

# Convergent Technologies Solutions Framework Project Development Methodology

11/13/2003

**Document Version 2.0**  
Release 1

Certain portions of this publication are Copyright © 2003 Convergent Technologies. All Rights Reserved. Such portions are subject to a license by Convergent Technologies and its licensors, who retain all rights to reproduction, transmission, translation or other dissemination in any form or by any means not otherwise, granted to the client.

Information in this document is subject to change prior to the document execution without notice and does not represent a commitment on the part of Convergent Technologies.

The information and material contained in this document are provided "as is," without warranty of any kind, express or implied, including without limitation and warranty concerning the accuracy, adequacy, or completeness of such information or material or the results to be obtained from using such information or material. Convergent technologies shall not be responsible for any claims attributable to errors, omissions or other inaccuracies in the information or material contained in this document. In no event shall convergent technologies incur any obligation to indemnify and hold harmless the recipient of the information and material contained in this document, the recipient of which agrees to waive any right the recipient may have to any consequential, incidental or punitive damages arising out of any use of such information or material, regardless of the cause of action, whether in contract, tort (including negligence), strict product liability or otherwise, even if convergent technologies has been advised of the possibility of such damages or is otherwise aware of or is deemed to assume the risk of the possibility of incurring liability from any such cause of action.

Printed in New Delhi, India.

Convergent Technologies  
Green Meadows, C 2601  
Sushant Lok Phase I  
Gurgaon, Haryana

Ph: +91-124-5043528/628  
Ph: +91-124-2392240

<http://www.convergenttec.com>

This document contains proprietary data, which is the property of Convergent Technologies or its clients. This document is submitted to the recipient in confidence. Certain information contained herein may not be otherwise used, copied, or disclosed in whole or in part except as permitted by written agreement signed by an officer of Convergent Technologies. Unauthorized use, copying or other reproduction is prohibited by law and may give rise to civil and criminal liabilities.

# Table of Contents

Table of Contents.....	2
Convergent Technologies Solution Framework (CTSF).....	3
Development Process.....	4
Milestone Summary .....	4
Component Based Construction .....	5
Business Modeling .....	5
Data Modeling .....	5
Process Modeling .....	5
Application Generation .....	6
Testing and Turnover .....	6
Each Team - 1,2,3 .....	6
Online/Offline Helpdesk for Problem Resolution .....	7
Contact Information .....	8

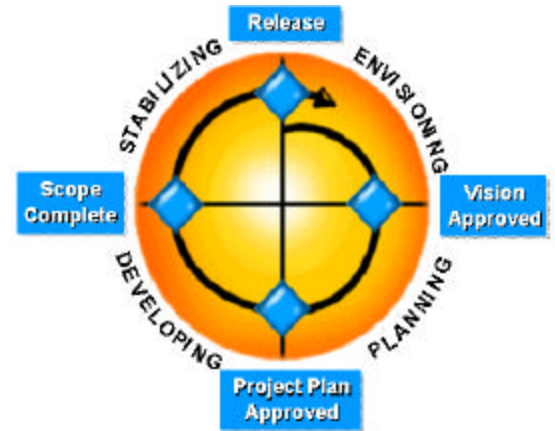
# Convergent Technologies Solution Framework (CTSF)

**The Project Development Methodology would be CTSF.** The Convergent Technologies Solution Framework provides rigorous project guidance that is flexible enough to be adapted to meet the needs of the project and the organization.

1. The project management techniques advocated in CTSF is based on best practices from product developers, consultants, service providers, and customers worldwide. Adopting the Convergent Technologies Solutions Framework will help your organization bridge the gap between technology projects and business success.
2. The core building blocks for this CTSF-based solutions guidance are the six major CTSF models:
  - Enterprise Architecture Model
  - Team Model
  - Process Model
  - Risk Management Model
  - Design Process Model
  - Application Model
3. It promotes principles such as risk-driven scheduling, a fixed release date mind-set, versioned releases, visible milestones, and small peer-based teams. CTSF exposes critical risks, important planning assumptions and key interdependencies required for successfully planning, building, and managing a technology infrastructure or a business solution.
4. The Design Process Model provides a three-phase user-centric continuum that allows for a parallel and iterative approach to design for the greatest efficiency and flexibility. The conceptual, logical, and physical design phases provide three different perspectives for the three different audiences-user, team, and developers. Moving through conceptual design to physical design will show the translation of user-based scenarios to services-based components so that application features can be traced back to end-user requirements. Using this model will help you ensure that your applications are created not just for the sake of technology, but to meet your business and user needs.
5. The Application Model provides a logical three-tier services-based approach to designing and developing software applications. The use of user services, business services, and data services allow for parallel development, better use of technology, easier maintenance and support, and the greatest flexibility in distribution as the services that make up the application could reside anywhere from a single desktop to servers and clients around the world.
6. In order to control timeframes and to ensure rapid progress, a monthly status & review meeting will be held between the client and CT management teams. Any red flags encountered shall be discussed at this meeting, which will also be the forum for discussions on strategy as well as any open issues that need to be addressed by the management teams.

