ABSTRACT

Reliability field data such as that obtained from warranty claims and maintenance records has been used traditionally for such purposes as generating predictions for warranty costs and optimizing the cost of system operation and maintenance. In the current (and future) generation of many products, the nature of field reliability data is changing dramatically. In particular, products can be outfitted with sensors that can be used to capture information about how and when and under what environmental and operating conditions products are being used. Today some of that information is being used to monitor system health and interest is building to develop prognostic information systems. There are, however, many other potential applications for using such data. In this paper we review some applications where field reliability data are used and explore some of the opportunities to use modern reliability data to provide stronger statistical methods to operate and predict the performance of systems in the field. We also provide some examples of recent technical developments designed to be used in such applications and outline remaining challenges.