



WHITE PAPER

SOFTWARE FACTORY™ ASSEMBLY METHODOLOGY  
AND TRAINING PATHWAYS

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## To Readers:

This White Paper contains technical information. For those readers who need further clarification on terminology or additional resources, please contact:

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Also, see our web site at [www.objectbuilders.com](http://www.objectbuilders.com) for further information about ObjectBuilders, Inc., The Software Factory™ and Productivity Tools for assembling business solutions.

## Table of Contents

<b>The Software Factory Assembly Methodology.....</b>	<b>4</b>
<b>The Specification Team.....</b>	<b>4</b>
<b>The Software Factory Team.....</b>	<b>4</b>
Preparation.....	4
The Assembly Floor (Construction) .....	5
Fulfillment .....	5
<b>Software Factory Assembly Methodology.....</b>	<b>6</b>
<b>Recommended Training Pathways .....</b>	<b>10</b>

## Table of Figures

Figure 1: The Software Factory.....	5
Figure 2: The Software Factory Assembly Methodology.....	6
Figure 3: Recommended Training Pathways .....	10

## The Software Factory Assembly Methodology

**T**he Software Factory™ Methodology, based on manufacturing methodologies and business processes, virtually guarantees a successful software implementation every time. The Software Factory Methodology process begins with a focus on real business processes and turning business scenarios into business test cases. The test cases validate the successful delivery of the application. The construction of the business proven test case allows the Software Factory™ to construct an application that is 100% accurate from the start. Most importantly, the application is tested in its earliest stages and personalized for the customer to produce the highest quality application possible.

The Software Factory Assembly Methodology consists of a manufacturing organizational structure that leverages proven concepts of manufacturing processes. Underlying this manufacturing process is Total Quality Management (TQM) and Continuous Process Improvement (CPI).

*The construction of the business proven test case will allow the Software Factory™ to construct an application that is 100% accurate from the start.*

The application development process can be divided into two distinct functions or teams: the **Specification Team**; and the **Software Factory Team**. Each team is then divided into various subgroups.

### The Specification Team

The Specification Team is comprised of business domain experts and technical experts who are responsible for the design, delivery and integration of the business application. The business domain experts are responsible for communicating to the Software Factory Team the business requirements through use cases, test cases and scenarios. They are also responsible for testing and approving the application. The technical experts are responsible for the technical aspects of the application, which encompass design, delivery, migration, architecture and system integration.

The business and technical information is organized into a well-defined document called the Specification Document. The Specification Document is then transferred to the Software Factory Team for implementation.

### The Software Factory Team

The Software Factory Team is responsible for reviewing the Specification Document and constructing the application exactly to the Specification Document's design. The Software Factory Team can be divided into three parts: Preparation, The Assembly Floor and Fulfillment. Figure 1: The Software Factory below depicts the Software Factory.

#### Preparation

- During Preparation, engineering is responsible for the review of the Specification Document and setup of the Assembly Floor to support the construction of the application. After the Specification Document is reviewed and setup is complete, the Engineers divide the Specification Document into Jobs that can be processed on the Assembly Floor in parallel.

## The Assembly Floor (Construction)

- The Assembly Floor is where the assembling and unit testing of the application to the Specification Document takes place. Assembly and testing are rigorous processes that are continuously tracked and monitored.
- The construction process begins with a division of tasks or Jobs to the appropriate team members. Next, the individual Jobs flow through the assembly process where the business object model, workflow, presentation and reports are assembled. After the assembly process each individual Job is unit tested.
- Total Quality Management (TQM) and Continuous Process Improvement (CPI) are the key to the Software Factory manufacturing methodology. The processes are constantly

monitored to improve them and make them faster and more efficient. The members of the Software Factory Team and their managers continuously strive to improve the efficiencies and reduce the time to market. As the Software Factory becomes more efficient, the savings translates into lower costs for customers.

