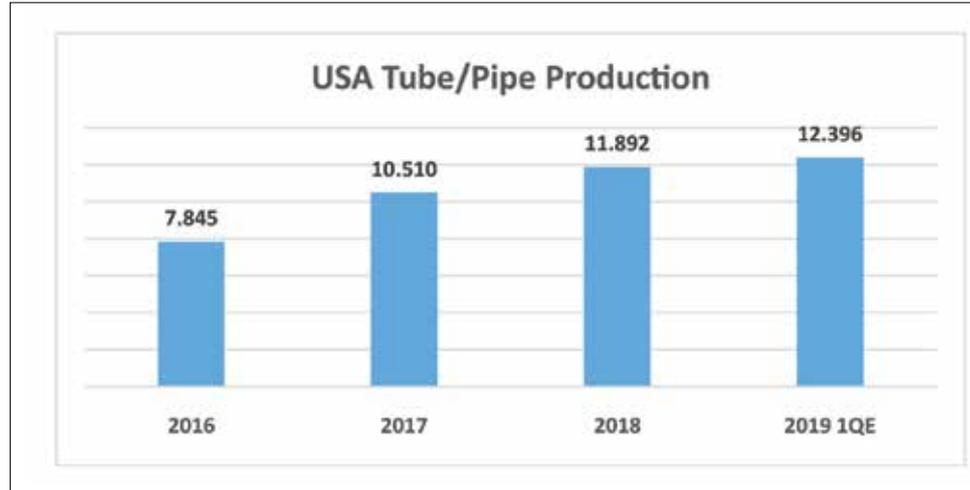


Figure 5: US Tube and Pipe Production 2016 – 2018 (ktms)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.



Figure 6: Steel Tube Structures at Airport Building  
Source: Zekelman Ind. Atlas Tube

to even increase their share in car production.

The present trend to electro-mobility may have a negative impact on pipe supplies utilized for combustion engines. Still alternative drive systems represent a minor percentage, but the further development shall be observed.

As already displayed in the 2019/1 edition of the ITA Tube Journal, the regional sales figures are quite inhomogeneous. Countries like Russia (+15 %), Brazil (+13 %) and India (+7 %) show further growth, whereas Japan overcompensates these growth figures and shows a decline of (-11 %). The largest world car markets, China, USA and Europe

are consolidating at almost “zero” growth. The automotive market, due to its technological requirements is quite interesting for tube and pipe producers as well as tube and pipe processors.

The market of mechanical engineering for tubes and pipes, representing 9 % of the total tube and pipe market, is quite diversified due to its uncounted applications. ITA tube Journal 2019/1 highlighted the fast-growing hydraulic cylinder tube market.

In the ITA tube Journal 2019/2 I highlighted the ball bearing market.

Both examples of the mechanical engineering market demonstrating the interesting potentials of

