

THE MODERATING ROLE OF UNCERTAINTY ON THE PRODUCT DESIGN – PERFORMANCE RELATIONSHIP

K. Scott Swan, College of William & Mary

ABSTRACT

This study's goals include explicating one dimension of product design, specifically its robustness, and clarifying under what contexts robust product design capabilities are likely to deliver the most desired performance outcomes. A result of the study includes substantiating and elaborating on resource-advantage theory.

From literature, case studies, and anecdotal evidence, capabilities associated with robust product design are derived: (1) the functional and (2) aesthetic robust product breadth capabilities involve efficiently designing products with similar technology but the versatility or adaptability to be extended into a signifi-

cant family of variants concurrently usable or easily modifiable to domestic and foreign uses, (3) robust technology capability of selecting core product technologies and materials that satisfy the technical and customer requirements of present and future product generations, additionally, (4) manufacturing and customer robust quality capabilities of solving problems in the design stage that proactively eliminate deviations from established requirements in multiple contexts (i.e., manufacturing, assembly, as well as customer usage situations). The findings suggest that the use of robust design capabilities are influenced by uncertainty and have an important influence on firm performance, standard setting ability, as well as speed-to-market.

For further information contact:

K. Scott Swan
School of Business
Tyler Hall
College of William & Mary
P.O. Box 8795
Williamsburg, VA 23187-8795
Phone: (757) 221-2860
FAX: (757) 221-2937
E-Mail: ksswan@dogwood.tyler.wm.edu