## Fulfillment

- Prior to packaging an application for delivery to the customer, each application is carefully system tested. Each business scenario and their test cases must function perfectly prior to delivery.
- After the application is tested and found to meet the Specification Document's design 100%, it is packaged and delivered to the Specification **Team** for final testing and approval. ♦

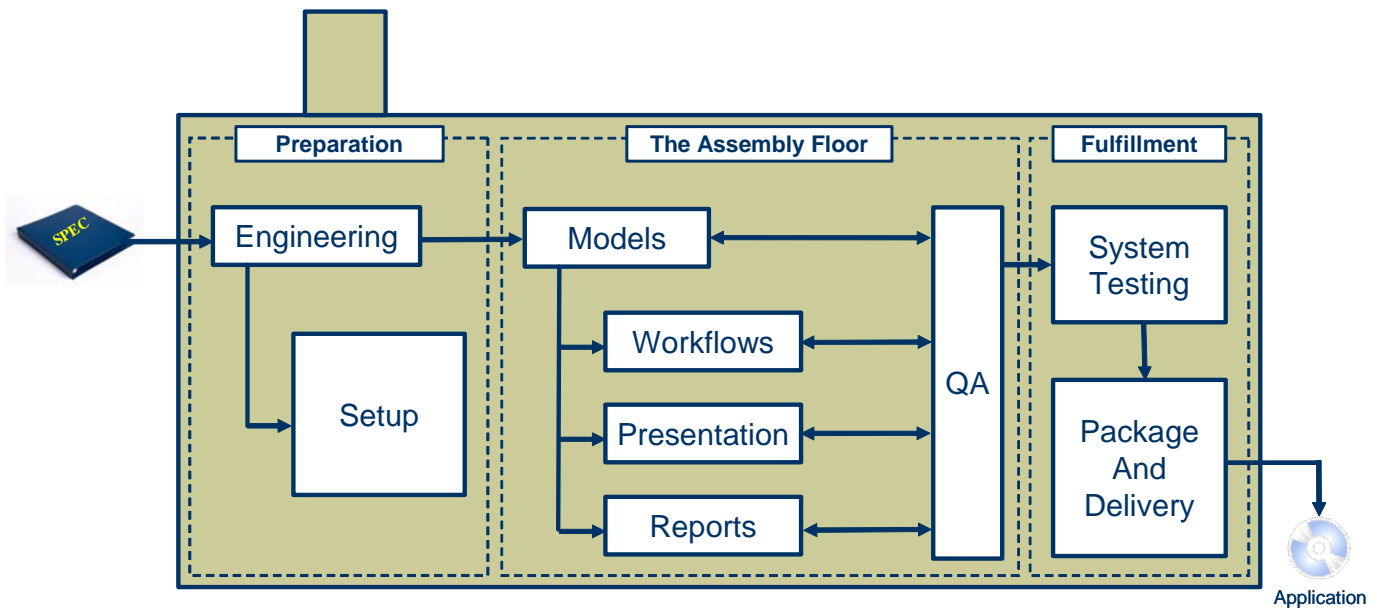


Figure 1: The Software Factory

Based on our field-tested and proven Methodology for the development of mission-critical and departmental applications, ObjectBuilders developed The Software Factory Assembly Methodology and recommended training pathways to help organizations become self sufficient. With this approach, an organization is able to construct applications internally or leverage the cost effective Software Factory at ObjectBuilders. Either way, an organization benefits from ObjectBuilders field proven methodology and training.

## Software Factory Assembly Methodology

ObjectBuilders’ recommended process for Application Construction is depicted below in Figure 2: The Software Factory Assembly Methodology.

