Setting up equations and solving them has been for a long time one of the most important problems of mathematics. Nowadays models have evolved beyond equations and mathematical models resting on equations are replaced by "generalized equations" models.

The key concept for working at this general level is that of a set-valued mapping, which assigns to each point in the domain a set of values, and not only one value like an ordinary function. This leads to the replacement of the equality sign in equations by an inclusion in generalized equation. Wide fields of application are provided by problems of minimizing or maximizing functions subject to constraints or by models of competitive equilibrium.

In order to efficiently analyze and solve such generalized equations, some regularity properties have to be fulfilled, exactly as in the case of ordinary equations. Further the impact of perturbations must be considered, i.e. how the change of some parameters in our model affects the solutions. Of course, we want to be sure that small changes in the model will not produce very large changes in the solutions. This aspect is addressed by stability and again relies on some regularity properties of the problem.

Another task closely related with stability is whether the solutions of a generalized equation involving parameters may be viewed as a possibly set-valued mapping of these parameters and what properties that mapping might have.

These tasks can be handled by methods of modern variational analysis. Many powerful tools have been developed to extend continuity, differentiability and different types of regularity from ordinary functions to set-valued mappings.