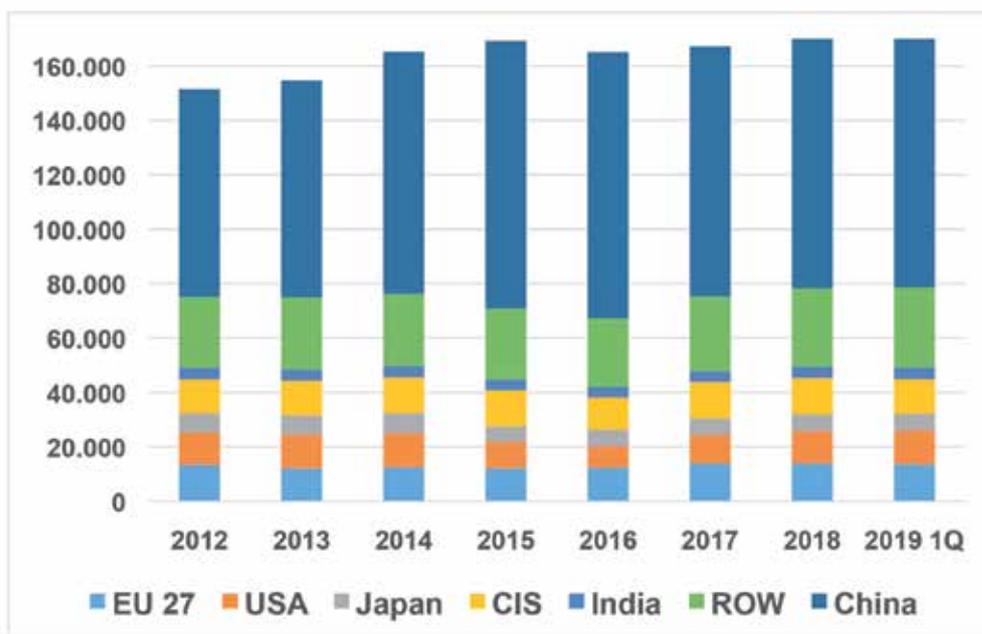


Figure 7: World Steel Tube and Pipe Production (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

for buildings with seismic requirements and/or dynamic loads as applied to bridges.

As an example, the 4th longest bridge in the world, the Izmit bay crossing bridge, is made of steel and pipe structures.

Both mayor segments of the construction market, anyhow require mayor lobbying efforts of the tube and pipe producing industry to further convince regulation authorities and project stake holders about the advantages of steel/tube structures as cost effective, aesthetic and sustainable alternatives to concrete elements.

One of the major players in the supply of tubes and pipes for the growing construction market, the US based Zekelman Industries, has only recently decided to invest in a new 30" continuous ERW pipe mill. This green field plant will be installed in Blytheville Arkansas/US, alongside to their existing Atlas Tube facilities. This plant is scheduled to start up in September 2021.

All these steel tube and pipe markets can be subdivided in commodity volume and the part with high-tech requirements. For the high-tech requirements, the decisive factors are the steel quality and the tube plant infrastructure. The steel quality for many high-tech steel tube and pipe applications is demanding regarding chemistry and homogeneity. The availability of such steel qualities with the relevant uniformity for welded tubes and pipes as steel strip and plates as well as billets for seamless tubes and pipes is limited and creates sometimes a significant hurdle to supply tubes and pipes into such high-tech markets. On the other hand, the

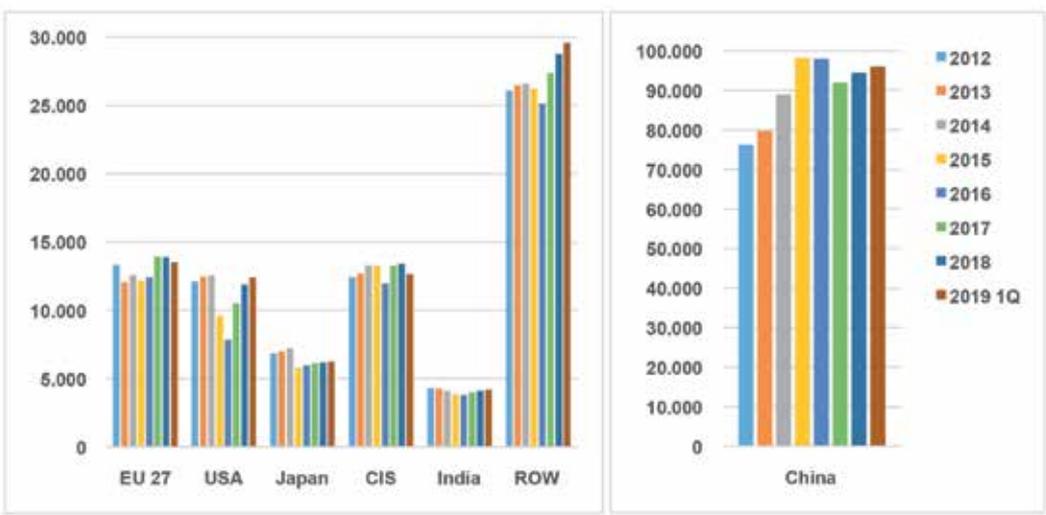


Figure 8: Regional World Steel Tube and Pipe Production Total (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

this diversified market segment for tubes and pipes.

