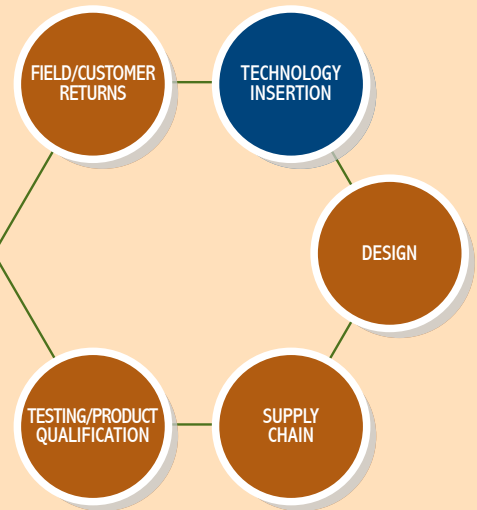


# Technology Insertion

## *Why Let Disruptive Technology Slow You Down?*

**DfR Solutions Can Guide the Transition to New Technologies & Materials with Minimal Risk to Your Company**



The rapidly changing strategic environment, increasing resource restraints, and need for increased operational life of products drive perpetual change in the electronics industry. These changes can cause slowdowns and reliability concerns that you can't afford.

Changes are triggered by a wide variety of issues such as performance, cost, or compliance. They come in various forms:

- o Packaging - insertion-mount to surface-mount, peripherally leaded to area array, or less than 1.0 mm pitch
- o Materials - Pb-free, halide-free, base metal electrode, phenolic-cure, etc.
- o Design - MEMS/MOEMS, microvias, stacked die, etc.

Whatever the change, the most crucial point is that new technology must work. It must work after being manufactured by the supplier, it must work in your customer's environment, and it must work long enough to satisfy the customer.

DfR Solutions can help with these changes. Our expert consulting and testing services allow companies to efficiently realign their resources with minimal risk. How? We understand the laws of physics and have broad experience on how electronics fail. With these two areas of knowledge, we can provide the specifications and test requirements necessary to ensure the smoothest of transitions. And with our knowledge of industry practices and outstanding research capabilities, we can provide guidance on whether test-to-spec is sufficient or when test-to-failure is necessary.

DfR can guide you through the timely and affordable adoption of appropriate technologies. We will provide a multidisciplinary review of your transition by providing the following services:

- o Identification of Potential Degradation Mechanisms (How could it fail)
- o Assessment of Relevant Materials, Design, Environment, and Customer Requirements (Why would it fail)
- o Formulating Physics-of-Failure Based Models for Life Prediction (When will it fail)
- o Review of Existing Specifications for Relevance and, When Necessary, Development of New Reliability Assurance Tests Based on First Principles (How to give customers confidence)

At DfR, we are eminently qualified and experienced in helping companies minimize the risk of technology insertion. We can help you incorporate new technologies that will improve performance and reliability, and we can help you do it at a lower total cost.

## Who We Are

DfR was initially formed by several senior scientists and staffers from the University of Maryland's Center for Advanced Life Cycle Engineering (CALCE) for Electronic Product and Systems, and has now expanded to include personnel with backgrounds from several industries (automotive, avionics, contract manufacturing, industrial controls, and superconductors). With years of experience in QRD research and consulting, the personnel at DfR are motivated to provide knowledge and science-based solutions to maximize and accelerate the product integrity and assurance activities of their clients.

## How Can We Help You?

For more information about DfR Solutions' Technology Insertion Services, or any of DfR's other services, seminars or products, call us at 301-474-0607, or email [askdfr@dfrsolutions.com](mailto:askdfr@dfrsolutions.com).

*Let DfR Solutions Take Your Reliability Concerns... and Make Them Ours*

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