A Thesis for the Degree of Ph.D. in Engineering

The Impact of Serviceability on Service Operations Performance, Service Cost and Customer Satisfaction

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# Thesis Abstract

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**Thesis Title**

The Impact of Serviceability on Service Operations Performance, Service Cost and Customer Satisfaction

**Thesis Summary**

In this thesis, three empirical studies on serviceability were performed in Japan toward investigating the effect of serviceability in manufacturing industries, exploring the important of service cost (after-sales service cost and ownership cost), and identifying the serviceability impact on customer satisfaction during experiencing serviceability-oriented products in after-sales service. The first research empirically examines the importance of designing products for serviceability and derives a framework that links management practices, design for serviceability practices, and operational performance in after-sales service. The developed structural model was tested with structural equation modelling (SEM) and the results show strong empirical evidence for most hypothesized relationships. This first research demonstrates the strategic value of designing products for serviceability and guides top management in adopting the necessary management and design practices to support product service operational performance goals. The second research investigates the customer’s perspective on product serviceability, including its impact on after-sales service cost and satisfaction/loyalty when experiencing service or repair on two products (automobiles and air-conditioners). Based on SEM results, this second research identified four serviceability-oriented dimensions: tangibles dimension of serviceability, assurance dimension of serviceability, responsiveness dimension of serviceability and after-sales service cost. Hypotheses were tested for both products and were found to be supported. As contributions to the product serviceability literature, after-sales service cost was found to act as a mediating variable by which customers viewed the product. Thus, these results provide insight to scholars and practitioners for strategizing after-sales service requirements during new product development and for offering customer-friendly practices in after-sales service. The third research investigates the influence of ownership cost on automobiles customers’ perspective through maintenance,
service and repair. SEM was also employed for examining the relationships between various constructs, including six different dimensions of product quality, ownership cost, customer satisfaction, and customer loyalty. Most of the hypotheses were supported, and the ownership cost factor was revealed as playing a significant role in enhancing customer loyalty. Thus, serviceability contributes in producing service-friendly products and also supports in achieving less after-sales service cost as well as low ownership cost for customers.