A framework for enterprise-driven product service systems design


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Abstract

As products become service platforms, customers purchase both products and their associated services. Service attributes affect product choices, and product choices affect to service demand and profit during the products life cycle. Enterprises offering such product service systems (PSS) must co-design products and services to maximize overall profit. This paper proposes an Enterprise-driven Product Service Systems (EPSS) design framework that integrates models of design, choice, demand, and cost into a profit optimization problem. The EPSS framework is demonstrated on a study of product and service design for tablets, e-books, and cloud services. Optimizations results quantify the trade-offs between profits from product and service dependent upon design decisions and use scenarios.

Keywords: Product service systems, optimal design, profit maximization, design for market systems

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Design Strategy for Enterprise Products. Enterprise products are large, complex, and ever-evolving software products that, of late, have resolved to an iterative incremental-growth model. To keep up with the growth rate of an enterprise product, the corresponding testing framework should broadly conform to a design that has the following characteristics:

1. Reliability: The framework must ensure that the test results are an accurate depiction of system conditions at the time of testing. It also must ensure that automated testing is carried out by efficiently utilizing system resources.

2. Retestability: This feature ensures that regression tests can be submitted multiple times without any change to the data or any other component associated with the tests.