

# **Configuration of the Product as a Service strategy within the framework of Circular Economy, in the Furniture Sector of Higher Education Institutions.**

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## **Abstract**

In the traditional linear economy, the consumption of products is given by taking, manufacturing and discarding, this has brought with it adverse consequences in the environment and the economy, due to the scarcity of natural resources given its finite condition, generation of emissions to the environment and tons of waste generated that have saturated the management capacity in landfills. Therefore, it is necessary to migrate towards a Circular Economy (CE) to preserve natural resources, extending the useful life of products, increasing their durability with remanufacturing, repair, recycling and reuse cycles. In Colombia have been developing different initiatives that follow, with some lag, in trends in European and Asian countries, where different sectors have intervened such as electrical and electronic equipment, plastic packaging, batteries, drugs and tires. The furniture sector has been identified as a priority for an adaptation towards CE requires efficient use of the furniture, to reduce emissions in production and the volume of waste generated.

One of the EC implementation strategies is Product as a Service (PSS). It is a combination of tangible products and intangible services to satisfy the needs demanded by customers, according to its orientation it allows to apply sustainability criteria having a transition from product to service. From this strategy, it is possible to improve the design of the furniture for its subsequent recycling and extend the useful life with the implementation of additional services such as maintenance and repair, reuse of parts or remanufacturing of used furniture. In this work, a methodology is developed to configure the PSS strategy in the furniture sector, specifically in Higher Education Institutions (IES) focused on chairs for the provision of classrooms, with the aim of opening the possibility of changes in consumption patterns, use and final disposal, where through a new PSS supply model, a positive environmental and economic impact is achieved. As a result of a diagnostic phase, review of state of the art and case studies, the a configuration define proposed 16 factor and elements critical, product features and service features, which according the level of orientation of PSS and the actors involved in the supply strategy, it is proposed a form combine them to satisfy the need for the implementation and transition to a PSS supply model.

This configuration is validated by a multidisciplinary panel of experts, which allows to have the client vision generated by the acquisition of the product and the sustainability implied by the acquisitions with EC criteria. Finally, a procedure is proposed to measure the performance of the proposed PSS strategy, the application of a case study at the University of Antioquia, which shows its convenience, by simulating the current furniture management system and the proposed PSS strategy. Of this is expected to demonstrate the PSS as acquisition model that can aument competitiveness, profits of an organization and meet the needs of customers, creating less environmental impact than traditional business models of selling products.

## **Keywords**

Circular Economy, Product as a Service, Furniture, Higher Education Institutions.

## Biographies

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