Another attractive market for tube and pipe producers is the construction market, representing about 5 % of the world tube production. The construction market is steadily growing along with the GDP growth, as already discussed in the ITA Tube Journal in October 2018. The mayor market applications for tubes and pipes

in the construction market are buildings as e.g. skyscrapers, bridges and load bearing applications (Figure 6). Here we find a significant competition between steel/tube structures and on the other side concrete elements. For skyscrapers the trend in emerging countries to build high-rise towers is supporting the application of steel/tube structures. An outstanding advantage of steel/tube structures are applications

tube plant infrastructure regarding tube mills, finishing lines as well as applied quality assurance has also a significant importance. Growing importance can be seen in agile management strategies regarding customer benefit, process and product quality enhancement by applying “Industry 4.0” measures. First interesting applications of “Industry 4.0” in the tube and pipe industry were presented by various speakers at the ITA tube conference in Düsseldorf this April 2019.

Taking the above-mentioned market trends, it is remarkable how they show their marks in the world steel tube and pipe production.

The steel tube and pipe production was steadily growing until 2015 to a value of more than 171.000 tons/year (Figure 7). The downturn in 2016 to 167.000 tons/year was mainly reflected in the USA, CIS and ROW. In 2017 the market turned around again but China as the main tube and pipe producer lost about 6.000 tons/a while all other countries, especially the US, increased their production to overcompensate Chinas reduced production. In the 1st quarter of 2019 the world tube and pipe production reached a new record height of extrapolated 174.600 tons/year.

Figure 8 shows the break down for the relevant regions in more detail. Especially the USA driven by the trade policy offensive of Mr. Trump took great advantage and gained about 4.600 tons/year (+60 %) of production since 2016. In 1st quarter 2019, the world steel tube and pipe production was growing again being dominated by a further recovery of China (+2 %), the USA (+4 %) and

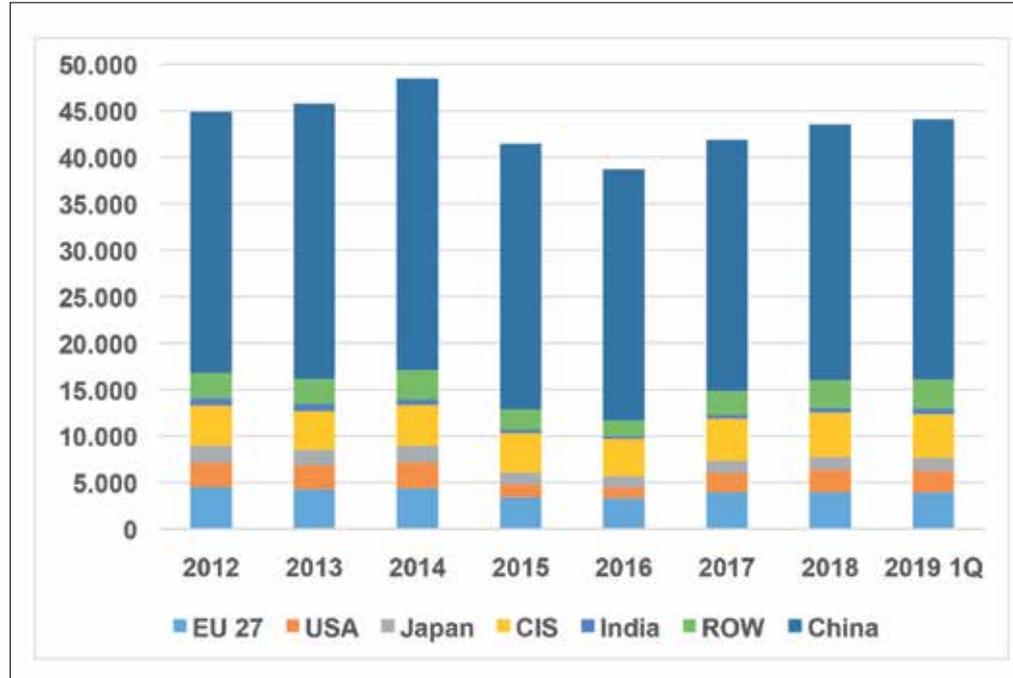


Figure 9: World Steel Tube and Pipe Production Seamless (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

