Over the last years a number of legacy system have been modernized employing traditional refactoring strategies. This strategy requires significant technical knowledge to modernize a legacy system, such as, knowledge in design patterns, architectural details and also know specific details of the legacy system. Legacy systems mainly consist of two kinds of artifacts source code and databases. Usually, the maintenance of these artifacts is carried out through re-engineering processes in isolated manners. Nevertheless, for a more effective maintenance of the whole system both should be analyzed and evolved jointly.

Over the last years a number of Crosscutting Frame- works (CFs) have been developed employing white-box strategies. This strategy requires significant technical knowledge to reuse these frameworks, such as, knowledge in specific programming languages, architectural details and also about the framework nomenclature.

Model-driven software modernization is a discipline in which model-driven development (MDD) techniques are used in the modernization of legacy systems. In this context, the Object Management Group have proposed the Architecture-Driven Modernization (ADM), which is a a set of patterns to assist the engineer during the modernization of legacy system

Almost every company runs systems that have been implemented a long time ago. These systems usually are still under adaptation and maintenance to deal with current needs. Adapting legacy software systems to new requirements is not an easy task to be done by hand. Furthermore, legacy systems mainly consist of two kinds of artifacts: source code and databases. Usually, the maintenance of these artifacts is carried out through re-engineering processes in isolated manners. Nevertheless, for a more effective maintenance of the whole system both should be analyzed and evolved jointly. Therefore, the lifespan of the legacy software systems are expected to improve. Furthermore, nowadays model-driven software modernization is a discipline in which model-driven development (MDD) techniques are used in the modernization of legacy systems. In this context, this paper proposes an approach to assist the modernization of both source code and database legacy systems by transforming these artifacts into models. Our approach is based on the Architecture-Driven Modernization, which gets all SQL queries embedded in the legacy source code in order to remove the dead parts of the database schema and also restructure the source code by doing transformation model to model. In order to validate our approach we have carried out an experiment throughout a real-life case study. The results were promising regarding the effort employed to modernize a legacy software system.