**White Paper**
# Specification Development for a
# Custom Database Application
Author: David Woody – ZAETRIC®

## I) SCOPE OF PAPER

When a custom database application is being considered to solve a unique business or technical process challenge, the first step normally taken is development of an application specification.  This paper explains why a specification should be developed for a custom database application, the specification development steps typically considered, the resulting benefits and management-related challenges (shown in *italics* in this paper) often encountered.

Because each business case is different, this paper is introductory in nature, for general information only and should not be used as the basis for a particular business or technical decision.  This informational paper is not intended to replace in depth counsel from qualified business professionals.

## II) GENERAL

Companies often have critical business or technical processes which are perhaps handled in an unreliable or inefficient manner and are drain on company resources.  These critical business or technical processes could perhaps be made more efficient and better controlled with a custom database application.  With many operational, technical, regulatory, financial or other variables, process complexity can become burdensome and require frequent or constant monitoring, specialized data entry or reporting, interaction with other company (or non-company) applications and other features.  *Further, off-the-shelf business or technical software applications may not adequately address the complexity of business or technical process issues encountered.*

## III) WHY A CUSTOM DATABASE APPLICATION

When off-the-shelf applications will not adequately address the critical business or technical process challenges, the development of a custom database application may be the answer.  A typical question when considering development of a database application is; "Why use a custom database application?" Custom database applications may be the optimum solution for several reasons:

- Off-the-shelf software may not process tasks the way your company does

- Custom database applications are designed to suit exact business or technical needs

- Custom database applications can, by design, consider flexibility (scalability) for future operational growth and new requirements

- Off-the-shelf enterprise software packages are often expensive, cumbersome to configure and maintain to fit changing business or technical needs

Zaetric Business Solutions, LLC
27350 Blueberry Hill, Suite 14, Conroe, TX 77385
PO Box 8152, The Woodlands, Tx 77387-8152

Phone: 281-298-1878
www.zaetric.com

## IV) APPLICATION SPECIFICATION DEVELOPMENT

The most cost-effective method of developing a custom database application (or any application) is to first decide and fully quantify the intended usage and structure of the database application.  This quantification is normally in the form of a comprehensive application specification.   A typical application specification addresses the following primary points:

- Discuss, quantify and prioritize the database topic and its subject matter, environment, objectives and workflow.  This requires broad input and active support from the user and management community.  *This step may take considerable effort to complete but it defines the business or technical process and is the basis for all that follows in developing an application specification.*

- Study existing business or technical processes against software-based tools currently in use (legacy systems) and determine which tools have beneficial features and/or which tools may need to be integrated with the new application being considered.

- Define database inputs and outputs, their contents, by whom, how, in what format/layout, how created and maintained and by whom.

- Define how and by whom the database will be used along with the benefits and potential cost savings derived from that use.  *This quantifies the value-added aspect of the application.*

- Quantify management of change and training requirements during the development and implementation of the new system and how these will be managed with minimal business interruption.  *Planning for training and managing the effect of change will reduce long-term development costs.*

- Estimate resource requirements for day-to-day database data entry, use and maintenance.

- Provide suggestions with substantive rationale for the selection of the database platforms/technologies to be used for ongoing database development and implementation.
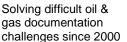
*Starting application development without fully quantifying business or technical process needs, and other points covered in Section IV above, can dramatically drive overall application cost upward due to of revision(s) required for necessary functionalities missed during rushed or poorly-planned application development.*

## V) MANAGEMENT SUPPORT AND OTHER CONSIDERATIONS

Company management's involvement in, input to and approval of the application specification and the subsequent application development/implementation is critical to ensure commitment of the resources necessary for successful development and continued use of the custom database application.

*The author suggests not skimping on the business process, technical or operational study during specification development.  Understanding the actual workflow of the business or technical process will greatly aid in the design of an effective application.*  As a general rule, application development should be done considering a good business or technical process.  *Trying to bend a business or technical process to meet application development (software code) constraints should be avoided whenever possible.*

*Broader user/management community input and buy-in of the application will yield easier and cost-effective implementation and use.*

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With a completed, comprehensive and management-approved application specification, database programmers can cost-effectively develop the database code/application with minimal code revisions (which can be quite costly).  When the application is completed it must then be tested and debugged.  Next, user/training documentation is prepared, the application is implemented and users are trained in its use.  Going forward, the application is monitored, maintained and revised to meet changing business process needs.