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**Living lab in architecture: Integrating university campus operational support(s)
with academic programmes, case of the University of the Witwatersrand,
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Abstract

Essential the living laboratory concept is critical for any institution, most notably for universities where teaching, learning, and research are advanced/achieved/leading.

Living laboratories improve project outcomes, maintain policy alignment, and help boost green campus initiatives and energy policy discussions. The living laboratory approach provides innovation in planning, development and policy establishment and implementation in mitigating climate change challenges. Universities are leading in sustainable studies thus offer knowledge on climate change mitigation strategies. Global warming has resulted in climate change.

Additionally, we have universities, which increase the demand for energy and water, which are already limited resources. This problem is a direct risk to mitigate climate change challenges. Via their students' - staff research outputs, universities produce knowledge that includes mitigation strategies for addressing sustainability issues. Students and staff at Wits University cannot integrate their work output on campus to create real-world climate change solutions. By their role as a beacon of hope, universities cannot evade their responsibilities to model society's image. Thus, the main focus of this study is to test the hypothesis that universities' implementation of their students and staff green campus research outputs on campus is possible through implementing university-specific projects inside a living laboratory setting. The study's primary objective is to determine the pathways and barriers that hinder universities such as Wits University from adopting green campus policies and the concept of living labs. The study employed various methods to achieve a "humanistic orientation," including qualitative analysis, deductive analysis, and inductive analysis. Significant findings or themes identified in this study include the following: Siloed approach of working, a lack of coordination, and the inability of diverse departments to share knowledge and expertise became apparent as a problem.

A shortfall in funding for green campus initiatives is one cause for concern that must be address by the University. Universities have sought to integrate ethical values into their core activities in light of the climate change and sustainability agenda. Failure to implement and preserve green campus planning throughout its lifecycle is not sustainable for any institution or society at large. Wits University should establish an architect-led living laboratory to promote planning and development focused on win-

win strategies. This initiative will pave the way for future growth and facilitate the establishment of an eco-campus. When combined with the University's green campus initiative plan, the idea of a living laboratory would foster innovation on campus. The future University is a complex living organ that needs complex system management to deliver and influence the concept of future smart and sustainable cities. Creating a Campus Sustainability Lekgotla at the University would alleviate their primary difficulty of siloed approaches and allow for the flourishing of transdisciplinary and interdisciplinary concepts across the organisation's structures.

Keywords: living laboratory, green campus policies, pathways and barriers, innovation, climate change, sustainability, campus sustainability lekgotla.