

Designing a Family of Development-Intensive Products

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Faced with fragmented markets, saturated and demanding customers, and global competition, firms increasingly must design and offer a line of innovative, quality-differentiated products to target customers with differing willingness to pay (WTP). In this context, designing a special class of products that we term *development-intensive products* (DIPs)—for which the fixed costs of development far outweigh the unit-variable costs—presents some unique managerial challenges. Examples of such development-intensive offerings abound in a number of industries, including the pharmaceutical, information, and entertainment sectors of the economy. Our contributions in this paper are threefold: (a) to show that managerial insights from the traditional approach to product-line design developed for unit-variable cost-intensive products do not carry over to DIPs, (b) to present new mechanisms and managerial guidelines for designing a family of products for which development costs cannot be ignored, and (c) to illustrate the insights with an extended industry example. We find that the design approach based on degrading (or subtracting value from) a high-end product to obtain a *subsumed low-end edition*, shown in the literature to be an effective approach for designing unit cost-intensive products, can be inappropriate for DIPs. This limitation of value subtraction has implications for the number of variants and the sequence in which they are developed. As an alternative to a subsumed product-design strategy, we propose and examine the *overlapped product-design approach*, in which a low-end product is not completely subsumed within its high-end counterpart, but differentiated on additional vertical quality dimensions. Our results both explain the recent challenges of firms with subsumed low-end products and guide them in designing a product line to successfully address emerging low-end market segments.

Key words: product-family design; development-intensive offerings; multiple quality dimensions

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