# Development Process

1. Phased Process
2. Milestone Driven
3. An Iterative Process



Phase	Milestone	Primary Driver(s)
Envisioning	Vision Approved	Product Management
Planning	Project Plan Approved	Program Management
Developing	Scope Complete	Development, User Education
Stabilizing	Release	Testing, Logistics Management

## Milestone Summary

Milestone	Deliverables Needed
Vision Approved	Vision/Scope Document Project Structure Document Master Risk Assessment Document Prototype (Optional)
Project Plan Approved	Functional Specification Master Project Plan Master Project Schedule Updated Risk Assessment Document Proof of Concept (Optional)
Scope Complete	Updated Functional Specification Updated Master Project Plan Updated Master Project Schedule Updated Risk Assessment Document Source Code & Executables Initial Performance support elements Test Specs and Test Cases
Release	Performance support elements Test Results & Testing Tools Source Code & Executables Project Documents Milestone Review

# Component Based Construction

Typically, we work with a *lean Project Management & Deployment Team at the client site* and a *large Implementation Team at our India Development Center*.

Project Management Team at Client site helps in both understanding the client's requirements better and Development at our office helps in cutting down the project implementation cost and time.

A typical project implementation takes between 6-12 months and so the most ideal way of development is the "high-speed" adaptation of the linear sequential model in which rapid development is achieved by using a component-based construction approach.

Modeling is an essential part of large software projects that we do - it is helpful to medium and even small projects as well. Using a model, our development team members assure themselves that business functionality is complete and correct, end-user needs are met, and program design supports requirements for scalability, robustness, security, extendibility, and other characteristics, before implementation in code renders changes difficult and expensive to make.

Define the right solution with requirements and analysis solutions that help you understand your problem space, capture and manage evolving requirements, model user interactions, define your database architecture, and incorporate stakeholder feedback throughout your project lifecycle.

Whether you're a project manager, analyst, developer or tester, requirements and analysis impacts your work. Good requirements and analysis practices help reduce project risk and keep your project running smoothly until the final product is successfully delivered to your customer.

This approach encompasses the following phases:

## **Business Modeling**

The information flow among business function is modeled in a way that answers the following questions: what information drives the business process? What information is generated? Who generates it? Where does the information go? Who processes it?

## **Data Modeling**

The information flow defined as part of the business-modeling phase is refined into a set of data objects that are needed to support the business. The characteristics of each object are identified and the relationships between these objects are defined.

## **Process Modeling**

The data objects defined in the data-modeling phase are transformed to achieve the information flow necessary to implement a business function. Processing descriptions are created for adding, modifying, deleting, or retrieving a data object.

Our choice for the UML methodology is the use of Rational Rose or Microsoft Visio to keep a clear visibility into the design and the development phases as well as to help us measure the quality of the work done by each of our team member. This way we can

control the development process of so many different components that will have to be integrated together at a final stage.

When a component is defined, it is then graphically designed into all the related entities that compose it. The programmer starts the implementation using the graphical interface. At this stage the programmer isn't coding straight ahead. 50% of the implementation work is still made with the graphical tools such as the Class diagrams that show the interrelationships between entities. Once the programmer achieves this design layout, our software architect goes through a design review, which precedes the last implementation phase. If the design passes the review, the remaining implementation work is the actual coding. At the end of this process, a coding review will take place before the testing starts. The design review and the code review are our 2 main steps to measure the quality of the software components produced by our programmers.

### **Application Generation**

Rather than creating software using conventional third generation programming languages, the prototyping using OO Methodology ensures that existing program components are reused wherever possible. In all cases, automated tools are used to facilitate construction of the software.

### **Testing and Turnover**

Reuse of program components reduces the overall testing time. However, new components must be tested and all interfaces must be fully exercised.

Each major function is done by a separate team and then integrated to form a whole. The whole approach is evolutionary in the sense that system integration happens as and when a module is complete.

### **Each Team - 1,2,3 ...**

business modeling + data modeling + process modeling + application generation + testing & turnover

## Online/Offline Helpdesk for Problem Resolution

We provide a web-based interface that supports Problem Escalation, Resolution and Monitoring. Apart from being providing issue tracking and reporting interfaces, automatic e-mail notifications and escalation are supported.

It supports multiple external customers and multiple internal and external projects, provides support to all project team members.

It supports the following:

- Create, edit or close trouble tickets
- Add, edit or delete users and administrators
- Configure, add or delete accounts
- Select, setup and run usage reports
- View and edit your master account information

For those clients or project teams who do not have 100% web-access, the application generated excel-sheets and sends them as e-mails to respective people.

Some of the clients prefer Excel based Issue Tracking - so we adopt our methodology to suit their convenience.

## Contact Information

[www.convergenttec.com](http://www.convergenttec.com)

### **Asia Pacific:**

**Mr. Sujit Panigrahi**, Chief Executive Officer  
sujit.panigrahi@convergenttec.com

**Mr. Anoop Raizada**, Executive Director  
anoop.raizada@convergenttec.com

CT Software Solutions (India) Pvt. Ltd.  
C-2601, Green Meadows  
Sushant Lok- I, Gurgaon 122002, India  
Tel: +91 124 5043528 / +91 124 5043628

### **North America:**

**Ms. Lucy Das**  
President  
lucydas@convergenttec.com

Convergent Technology Solutions LLC  
3707 Poinciana Dr, Apt 38  
Santa Clara CA 95051, USA  
Tel: +1 408 246 9117

### **Europe:**

**Mr. Amar Swain**  
Business Development Representative  
amar.swain@convergenttec.com

Convergent Technologies/Digital Motion Pictures  
Muehlbachergasse 14,  
A-1130 Vienna, Austria  
Tel: +43 664 541 9341