

## Integrating EHS into New Product Development

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United Technologies Corporation (UTC) provides a broad range of high-technology products and services to the aerospace and building systems industries. UTC is a publicly listed corporation with 2002 revenues of \$28.2 billion and over 152,000 employees operating in 180 countries. The company has five core commitments that underpin its business strategy: performance, pioneering innovation, personal development, social responsibility, and shareowner value. This operating philosophy combined with highly decentralized decision-making has presented unique challenges in deploying a corporate policy on design for safety and environment (DFES). The policy challenges operating divisions to proactively move beyond the current regulatory and market requirements, but at the same time meet demanding performance goals and earnings projections.

Effective integration of DFES practices into routine new product development processes is a critical enabler. The DFES policy was initially deployed in a top-down flow from the corporate environment, health, and safety (EHS) department. That focus has gradually been shifted to the engineering functions within each operating division. DFES champions were established at each division to help overcome implementation barriers. There is a need for dedicated resources to develop tools and methods required by line functions in order to successfully complete integrated tasks. Cross-divisional teams share best practices and jointly develop necessary support resources. One team developed a common definition and calculation method for a hazardous material index (HMI) to characterize UTC product offerings. Team members wanted a common UTC metric to facilitate cross-divisional product development projects and to present a common requirement to UTC suppliers. Developing common methods in a highly decentralized company is just one of the organizational challenges.

Moving DFES from an EHS focus to an engineering focus has presented other organizational problems. Engineering and EHS define and use metrics in fundamentally different ways. Engineers use metrics primarily to guide design choices and trade studies. Fuzzy multi-criteria problems are common. EHS tends to view metrics as a reporting mechanism to assure compliance with requirements. This diversity of views has been a significant barrier to effectively inserting LCA, or even life cycle thinking, into product development practices. A simplified pair-wise comparison tool has been used with some success to explicitly show the priority between “green” and traditional product design attributes. A remaining challenge is to assess the feasibility of rolling up and reporting UTC-wide goals for environmentally-responsible products.

Effective integration of DFES means less visibility as a separate initiative. The ultimate objective is to embed DFES into DFx procedures as simply one more life cycle customer requirement. Corporate efforts are focused on reducing the anxiety of engineers unsure of what they are expected to do and traditional EHS managers unsure that engineering will comply. The soft issues of communication and training are key drivers often neglected in favor of technically sophisticated tools.