

Foreword

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“There’s gold in them thar hills,” the assertion that begins many an ill-fated cowboy story, also applies to legacy information systems. Legacy components may contain genuine value. More often enterprises resist the investment to rewrite or migrate legacy systems, thus putting at risk the business that the systems support since the business is forced to align to the system and not vice versa. This barrier, previously insurmountable for many enterprises, is being overcome by methods such as those presented in *Aligning Modern Business Processes and Legacy Systems: A Component-Based Perspective*.

In the early 1990s, when client/server was the hot IT trend, Michael Stonebraker and I did not believe the many claims of successfully migrating legacy mainframe systems to client/server. Determined to understand the challenges and successes, we investigated some very large migrations attempted in banking and telecommunications. As is often the case with hot IT trends, we found that the claims of easy legacy system migrations were exaggerated. Indeed, significant technical and cost challenges that we found then remain to this day. We reported our understanding of the problem and a migration strategy in 1995’s *Legacy Information Systems Migration: The Incremental Strategy*. At that time, the focus was on information systems interoperation, one-time migrations, and on three dominant challenges of database migration, semantic heterogeneity, and engineering idiosyncratic system interfaces.

Now, a decade later, the emerging technology—Web services and service-oriented architectures (SOA)—and the emerging development paradigm—continuous refinement of business processes via the composition of existing components—significantly increase the need to reuse legacy components. In *Aligning Modern Business Processes and Legacy Systems*, Willem-Jan van den Heuvel gives a comprehensive description of the new paradigm of continuous improvement of business processes using software components and provides a detailed methodology to achieve the objectives. The paradigm and the methodology will appeal to both practitioners and researchers. For computer scientists

and those wishing to understand the deeper technical challenges, he identifies the core technical challenges and the solutions used in the methodology. These challenges place in perspective the current hype and exaggerated claims for SOA.

Over the past decade, systems development, and the reuse of legacy systems, has been reformulated with some challenges overcome and some challenges remaining. This book reformulates the problems in the new paradigm and addresses the outstanding challenges. The focus of information systems development has shifted *up* from interoperation at the systems level to the development and continuous improvement of business processes. Van den Heuvel provides a methodology for mapping evolving business processes onto legacy and new components, which he illustrates with a running example, down to the code level. While database migration has become dramatically easier, semantic heterogeneity remains significant. A business process, defined in a business processing language, invokes functions in application components. In the new development paradigm if an existing applications component does not meet the requirement, a composite application is created by modifying and reusing existing application components. Hence, development requires the discovery of components to meet the requirement and the composition of the components to form the composite application. The author describes the relevant semantic challenges and provides a solution within his methodological framework. Finally, one of the most costly aspects of reusing legacy components is addressing the idiosyncratic aspects such as hand-coded interfaces, unique database designs, and very specific solutions, none of which are addressed by and which stand in the way of taking advantage of technology advances. The author reviews both these challenges and their solutions, and incorporates them into his methodology.

As so clearly stated in the title, *Aligning Modern Business Processes and Legacy Systems*, systems must be aligned with evolving business processes. The book provides a methodology to achieve this alignment. It provides the practitioner and the researcher a comprehensive description of and methodology with which to align business processes with legacy systems, starting with business processes that are then mapped down onto existing software components in a continuous process as business requirements change, leading to continuous business process refinement and in turn reuse of existing, sometimes legacy, components. It provides researchers with a description of the key challenges and poses future directions. Van den Heuvel's methodology is far more practical and useful than the legacy migrations of a decade ago. The book is highly informative.