quirements are met. From a reliability standpoint, sub-system and component MTBF are recorded. At this point, production and manufacturing processes may already be established. Major redesign efforts are complete, and the system performs in its operational environment. Major changes to processes or materials may be infeasible, time consuming, or costly. Attention to reliability performance in earlier phases of development should theoretically reduce the possibility of major redesigns.

Nevertheless, OT&E provides a snapshot of overall system reliability. Frequent subsystem failure rates during OT&E should serve as a sign that reliability will decrease once the system is fielded. Design teams should thoroughly analyze failures, root causes, and their impact once fielded. Hopefully the reliability action team has evaluated the system, and the risk of low reliability after fielding the system is mitigated.

OT&E Is Not the End

Reliability focus does not end with OT&E! Once the system is fielded, the reliability action team should become a permanent part of sustainment activities. The team should identify critical systems and components where low reliability rates prevent mission accomplishment. Further, investigations should be conducted to answer the following critical questions:

- What sub-systems are degrading the quickest?
- What is the root cause (vendor change, new environmental conditions, or component manufacturing processes)?
- What is the corrective action (component replacement, improved manufacturing, or repair)?

System Reliability Synonymous With Performance

The purpose of this article was to propose the release of reliability design practices from the confines of a single IPT, and address the source of reliability performance at the component and subsystem level. Reliability is a viable performance characteristic, with its roots nested in the quality of components, materials, interfaces, workmanship, and manufacturing processes.

The recommendations in this article may bear a sharp resemblance to design activities conducted for "traditional" performance factors of systems. Regarding *system reliability* as synonymous with the term *performance*, program managers will find that total life cycle costs can be reduced by forming an action team dedicated toward achieving robust "reliability performance."

References

1. Kapur, K.C., *Reliability in Engineering Design,* John Wiley & Sons, New York, 1977.
2. *Reliability Toolkit: Commercial Practices Edition,* Reliability Analysis Center, Rome Laboratory, New York, 1993.