

## **A Framework for Designing Complex Product-Service Systems with a Multi-Domain Matrix**

**Authors :** Yoonjung An, Yongtae Park

**Abstract :** Offering a Product-Service System (PSS) is a well-accepted strategy that companies may adopt to provide a set of systemic solutions to customers. PSSs were initially provided in a simple form but now take diversified and complex forms involving multiple services, products and technologies. With the growing interest in the PSS, frameworks for the PSS development have been introduced by many researchers. However, most of the existing frameworks fail to examine various relations existing in a complex PSS. Since designing a complex PSS involves full integration of multiple products and services, it is essential to identify not only product-service relations but also product-product/ service-service relations. It is also equally important to specify how they are related for better understanding of the system. Moreover, as customers tend to view their purchase from a more holistic perspective, a PSS should be developed based on the whole system's requirements, rather than focusing only on the product requirements or service requirements. Thus, we propose a framework to develop a complex PSS that is coordinated fully with the requirements of both worlds. Specifically, our approach adopts a multi-domain matrix (MDM). A MDM identifies not only inter-domain relations but also intra-domain relations so that it helps to design a PSS that includes highly desired and closely related core functions/ features. Also, various dependency types and rating schemes proposed in our approach would help the integration process.

**Keywords :** inter-domain relations, intra-domain relations, multi-domain matrix, product-service system design

**Conference Title :** ICMIE 2015 : International Conference on Manufacturing, Information and Industrial Engineering

**Conference Location :** Singapore, Singapore

**Conference Dates :** March 29-30, 2015