Green Cubes: Digital Twins Transforming Biodiversity into Business Value

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SUMMARY

In Making Nature Visible , we delve into how innovative digital twin technologies, developed by Hexagon and implemented by the R-evolution team, can aid businesses in transitioning toward nature-positive operations. Meaning operations that have a positive impact on nature like increasing growth and biodiversity. The paper talks about the role of technology in biodiversity monitoring, reporting, and management. For the Australian industry there is an interesting focus on high-impact sectors such as mining. The resulting solution comes in the form of a digital twin that represents the environment as Green Cubes. The primary goal is to explore the potential of digital twin technology, in enabling corporations to meet biodiversity-related regulatory requirements, have positive ecological impact, and integrate nature-based solutions into their strategies. Additionally, we highlight the contributions of Hexagon technology in delivering and managing high-resolution, geospatial data critical for building these effective digital twins. Green Cubes emerge as a solution for addressing these biodiversity challenges. By utilizing technologies such as satellite imagery, LiDAR, soil sampling, and audio and camera traps, Green Cubes create precise, real-time digital representations of ecosystems. This digital twin enables businesses to conduct predictive modelling, track nature restoration progress, and measure ecological integrity with comprehensive reporting. The integration of such digital twins into corporate biodiversity strategies represents a significant advancement in environmental stewardship. These solutions like Green Cubes address the challenge of managing environmental impacts as part of the business processes. An effective implementation will therefore align environmental requirements with new opportunities, growing the business overall. Green Cubes provide a scalable, cost-efficient approach to biodiversity monitoring, particularly for industries with extensive ecological footprints. This innovation not only facilitate compliance with global frameworks like the Kunming-Montreal Global Biodiversity Framework but also create new revenue streams through biodiversity credits and enhanced market positioning. By embracing these solutions, companies can align operational performance with ecological resilience, setting a precedent for sustainable business practices.
