CONTRIBUCIONES DE LA INNOVACIÓN ABIERTA IMPULSADAS POR EL DISEÑO PARA EL DESARROLLO DE NUEVOS PRODUCTOS EN LAS EMPRESAS ARCILLERAS DEL ÁREA METROPOLITANA DE CÚCUTA

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Tesis Doctoral presentada como requisito para optar el título de:
Doctor en Administración

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RESUMEN

Esta tesis doctoral proporciona un análisis exhaustivo del papel de la Innovación Abierta, impulsada por el Diseño, en el avance significativo del Desarrollo de Nuevos Productos dentro del sector arcillero del AMC. Se centra en identificar y comprender recursos clave relacionados con el Diseño, con el objetivo de dilucidar la interacción entre las prácticas de Innovación Abierta existentes y el Diseño para mejorar las capacidades de innovación, fomentando así la creación de productos innovadores. La investigación es de tipo explicativo con enfoque cuantitativo para profundizar en la dinámica entre variables independientes –Innovación Abierta y Diseño de Producto– y su impacto en la variable dependiente, Desarrollo de Nuevos Productos. Empleando un método hipotético-deductivo, el estudio investiga las características específicas de las empresas de AMC para confirmar o refutar las hipótesis. Se utiliza un Diseño transversal, que proporciona una visión instantánea que revela las relaciones entre la Innovación Abierta, el Diseño y el Desarrollo de Nuevos Productos. La recopilación de datos se ejecuta, combinando fuentes primarias y secundarias, este enfoque combinado enriquece significativamente el contexto y la profundidad del estudio, lo que lleva a un análisis integral. Se emplea una técnica de encuesta, con un cuestionario especialmente diseñado basado en la “Encuetas de Desarrollo e Innovación Tecnológica" (EDIT), que sirve como herramienta principal para recopilar datos pertinentes de las empresas para el año

2022. El cuestionario cubre diversos aspectos como los recursos humanos y tecnológicos, las prácticas de Innovación Abierta y la aplicación de metodologías de Diseño en las diferentes fases del Desarrollo de Nuevos Productos. La influencia de la Innovación Abierta y las capacidades de Diseño en el Desarrollo de Nuevos Productos se evalúa utilizando un modelo Logit que, junto con análisis marginales, ayuda a determinar en qué medida estas capacidades se traducen en mejores resultados innovadores y competitivos. Este estudio integra cuidadosamente las nuevas prácticas de Innovación Abierta como la digitalización, la participación del usuario y la sostenibilidad con el Diseño centrado en el usuario y su impacto potencial en las fases del proceso de desarrollo del producto. Los hallazgos resaltan particularmente que la fase de Desarrollo, que abarca actividades como trabajo de laboratorio, refinamiento y creación de prototipos, así como la fase de Implementación, que incluye producción, marketing y lanzamiento, se benefician positivamente de la fusión con prácticas de Innovación Abierta. Esto se ve reforzado aún más por las colaboraciones con diseñadores y la adopción de metodologías de Diseño. En términos de contribuciones, la tesis reorienta los esfuerzos de innovación hacia la sostenibilidad, la digitalización y la participación de los usuarios, interconectando prácticas de Innovación Abierta con el Diseño. La investigación describe posibles investigaciones futuras, como la exploración de nuevas tecnologías digitales para mejorar las capacidades de innovación y la investigación de conceptos de sostenibilidad en el Diseño de productos, con el objetivo de mejorar el desempeño de las empresas dentro del sector. Esta investigación es un fiel testimonio del poder transformador de articular la Innovación Abierta y el Diseño, para impulsar las industrias con el Desarrollo de Nuevos Productos, contribuyendo al desarrollo económico sostenible.

Palabras clave: Innovación Abierta, Diseño de Producto, Desarrollo de Nuevos Productos, Recursos y Capacidades, Empresas Arcilleras.

ABSTRACT

This doctoral thesis provides a thorough analysis of the role of open innovation, propelled by design, in significantly advancing new product development within the AMC clay sector. It focuses on identifying and comprehending key design-related resources, with a goal to elucidate the interplay between existing open innovation practices and design in enhancing innovation capabilities, thereby fostering the creation of innovative products. The research adopts a quantitative explanatory approach to delve into the dynamics between independent variables – Open Innovation and Product Design – and their impact on the dependent variable, New Product Development. Employing a hypothetico-deductive method, the study investigates the specifics of AMC companies to either confirm or disprove the hypotheses. A cross-sectional design is utilized, providing an insightful snapshot of the interrelationships among open innovation, design, and new product

development. Data collection in this study is executed, blending primary and secondary data sources. This combined approach significantly enriches the study's context and depth, leading to a comprehensive analysis. A survey technique is employed, with a specially designed questionnaire based on the "Desarrollo e Innovación Tecnológica" (EDIT), framework, which serves as the primary tool for gathering pertinent data from companies for the year 2022. The questionnaire covers various aspects such as human and technological resources, open innovation practices, and the application of design methodologies at different stages of new product development. The influence of open innovation and design capabilities on new product development is evaluated using a Logit model, which, along with marginal analyses, helps determine the extent to which these capabilities translate into enhanced innovative and competitive outcomes. The study meticulously integrates new open innovation practices like digitalization, user engagement, and sustainability with user-centered design principles, assessing their potential impact across different stages of the product development process. The findings particularly highlight that the Development phase, encompassing activities such as laboratory work, refinement, and prototyping, as well as the Implementation phase, which includes production, marketing, and launch, benefit positively from the amalgamation with open innovation practices. This is further augmented by collaborations with designers and the adoption of design methodologies. In terms of contributions, the thesis redirects innovation efforts toward sustainability, digitalization, and user engagement, interlinking open innovation practices with Design. The research outlines potential future research directions, such as exploring new digital technologies to enhance innovation capabilities and investigating sustainability concepts in product design, aiming to improve the performance of companies within the sector. This scholarly work stands as a testament to the transformative power of aligning open innovation and design, not only to propel industries forward but also to contribute to sustainable economic development.

KeyWords: Open Innovation, Product Design, New Product Development, Resources and Capabilities, Clay Companies

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