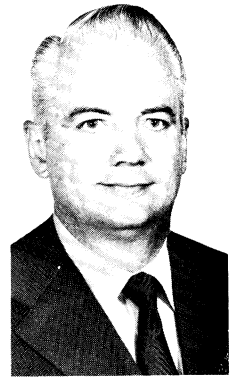


EDITORIAL**Measurement of safety performance**

The problem of safety performance measurement has existed since the very beginning of organized attempts to control accidents and their consequences. In its most elementary form, measurement has been defined as "the process of assigning numerals to objects according to rules" (Stevens 1951). When we apply this definition in the safety field, we are quickly confronted with problems concerning what "objects" to measure and what "rules" to follow. The safety professional must continually confront himself with the questions "Am I really measuring what I think I am measuring?" "What are the benefits of measurement?" and "Are there more appropriate measures available which I should be using?"

As we learn more about the accident phenomenon we change our traditional concepts of describing it. Since measurement is primarily a descriptive process, we are in danger of believing that the description is the real thing and forgetting the nature of the phenomenon we want to describe. We tend to latch onto a particular type of measure and use it constantly which often prevents us from searching for and applying new measures which better describe the situation. A few safety professionals have been known to retain a measurement system because it produces good results for them; within the limits of the accepted definition, they are able to manipulate the evaluative process to their own advantage.

The progress and maturity of a science or technology are often judged by whatever success has been achieved in the use of measures. Measurement, perhaps more than any other single aspect, has been the principal stimulus of progress in all professional fields. Measurement is the backbone of any scientific approach to problem definition and problem solution. Without adequate measurement in the safety field we cannot describe the safety state of our operations or determine whether or not our safety programs are really accomplishing anything. Sound measurement is an absolute prerequisite for control and both are necessary for prediction. In accident control and prediction, valid and reliable measures of safety performance are essential in order to (1) locate and describe problem areas; (2) identify causal relationships; (3) make decisions concerning the optimum allocation of accident

prevention resources; (4) evaluate the effectiveness of applied countermeasures, and (5) detect when the system is deteriorating toward unacceptable limits of control. Unfortunately, none of the traditional measures of safety performance permit us to achieve these objectives at an acceptable level of effectiveness. It is dangerous to assume that our present measures are really descriptive of the level of safety within an organization. It is even more precarious to assume that they will allow us to make inferences about future problem areas and select effective solutions. More pragmatically, our measures of safety performance are inadequate because members of top and middle management seem disinclined to believe them. We also have a rather severe criterion problem in the safety field.

The safety practitioner who seeks additional measurement information will probably achieve a greater return from his investment of time and thought if he first explores the thinking and writings of individuals who are competent in the measurement aspects of the basic subject areas related to his problem. Not only will he most likely equip himself with a more substantial foundation for understanding the problem, but he will be less inclined to adopt time-worn solutions based on the repetitive application of the more traditional "tools of the trade." I am suggesting that creativity most often comes from outside a particular field of specialization and that restriction of thought to internal sources will frequently lead to circular thinking with its concomitant lack of substantial progress. By drawing upon the talents and knowledge possessed by individuals who function in the field of measurement within areas of specialization related to accident prevention and by concentrating on the apparent interfaces between occupational safety and these other specialties, maximum use can be made of the unique contributions of these outside sources to the concepts and methodologies of measurement.

I urge you to seek out new methods of measuring safety performance and utilize them as a means of improving your capability for controlling and predicting accident losses.

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