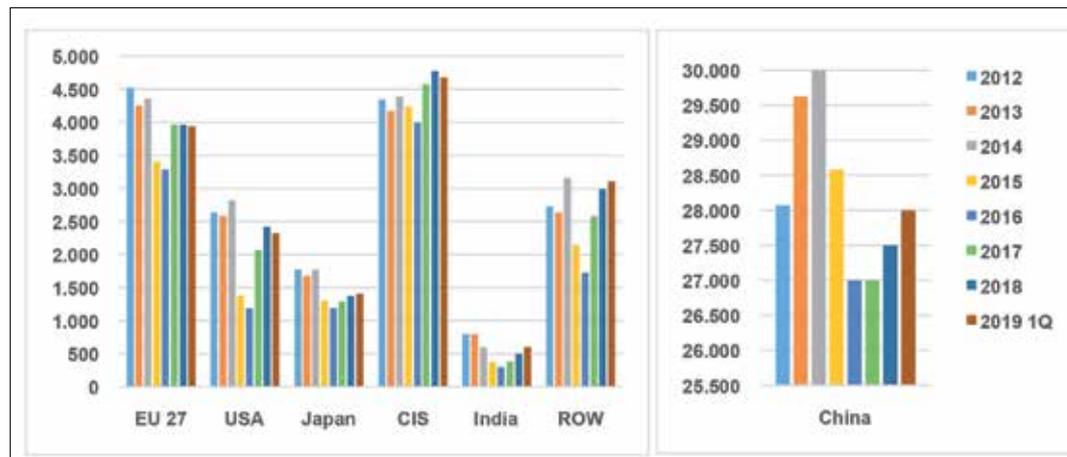


Figure 10: Regional Steel Tube and Pipe Production Seamless (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

ROW (+3 %). CIS (-6 %) and EU 27 (-3 %) had reductions. All other regions/countries had almost no changes compared to 2018.

The most volatile market segment is that of the seamless tubes and pipes (Figure 9). This product. Only in the years from 2014 to 2016 the world production was reduced by about 10.000 tons (-20 %). Since then, the production has had a moderate recovery. The worldwide production volume increased by 4 % in 2018. After severe produc-

tion cutbacks in the past years the industry has, for the first time in 1st quarter 2019, a production level close to that of 2012!

The present growth in 1st quarter 2019 is dominated by the large volume in China (+2 %), India (+20 %), ROW (+4 %) and Japan (+2 %). On the other hand, CIS (-2 %) and USA (-4 %) had shrinking production figures (Figure 10).

The worldwide production of welded pipes < 406 mm OD (Figure 12) is showing a moder-

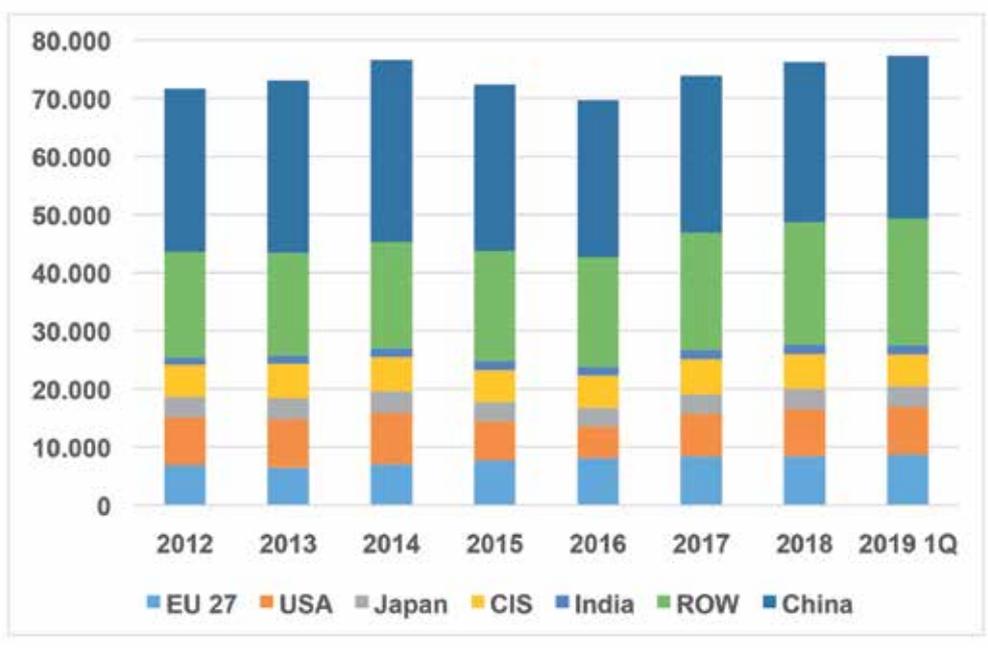


Figure 11: World Steel Tube and Pipe Production Welded < 406 mm (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

