

TBR: FOCUS ON ROLLING RESISTANCE REDUCTION



Haluk Kizilay

Haluk Kizilay, one of the registered researchers of TUBITAK, the Scientific & Technological Research Council of Turkey, has built over 30 years an impressive career that spans everything from tyre design & development to strategic planning, marketing and business development. At Bridgestone Turkey, Haluk supported executive and functional level of tyre design, production, field evaluation and management from 1989 to 2011. In 2011, Haluk moved on to Cooper Tire & Rubber, leading global tyre maker. He took wide-range responsibility for Truck & Bus product development as well as Field Engineering & Business Development in China and England. During his career, he visited many countries including China, Japan, Australia, USA, Algeria & all Europe and obtained deep market knowledge including competitor performance information. Recently, he has established his own Consulting firm to serve tyre industry globally. Additional information available on www.halukkizilay.com. Haluk is also one of the authorised judges of EU Horizon 2020 work programme. He has researched and wrote analysis, published reports and made speeches relating to the tyre industry. In this interview he focuses on the challenges tyre product development faces, especially TBRs

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How do you see the tyre industry in particular and automobile industry in general evolving in future?

This is the most critical question for all manufacturers in our industry to compete now and be ready for the future. As we all know, our automotive society is changing at rapid pace world-wide due to new customer



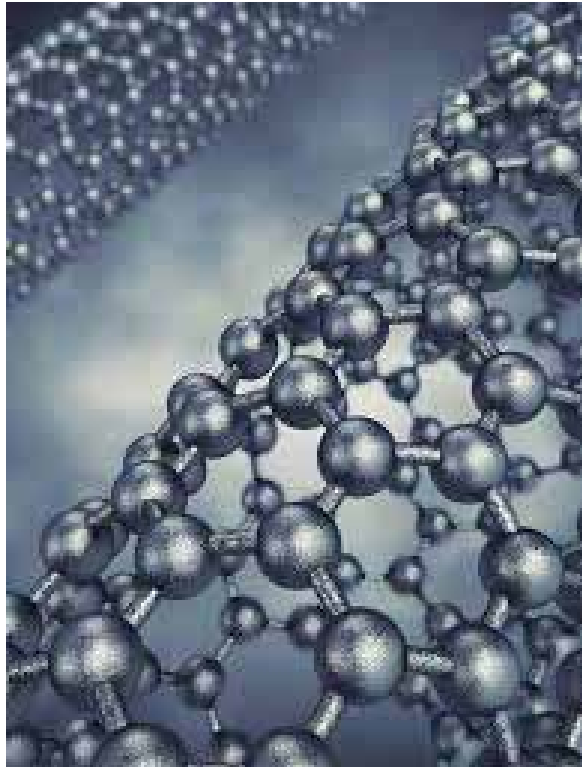
trends and growth of middle class mainly, while the performance requirements of tyres continue to rise ever higher, meaning that even further advancement in tyre technology now become essential.

Tyre market in general has been growing worldwide annually 3%-16% by regions which triggered by global growth, mobility needs and other factors. Today, we are talking about new technologies such as advance modelling and testing, autonomous driving, new green materials, embedded system developments as well as Industry 4.0.

In that respect, Tyre industry has been involving all above activities since many years and should continue this even harder in the future by expanding R&D efforts and investments in general.

What are the main challenges in tyre industry today?

Today, tyre industry faces many challenges regarding sales networking, pricing, supplying of raw materials, production problems, technology adoptions, testing and others which make our life difficult but delightful.



Some of the important topics in today's tyre industry are;

- Technological Breakthroughs
- Advance Material Developments
- Environmental Sustainability
- Automation and Industry 4.0
- New Business models
- Changes in customer expectations and behaviors

Lastly, I would like to draw your attention that legislation and governmental rules & counteractions such as additional taxing also creates additional challenges for tyre industry.

Consequently the tyre technology and tyre knowledge will be extremely important to compete in the future, more than at any time in the past.

