



RENAISSANCE

*Method and tool support for the
evolution and re-engineering of legacy systems*

Architectural Modelling for Evolution

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Version 1.0, First published April 1997

The RENAISSANCE project is partially funded by the European Commission under the Framework Initiative (ESPRIT 22010). The objective of the project is to develop a systematic method to support the re-engineering of legacy systems. Further information about the project is available on the World-Wide-Web at URL:

<http://www.comp.lancs.ac.uk/projects/renaissance/>

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Executive Summary

When business needs demand changes to an established core system in the organization, an evolution project must be initiated. All too often, the current system is

- lacking documentation,
- expensive to maintain, and
- uses outdated technology.

These problems are typically exacerbated by the facts that the

- original system developers have left the organization,
- current maintainers do not have sufficient system knowledge, and
- new maintainers may not be skilled in the old technology used.

In order to make decisions about the evolution of the system, knowledge of the system must be elicited and made explicit.

This document provides the system architect with a bag of techniques for modelling system aspects that must be understood in order to make evolutionary decisions.

The document is focusing on two aspects of modelling existing systems:

- *Context modelling*: This part of the document describes the conceptual aspects that must be understood in order to obtain an overall understanding of the system. Modelling techniques are described together with guidelines for using them, and with annotating examples.
- *Technical modelling*: When decisions have been taken about which strategies to use in the system evolution project, further details about the current system must be known in order to implement these strategies. The technical modelling part of the document identifies properties and relationships that must be identified and modelled in existing systems. The document concerns applications originally implemented using either 3GL or 4GL technology.

The Unified Modelling Language (UML) is chosen as an integrative modelling technique for the technical modelling. We explain how the UML should be used in the modelling, and we give an overview of UML in an appendix.

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