Opinion

Regulation, metrology, academy and challenges: where are the critical points?

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Since final of 90's, the world economy walks strongly in a dynamic step, boosting innovation and trade barriers reduction related to 20th century remaining challenges. In this way, we have seen national biofuels markets establishment, new types of clean electric energy generation, national regulations more stern in food, drug and environmental areas. In this world scene, greatest amounts are spent for the national governments, taking us to a better understanding about the natural resources, human resources improving and good partnerships possibilities. In some countries, the markets are almost "self-regulated". Companies have developed optimal R&D structures and technological bodies, which allow technical actions and studies with national regulation agencies together. It has enabled many advances to improve regional needs of development, and a few cases worldwide issues. The academic researcher is not a minor knowledge source in this scene. The Universities and Research Institutes provide human resources, material resources, critical evaluations and relevant conclusions to solve the persistent troubles (technical, economic, logistic, commercial among others types). The most common partnerships are between academic researcher and companies. All these efforts have taken the agents to use metrological tools as never before. Metrology is "the science of the measurement", which a lot of times was underutilized, into the engineer and physics universe only, up to a recent past.

For many reasons, the metrology use became mandatory in the national regulations, technological solutions and markets improvements relationships. Petroleum industry, regional environment rules, food and drugs administration regulation, biofuels production-nowadays in all these areas the metrology is a powerful tool which already keeps strongly relevant rules, besides there are more improvements to be found in its use. Here is the most important step to be given: the academic researcher contributes increasingly with metrological concepts. They have been introduced in the scene some years ago, mainly for the experts from the companies and normalization committees, which give support to "self-regulated" markets. The academic research has a different origin-it maybe causes the actual trouble. Then why the experts, governments or the normalization committees cannot continue to improve the metrological concepts use? The answer is not hard-they can do it. The detail is seen when these agents gets their aims, which are singles, restricted many times. However, the aims in the researcher universe are not like that. The academic aim always can be improved, besides to be dynamic, unrestricted. The researcher still needs to understand that has means to expand the metrological horizons, not the research and innovation only. When we are normalization technical group attendees, can feel the academic researcher lacking many times. In these groups, metrology concepts always have a central relevance.

The second critical point is the targeting to national or regional regulation challenges with the correct metrological tools use. This point is independent of academy participation; however, that would be dramatically improved if the academy devotes a fraction of its potential knowledge. The third point is in markets which are not "self-regulated". This is notorious in some countries where there is a powerful government set of actions to regulate the markets. In this scene, there is not national or regional normalization committees, strongly technical, for the companies establish rules with their experts. The government dependence is too high, with the "key experts" coming from the regulation agencies, national metrology institutes or the government companies. The academy, also financed by the governments is so far the metrology universe. The partnerships, about all cases are between researchers, government companies and a few private companies, with punctual aims, always directed towards innovation. Is it not good? Sure it is. The trouble is the understanding metrological improvements as innovation too. A lot of times a better and cheaper type innovation than others, which are costly, with limited scope. The metrology here is seen as a tool to quality assurance only, according international standards. The academy has to understand that metrology is much more than it.

In all the discussed points, both "self-regulated" and "government-regulated" markets, the academy must get a better understanding about metrological tools to contribute with the real challenges of the markets. The "self-regulated" markets have a better structure to obtain prompt results. The "government-regulated" markets have a different philosophy: in these cases the advances can come with policies changes as well. The results can be lagging, but contribute more with a significant market change, an excellent change. Which are your critical regulation challenges? Critical limits for contaminants in effluent water? Do you need improvements of obligatory fuel additives? Environmental impacts measurements in new electric energy generation stations? Do you demand determination of limits for new substances in drugs? We are talking about a too large scope. The metrology and academy are central agents in this game.

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Conflict of interest

The authors declare that there is no conflict of interest.