How do you see the Truck and Bus tyre market in general and how European truck tyre market differ from other regions?

Commercial tyre market that called TBR is about 180 million unit globally. Off course this is very high level summary but it shows us the main markets by having the top 3 as China, North America and Europe.

TBR market growth ratio is about 2-6% by regions based on sales. For example, EU CAGR (Compound Annual Growth Rate) is about 2% whereas China CAGR is about 5%. What we see that the demand in TBR is still growing in all regions with many different requirements by customers.

As you may recall, truck tyre technology has been changing since many years which driven by professional end users who require many different performances all the time.

How does the European truck tyre market differ from other regions?

It is clear that European truck configurations are different than other regions especially from US by aiming to serve EU needs and as a result tyre sizes and types as well as patterns are different. European trucks generally have fewer, larger tyres running at higher inflation pressure compared to US market.

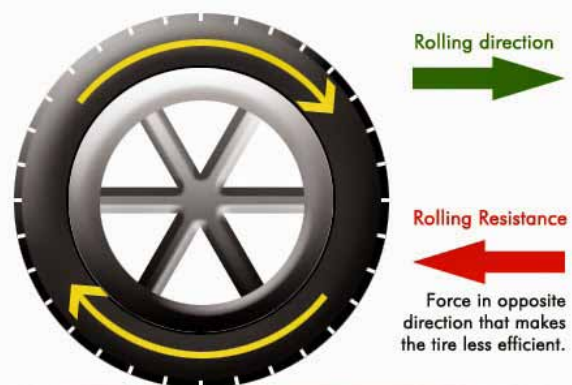
In addition to this, Europe now requires labeling for rolling resistance, tyre noise and wet grip with minimum standards that the tyres have to meet. As we all know, Europe is leading main Legislation in TBR market as well as passenger products.

Today in Europe, the road transport accounts for almost half of the total freight transport activity regarding all Europe and the mobility sector employs more than 11 million people accounting for 5% of total employment which covers also transportation, trucking, re-treading and tyre manufacturing segments.

Europe is one of the mature markets for Truck & Bus tyres. However, it is estimated that freight transport will grow by 60% from 2010 to 2050. The similar estimation is also seen for Urban Bus Service and passenger transport will grow by 42% for same period.

What are the key technical trends in TBR product development?

As I mentioned above, there are many kinds of requirements that vary somewhat from region to region and different trucking application. Having said that, one general trend is to improve fuel efficiency by reducing rolling resistance. I believe the rolling resistance is the number one topic for technical people in Europe. The challenge now is to reduce the overall tyre rolling resistance, through tread part or other compound changes, while maintaining the tread wear and cut resistance. In addition to improve compounding, new light weight and advance material usage are getting popular.



There are also additional new trends towards tyre size with lower aspect ratios, high load indices, snow marking and smaller outer diameter in Europe.

It is possible to say that China TBR market follows Europe regarding sizing and patterns as well as regulations. In China, the biggest trend is the transition

to tubeless tyres. We know that tyre over-loading issue is getting better in China since government has been pushing very hard to improve the safety and other issues. As a result the tyre over-inflation and tyre performance issues would be better in near future.

Today, we are also talking about telematics solutions and automated tyre inspection methods to enable the fleet operators to measure tyre pressure, tread depth and vehicle weight each time they enter or exit their depot.

What do you think about the virtual technology in product development process?

Modeling has been using in tyre industry since many years by all global manufacturers. They mostly use simulations to study or predict various aspects of tyre performance and that activities have been also supported by universities since they have technical capability by having experienced engineers as well as high-tech hardware and software.

Design & development process duration is getting more and more crucial and all manufacturers are trying to reduce it by using modern simulation and modeling technology. They are now improving their capabilities and capacities both to serve to OEM. The challenge here is to have capability to incorporate as many tyre details as possible to have simulations that replicate actual tyres. At the same time, there is still progress to be made in order to serve tyre and automotive industry needs. ▲

