Present-day scientific and technical progress requires a fundamentally new approach to obtaining and storing measured information. Ensuring trustworthy measurements for a given precision at minimal material expenditure has become one of the principal problems in this field.

The basic standards developed by the State System for Ensuring Uniform Measurements in the Country (GSI) can serve as a sufficiently comprehensive basis for solving up-to-date problems in the field of metrological provisions for industry. However, metrologists should be careful in applying these standards.

There exist many specific ways for improving metrological provisions in enterprises. However, in order to attain positive results, they should all be simple, take into account the degree of understanding of the applied measures by a wide range of experts, and should not present production-process descriptions in an artificial light and solve problems in isolation. Practice has shown that the standards should be above all systematic and based on the existing level of the metrological service's development.

In this connection we should like to examine briefly certain problems of ensuring metrologically the implementation of specialized factory production tasks whose refinement in the plan for adopting and implementing corresponding measures is not claimed to be original, but can serve, as it has been shown in practice, to form a foundation for drafting and adopting practical normalizing documents.

The above measures can be conventionally sub-divided into technically organizational, structurally organizational, and methodologically organizational.

Technically organizational measures cover the distribution at the enterprise of the basic functional metrological-provision tasks and the raising of the technical level of metrological agencies and experts.

It is known that metrological provisions for an enterprise include a number of tasks the responsibility for whose solution is specified in normalizing documents without due precision or substantiation, thus producing arguments among experts of different categories. These tasks include: first, working out and assigning various conditions for carrying out measurements, including precision norms; second, selecting and allocating standardized or certified measurement techniques (MT); third, investigating and developing measurement principles, methods, means, etc.

A lack of clarity in the distribution of the basic metrological-provision functions among the corresponding sections of an enterprise leads to disorganization and impedes efficient development of metrological provisions as well as the maintenance of the required production quality indexes.

In fact, as far as the first task is concerned, it can be often observed that the experts of the basic specialized-production categories (designers, technologists, etc.) attempt to a greater or smaller extent to “involve” metrologists in the selection of measurement conditions and even measured parameters and to make them at least partly responsible for the correct solution of these problems.

In analyzing this problem, it can be asserted that it is organically incorporated in the general working out of the subject and cannot be in principle divided for implementation by experts of different categories, since a designer who has set dimensions or selected ranges of the measured physical quantities is “automatically” obliged to specify in a responsible and appropriate manner the conditions of their measurements.
Although the second of the above metrological provision problems does not form an organic part of the subject and it can be entrusted to metrologists, yet a more profound analysis of this problem shows that its solution requires a controlling participation of production experts.

In this connection it should be noted that the selection and assignment of "finished," worked-out MTs is the only source for "metrological training" of industrial experts of the basic specialized production categories. The placing of responsibility for the correct selection of MTs simultaneously on the designer (technologist, etc.) and metrologists actually produces alienation, irresponsibility, and the practice of "adjusting" a specialized-production problem to the existing possibilities in the sphere of metrological provisions.

At the same time any technical assistance in selecting measuring conditions or MTs can always be rendered by metrologists, and, if this problem is raised under conditions of given economic indexes, the participation of metrologists in its solution can be decisive.

As far as controlling the correct selection of MTs or the measuring conditions by the specialized-production experts is concerned, this constitutes one of the aspects of the metrologists' activities (supervising adherence to metrological examinations).

It is only natural that the working out of measurement techniques is the direct responsibility of metrological experts, since it will not lag behind present-day requirements only if this task is implemented by a metrological agency in cooperation with specialized metrological institutions.

And, finally, the practice of loading the metrological services at enterprises with routine testing is very prevalent. The production sections then refer to the supposed "importance" of measurements or the inability of the technical control division (OTK) experts to handle conventional measuring equipment. Such a substitution leads to the fact that the OTK experts do not raise their qualifications on the one hand and detract metrological services from the solution of more important problems on the other.

Moreover, the most important of all the organizational and technical measures consists of the planned improvement of the metrological services' technical resources, the raising of qualifications, and the accumulation of experience.

Structurally organizational measures cover the problems of a rational distribution of experts and an efficient formation of metrological service agencies.

It is hardly possible to improve the application of metrological provisions, if the enterprise does not implement the basic regulations of the All-Union State Standard (GOST) 8.002-71 and engineers who are capable of raising their qualifications up to the level of metrologists of corresponding specialities are lacking.

The basic principle of the above measures consists of allocating metrological service engineers to specific measuring processes used at the enterprise. It is natural that such a supervision of measuring processes entails people responsible for various metrological sections, who are appointed to supervise the measurement of certain physical quantities irrespective of the technical characteristics of the measuring equipment used for this purpose. It is obvious that experts of allied sections can always be enlisted in another section for the solution of its specific problems.

The allocation of metrologists to measuring processes serves to solve rationally the problem of forming elementary metrological sections by bearing in mind the general volume of work and ensuring interchangeability of personnel.

The above-mentioned metrological sections are engaged in working out and applying measuring means, methods, and techniques (including their standardization and certification) and dealing with other normalizing and technical documents according to their specialities; exercising metrological supervision over subordinated measuring-equipment sections, including control and testing as well as repair and adjusting sections by rendering them technical and methodological assistance in applying testing, adjusting, and repair techniques, etc.

Experience has shown that organizing productive sections within metrological laboratories is more efficient than amalgamating several such sections into a single compound productive laboratory.

It is advisable for technical, methodological, and organizational problems to be completely excluded for the specialized metrological laboratories' sphere of activity and to deal with them in independent sections according to the problems which they solve.

Thus, the coordination, planning, and supervisory bureau should develop normalizing, technical, and methodological documents which are common to all the metrological service sections and to carry out the corresponding analysis of the sections' activity indexes.