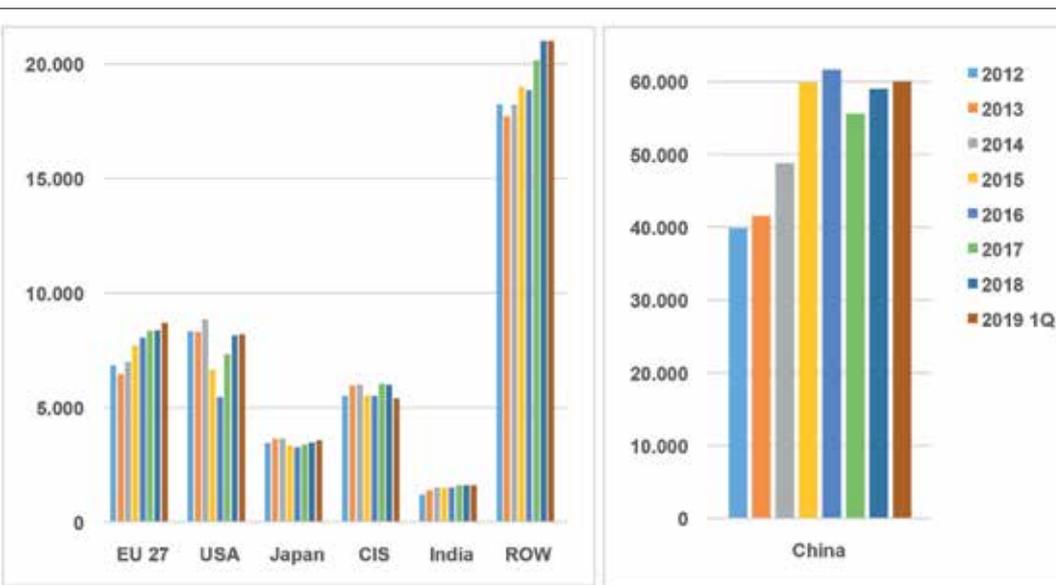


Figure 12: Regional Steel Tube and Pipe Production Welded < 406 mm (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

ate increase in 1st quarter 2019 (+1%). This large volume segment is steadily growing. But the regional breakdown also shows more variations: China (+2%), EU (+4%) Japan (+3%) and ROW (+3%) are reporting an increase. CIS (-10%) is outbalancing these production figures.

Many growing markets can be served by these tubes and pipe dimensions, allowing producers

to capitalize also from the various market segment prospects as discussed before in this publication. The production of welded pipes  $\geq 406$  mm OD is with about 22.000 tons/year (+/- 5 %) by far the smallest product segment (Figure 13). It is mainly applied at large diameter line pipe projects. As already stated earlier such projects often depend on powerful stake holders' interventions and

the capability of relevant pipe producers to qualify for such pipeline projects. The average world pipe producing plant utilization is on a very low level of only about 30 %. The world production is shrinking since 2017 (-7 %), with (-1 %) in 2019 1st quarter. To protect the local producers, the present US government has only recently started to put import duties on line pipe imports to protect US line pipe producers.

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This political signal seems to show the desired effect on the US pipe production! The 1st quarter 2019 production numbers (Figure 14) reflect this again impressively. Only the US tube and pipe producers have enlarged their production by +40 %. All other countries/regions reduced their production with the most significant reduction in EU 27 (-42 %). Japan (-5 %) and CIS (-4 %) have more moderate production declines.

This trend reflects the decreased demand for pipelines in these regions and political measures.

Even some of the technologically advanced producers of large diameter line pipes are suffering, despite unique selling points.

In the entire scenario, the currency exchange rates have also a notable impact on the international tube and pipe production as well as equipment trading throughout the world.

