

14 TOWARDS TOTAL APPROACH IN LEGAL METROLOGY

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In Switzerland we have decided to totally renew our legal metrology system and I think that other decision makers, metrologists and experts should consider our reflections and solutions we are about to implement.

The first step when thinking about the future is to know exactly what our objectives will be. In broad terms, they may be expressed so: protect the people and their interest against false measurement and eliminate technical barriers to trade. I feel sure that these present objectives will be still valid in the year 2020. What is going to change are the ways and means to reach them.

The means are an adequate legislation and an effective enforcement by an efficient infrastructure. What protection measures and which level of protection will be decided remain a political question. If we study the present situation, we cannot escape the conclusion that the existing system has many strong points but also several weak features, some of them I shall briefly mention.

Legal metrology today suffers of old regulations in the field of trade with much too details and rigid requirements focused on measuring instruments alone. On the other hand in other fields like health, safety, environmental protection, the metrological legislation is either non-existing or has many large loopholes.

Since legal metrology has expanded or is in process of expanding in many new fields other than trade, it is of paramount importance that the different state authorities responsible for these areas coordinate their actions. This coordination is largely missing today.

Another failure in the present situation is the missing security of data. Rough data are being even more transmitted and evaluated through complex and extended networks. This is fine and good as far as nobody can tamper with them. Since this is the subject of another paper of the seminar, I will not expand on it.

About the means, with one exception, we have still today only the procedure to ensure the continuing measurement reliability of measuring instruments: this procedure is pattern approval coupled with verification. Quite adequate for measurements in trade, it is hopelessly inadequate for in other areas where the people performing the measurements and the procedures are much more important than the instrument itself. Take for example non-ionizing radiations emitted by antennas of mobile phone nets. The measured quantity is vectorial, depends on reflections, on mobile reflecting objects, number of channels used at the time of measurement, etc. The procedures and experience of the staff is much more relevant to correct measurements than the instruments themselves.

From that starting point, the question is: what are the ways and the means to overcome these failures?

We have decided to use all existing competence of state authorities and private bodies as soon as their competence could be proved; not to restrict legal metrology to the classical field; to set up a national coordination committee in which every state authority having metrological responsibilities is represented; to introduce performance-oriented requirements for measuring instruments and methods, fully harmonized with those of our main trade partners, which includes legislation on prepackages; to take all necessary measures in order to have all our metrological certificates recognized worldwide and to recognize certificates of other countries.

We have also decided to add to the traditional scheme, type examination and product verification, the new features of the European Union as laid down in the new and global approach, and to complement this system which covers only the production and putting on the market, by the necessary ways and means to maintain the measurement reliability at all steps of measurement activities.

Unlike the classical system in which only one possibility of conformity assessment is offered, namely pattern approval and verification, the new system offers a modular solution at two steps of the life of measuring instruments.

Firstly, the manufacturer has the choice of different modules in order to establish the conformity of his instruments before the long-term placing on the market; these modules are described in the EU Directive on global approach. He has also the choice of competent bodies, state or private, which will do for him the necessary tests and evaluations to prove conformity. In this system, the manufacturer is responsible for conformity and this shift from the current preventive system to a more or less repressive system makes necessary that we have a surveillance of the market in order to ensure the protection of people and the environment.

Secondly, there is a choice of different ways to maintain the measurement reliability depending on the features of the measuring instrument. It starts from periodical verification and includes also remote calibration and verification, and combination of them. The competent authorities will prescribe which modules are valid for which type of instrument used in its area of responsibility.

At all steps of this scheme, the severity of the activity required will depend on the risks linked to erroneous results of measurement. If the risk is small, the conformity assessment procedure and the surveillance will be simple. If the risk is high, as for instance for medical dosimetry or radiation protection in nuclear power plants, the procedure will be much more demanding. For that reason, not every module will be available for every type of instrument. The specific ordinances will prescribe what modules or conformity assessment and which level of measurement reliability assurance will apply to a given type of instrument. The scheme is also applicable to measurement methods and procedures such as for measurement of non-ionizing radiations. In this case the measurement procedure must be examined and approved and compulsory comparisons must be performed. Moreover, the testing laboratories have to be assessed and/or accredited.

A new surveillance concept will be introduced to control that the new system is correctly enforced at all steps of measurement activities. The surveillance has several elements. We have first the surveillance of conformity assessment bodies. The state authority shall not only assess and notify them, but also control that they maintain their

competence and correctly perform the tasks they have been mandated to carry out. For that it can rely on accreditation. The surveillance authority shall check by random controls that the instruments declared conform are really complying with the legal requirements at the time they are put on the market. For that a centralized information system is required to avoid multiple controls. We have also surveillance on the enforcement where we shall survey that the procedures prescribed for maintaining the measurement reliability are really and completely performed in the prescribed time spans. Responsible for that is the user.

As last element, the authority shall control whether the instruments and the measurement procedures are adequate for the use and whether they are used and perform correctly.

A very important feature for the surveillance is measurement, which is for me much more important than fastidious checks of documents and certificates. The main points will be to actively check that the instruments measure within their maximum permissible errors and that the measurements are reliable. I call this scheme measuring surveillance.

As now the state authority will be responsible for this surveillance. According to the level of risks linked to erroneous results, the authority may delegate the whole or parts of the surveillance to competent third parties.

Instead of summarizing, I would like to make some final remarks.

I have tried to show you steps towards total approach. We shall start with the introduction of new means not only for control of measuring instruments including software of course, but also measurement methods and, if necessary, the measurement actors in order to ensure measurement reliability, and this not only for trade but also in the new fields. For that coordination between the states authorities is a must. We will try to achieve it by setting up the coordination committee already mentioned.

I think it is clear for everyone involved that our tasks and activities will become even much more complex and demanding in the future considering the on-going technical developments and the new field of legal metrology. Therefore, it is a must that all involved parties maintain and develop their competence and collaborate closely together to reach a transparent, universal and global measurement system and conformity assessment system. Only this will allow us to attain the main objectives of legal metrology presented at the beginning of my presentation and I do hope to see one day, and this before 2020, the merger of the international organizations involved. This will also solve the dispute about names we had just a few minutes before, if it's legal metrology or if it's metrology, or trade metrology.

A final remark: total approach does not mean total surveillance or over regulation. It means appropriate, effective and efficient measures to protect the people and the environment where and as much as it is needed. And here I agree with a statement made yesterday by Mr. Mosima, or with Montesquieu who was also quoted yesterday by Mr. Gaudin: when it is not necessary to regulate something, then it is forbidden to do it. For that we need to monitor the outcome of our activity in the public and according to the feedback of this controlling system, we shall increase, maintain or reduce our efforts.

Discussion

Comment: Lot of countries and NMIs can learn and take profit from the way things are handle in Switzerland. Concerning this approach, is it something coming from METAS or is an initiative from your government. In the first case, how have you been able to convince your government and minister of the validity of your proposals? Second question: you said that you have decided to use the existing infrastructure. Is it a decision based on an analysis showing that the infrastructure was adequate, or simply because it was pragmatic to do so?

Reaction: To the first question: the best way was to involve, from the very beginning, all concerned parties, including decision makers. They were consulted, hearings were carried out and it is now a proposal to the government of Switzerland. To the second question: an infrastructure is necessary to implement the new scheme. The existing infrastructure is not 100 % adequate, there are failures and limitations, but they will be eliminated and what is missing will be built up.

There were also questions from Mr. Schultz and Mr. Lagauterie, however unfortunately, these were not recorded.