„In the USA, everything that is not explicitly forbidden is allowed, whereas in Europe, everything that is not explicitly allowed is forbidden."

Thomas Quernheim,
Chairman, IAMTS

by Andrea Hoffmann-Topp

Interview with Thomas Quernheim, Member of the IAMTS Supervisory Board

"Harmonize homologation worldwide!"

The automotive industry is in a tight spot: global homologation rules are driving up costs and slowing down innovation. In this interview, Thomas Quernheim, Chairman of the Supervisory Board of IAMTS, outlines how the regulatory chaos can be resolved.

How can international homologation standards in autonomous mobility be harmonized? The automotive industry faces a dilemma: global markets require efficient scalability, while local regulations often force complex adjustments. Countries such as China, India and Japan sometimes have their own regulations that make standardization difficult. Thomas Quernheim, Chairman of the Supervisory Board of the International Alliance for Mobility Testing Standards (IAMTS), outlines possible global strategies and emphasizes that a stronger

dialogue between all stakeholders is necessary to overcome these discrepancies.

Mr. Quernheim, homologation in automotive production faces the challenge of meeting different regulatory requirements worldwide.
How do you see the efforts to harmonize international standards, especially against the background of regional peculiarities, for example in China, India or Japan?

In view of the rapid technological development of the past few years, I believe it is essential to intensify efforts to harmonize standards. Otherwise, there is a risk that the automotive industry will come under even greater cost pressure because the economies of scale in product development will decrease even more.

The industry is not only facing changes in technology, but also a new world in terms of market and customer structures.

Partly protectionist motives from the past to create their own regulations run counter to the interests of the industry in these countries.

The challenge is to ensure that developments on the technical side, with major involvement from the USA, where regulation works completely differently to Europe or China, for example, and is largely based on self-declaration by manufacturers, are or will be compatible with the regulations in other regions. From our observations, we need a much stronger dialog between the stakeholders in all regions of the automotive world than is currently the case.

While regions such as Europe and the USA focus on standardized approaches, countries such as China or India often rely on their own regulations.

How do manufacturers manage to make local adaptations without restricting the innovative power of their production processes?

As I said, the USA is a somewhat different case. If we compare the legal concepts - to put it very simply and deliberately provocatively - everything that is not explicitly prohibited is permitted in the USA, while the European approach follows a diametrically opposed premise: Everything is prohibited unless it is explicitly permitted. Europe's pioneering role in automotive development has not disappeared, but it is naturally coming under pressure. In terms of regulation, this role is still important and undisputed. When it comes to China and India, we must not forget that the industry there continues to focus heavily on its own market, whereas Europe and the USA, as well as Japan and South Korea, have had a strong export focus from the outset and still do. In particular,

the operationalization of new technologies such as automated driving requires adaptation to local conditions, including local development expertise. Just think of autonomous driving on the roads of India.

The requirements for simulation and test scenarios as well as the robustness of the algorithms on which the systems are based are completely different. I am convinced that there will be consolidation in the technology and also in the regulations, because this is necessary in order to keep the industry competitive against other mobility concepts.

The will to export increased exponentially in China with the wave of electrification and India is heading in a similar direction, even if this is not that visible at the moment. But this development is raising the motivation for harmonization.

We even did not further analyze the current discussions which are in real life politically motivated such as tariffs imposed in Europe and USA and the decision to ban vehicle imports in the USA with software and/or hardware from Russia or China.

In view of the growing complexity of vehicle technology, particularly as a result of networked and autonomous systems, scalability is a key issue. In your view, what role does technological development play in complying with regulatory requirements in different markets?

I'll pick up on the last point from the previous question. Necessary duplicate developments due to new laws such as the so-called ‚Rule of Origin' in the USA are a counter-development to scalability and certainly not in the interests of the automotive industry. This also means increasing complexity in global sourcing for manufacturers. In addition, there are fundamentally different ideologies when it comes to automated and connected vehicles, either pursuing a very strongly cloud-based approach, as in China, for example, or relying heavily on individually autonomous systems, as in Europe and the USA. Where the right balance will lie in this interaction and what this will mean for the possibilities and limits of scalability is not yet foreseeable from today's perspective.

Validation processes differ greatly between countries. How do you assess the possibilities of designing processes such as simulation and testing in such a way that they meet the requirements of both regional regulations and global scalability?

The need for scaling applies not only to development, but also to validation. In my view, it is absolutely essential to standardize basic scenarios for simulation and testing and to base local adaptations on them. There is no getting around localization. If only because driving behavior and infrastructure standards differ greatly from region to region around the world. But there must and can be a basis on which manufacturers can build for several different regulatory frameworks. In my view, IAMTS makes a crucial contribution to this. A core library with basic scenarios and elements for describing the ODDs (Operational Design Domain) will make an invaluable contribution here.

In an increasingly globalized automotive industry, it is essential to find long-term solutions for homologation. In your opinion, what measures and strategies could help to achieve a balance between technological innovation, regulatory compliance and marketability on a global level?

In addition to my role in IAMTS, as head of this business field at TÜV Rheinland, I give a lot of thought to this question. I have already briefly touched on the differences that exist in today's world with regard to homologation. This term and the type approval processes on which it is based do not exist in some regions and countries. This makes it all the more important that simulation and testing essentially meet the requirements of the different regulatory approaches. It is important that the test environments for assessing the operational risk of an automated vehicle demonstrably meet uniform requirements (both physically and digitally), that the scope provided by the regulations can be used across regions and that test results can and may be included, even if they are not carried out again in each individual country.

Furthermore, the processes for testing must be standardized and made comparable. This is particularly important in order to simplify tool development and speed up the validation process. Innovations in chip and sensor design and in algorithms must undergo standardized evaluation methods to determine whether they meet the required risk thresholds for users.