In 2017 the EURO has gained about + 20 % against the US Dollar (Figure 15). Then in 2018 since April 2018 the Euro weakened until October 2018 again by about -10 % to 1.13. This does release pressure on exports into the US. Since early 2019 the exchange rate EURO to US Dollar stabilized at a rate of 1.12. It is to be expected how and if the Brexit confusion will take influence within this year. The election for the European parliament did not really had a remarkable impact, since no major changes were imposed.

The Exchange rate EURO to Chinese Yuan was much more volatile (+/- 9 %) than the of the EURO to the US\$. The US Dollar and the EURO gained about 21 % in 2017. 2018 the EURO lost twice as much against the Yuan (-22 %) compared to the loss against the US Dollar in the same time. The trade conflict between the US and China is creating nervous reactions and it has to be observed to what extent the conflict gets reflected in the relevant exchange rates. In any case it is undoubted, that the exchange rates of these lead currencies do impact the international trade and challenge our industry as well.

What measures are pipe producers and pipe production equipment suppliers taking to conquer the present situation and to generate sustainable business?

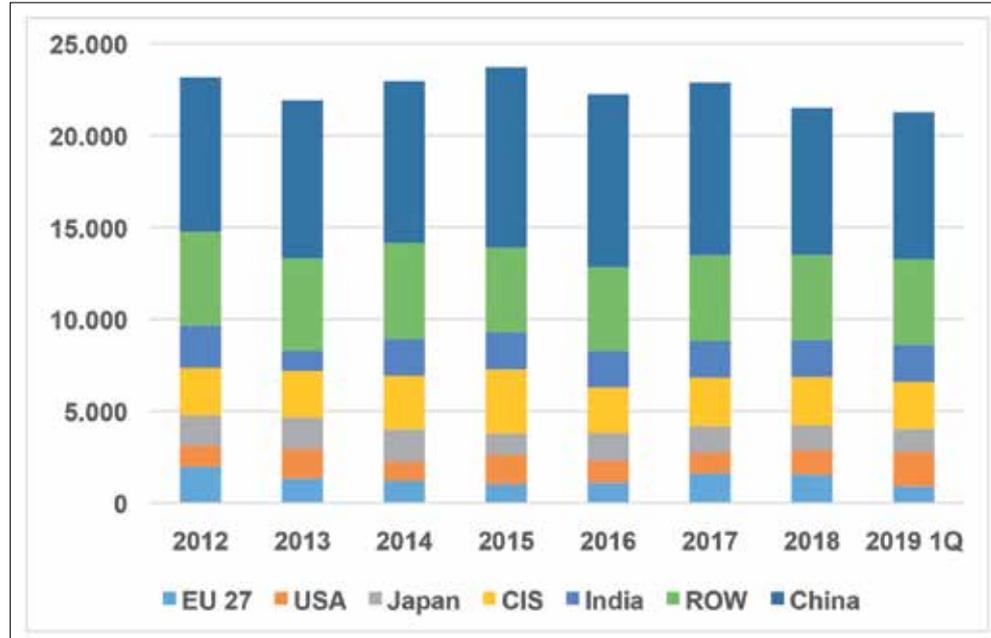


Figure 13: World Steel Tube and Pipe Production Welded > 406 mm (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

