Software testing is a crucial element in ensuring the quality and functionality of systems, particularly in the context of large enterprises like PT Telkom Indonesia Tbk. PT Telkom Indonesia uses SAP TREMS (Telkom Revenue Management System) to manage various essential aspects of their telecommunications business. Within SAP TREMS, there are several critical business processes such as customer data recording, billing generation, payment data creation, and transaction information display, all of which play important roles in PT Telkom Indonesia's daily operations. However, the current testing conducted on SAP TREMS by the company is still done manually, which can result in lengthy and inefficient processes. This necessitates a more efficient solution. Implementing automated testing using TestComplete software is expected to address this challenge. This research aims to implement automated testing within the SAP TREMS ECC environment at PT Telkom Indonesia, using the Software Testing Life Cycle (STLC) approach. This process includes requirement analysis, test planning, test case development, test environment setup, test execution, and test cycle closure. Through the use of Keyword Test and VBScript in TestComplete, it is anticipated that test scenarios can be *Execute*d repeatedly, thereby producing more efficient testing results. Thus, the findings of this study will also compare the testing times between manual and automated methods, demonstrating that automated testing using TestComplete can reduce the time required for testing. This is expected to positively contribute to PT Telkom Indonesia in improving the efficiency and quality of their software testing practices.

Keywords—software testing, automated testing, SAP TREMS, Software Testing Life Cycle, TestComplete.