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CubeSAT

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Abstract: *CubeSat missions have democratized access to space by offering a relatively low-cost platform for scientific research and technology demonstration. However, the current success rate of CubeSat missions, particularly for first-time developers, remains a concern. This paper discusses the structured life-cycle of CubeSat development, using the authors' experience in creating and operating the 2U CubeSat, qbee50-LTU-OC, as part of the QB50 mission, while also critiquing common poor practices observed in the CubeSat development process. A critical factor in CubeSat mission success is the cohesion and organization of the development team. Inexperienced teams often underestimate the complexity of coordination across technical and managerial tasks, leading to delays or failure. A cohesive team with clearly defined roles is essential to meeting deadlines and achieving mission milestones*

Their success is often measured by publishable results, which may not always align with industry-driven milestones. On the other hand, industrial partners focus on meeting short-term, financially driven goals. It is crucial for all stakeholders to understand each other's pace of work, priorities, and limitations.

The authors' experience in the QB50 mission illustrates both the strengths and weaknesses of CubeSat projects. Many teams cut corners on testing due to limited time and funding, which often leads to mission failures that could have been avoided with more thorough preparation.

Keywords: *CubeSat, miniaturized satellite, nanosatellite, small satellite development*