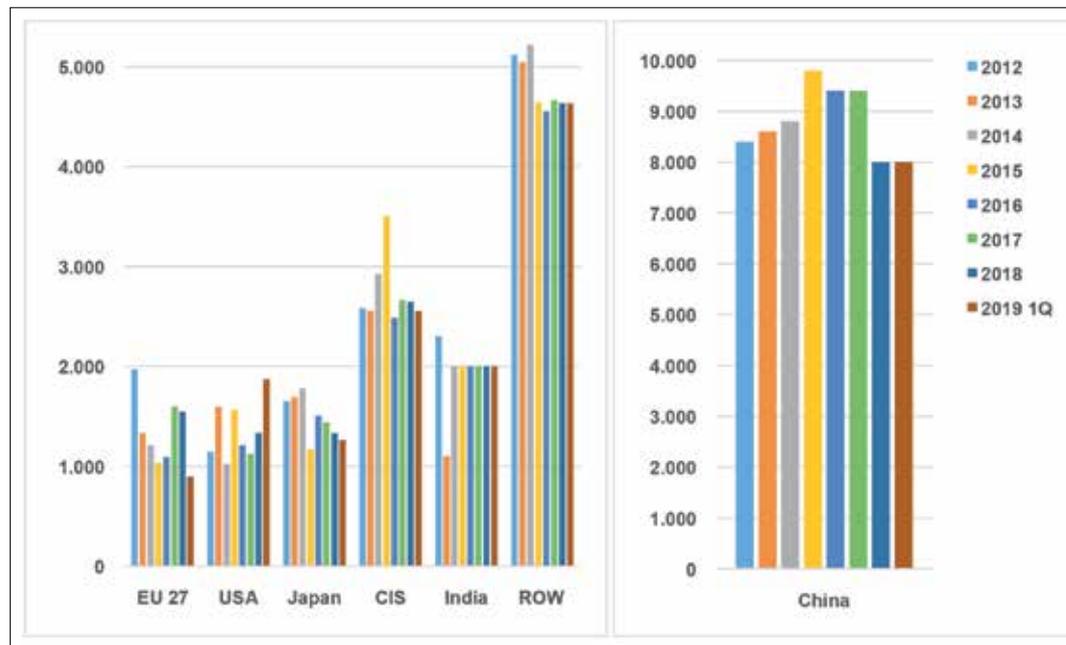


Figure 14: Regional Steel Tube and Pipe Production > 406 mm (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

The world increasing tube and pipe demand is leading to regionally improved plant utilization in the steel tube and pipe industry. Some pipe producing companies in the USA even reactivated obsolete production facilities with a questionable economic future. Still, despite the remarkable boom in the USA, globalization into

markets with increased demand remains one of the key answers. Middle East and locations with major oil and gas exploration as well as automotive production, mechanical engineering and building construction are to be considered. Besides this, shale gas exploration, deep-sea offshore exploration and oil sand explora-

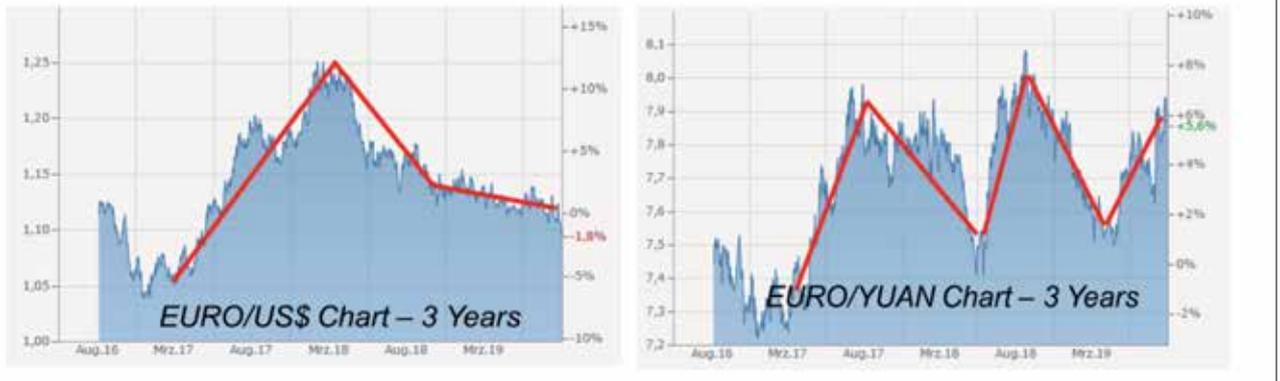


Figure 20: Regional Steel Tube and Pipe Production > 406 mm (ktons)  
Source: ITA tube Journal/Wirtschaftsvereinigung Stahlrohre e.V.

tion remain major challenges to our industry.

Tube and pipe producers must carefully investigate how to reduce fix costs, e.g. lean organizations, with small overheads, and how to improve flexibility, agility and customer orientation.

New information technologies, such as "Industry 4.0" or also called "Internet of Things", can provide interesting opportunities to establish sustainable future business. Such agile optimization processes may even open new windows to deal with the fast-varying demands tube and pipe producers are facing.

Plant builders as technology suppliers may find interesting business opportunities in this new market segment. Some technology suppliers have already reacted and complimented their product portfolio by digital solutions.

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