### Application Construction

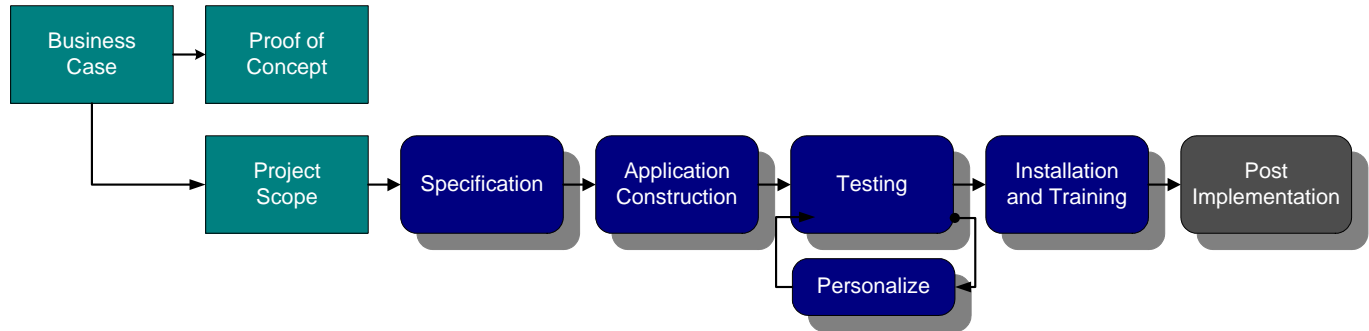


Figure 2: The Software Factory Assembly Methodology

The tables below explain each step of the Software Factory Assembly Methodology depicted in Figure 2: The Software Factory Assembly Methodology. The first three steps in the Application Construction are sometimes already completed or not necessary for a specific application. In these cases, Application Construction starts at the Specification step.

The first step in ObjectBuilders’ process for application construction is the Business Case step. During this step, the organization and the project are assessed. At the conclusion of this step an executive level document is prepared that explains the assessment of the client organization and the project.

### BUSINESS CASE

Tasks	Outcomes
Assess Client Organization	<ul style="list-style-type: none"> <li>Analysis of the applications target business objectives</li> <li>Analysis of organization’s current IS strategy and technology relative to the application</li> <li>Return on investment (ROI) analysis</li> </ul>
Assess Project	<ul style="list-style-type: none"> <li>Approximate application cost</li> <li>Approximate application timeline and steps</li> <li>Approximate resources and other requirements</li> </ul>
Business Case Document	<ul style="list-style-type: none"> <li>Prepare an executive level document that explains the assessment of the client organization and the project</li> </ul>

The Proof of Concept step is an optional step. The purpose of this step is to demonstrate the feasibility of the application.

**PROOF OF CONCEPT**

Tasks	Outcomes
Objectives	<ul style="list-style-type: none"> <li>Determine key objectives to demonstrate in Proof of Concept</li> </ul>
Mini Specification Document Workshop	<ul style="list-style-type: none"> <li>Define a scaled down process definition</li> <li>Define the associated business scenarios</li> <li>Create an example with real test data</li> <li>The Specification Document is produced and reviewed</li> </ul>
Construct Proof of Concept	<ul style="list-style-type: none"> <li>The application is constructed in the Software Factory</li> </ul>
Demonstrate “Proof of Concept”	<ul style="list-style-type: none"> <li>Prototype Application is demonstrated to key executives and sponsors for approval, by walking through the business scenarios and key objectives</li> </ul>

The Project Scope step follows the Business Case step, or the Proof of Concept step if that step is selected. During the Project Scope step a workshop is initiated to size the project, define deployment architecture and assess the risk. It is also during this step that all of the initial aspects of the project are documented.

**PROJECT SCOPE**

Tasks	Outcomes
Customer Research	<ul style="list-style-type: none"> <li>A list of helpful discovery information is created</li> <li>Project sponsors assemble and instruct needed resources to gather discovery material and prepare for interviews and workshops</li> <li>Information is gathered and reviewed in preparation for workshops and interviews</li> <li>Workshops and interviews schedule</li> </ul>
Workshop and/or interviews	<ul style="list-style-type: none"> <li>Interviews and workshops are conducted to define the project goals, scope, business process, architectural integration</li> </ul>
Document all initial aspects of the project	<ul style="list-style-type: none"> <li>Executive Overview</li> <li>ROI or application justification</li> <li>Measurable goals and objectives</li> <li>Project scope diagram</li> <li>Overview of Application including features, benefits</li> <li>High level project schedule</li> <li>High level business process diagram</li> <li>Project team with roles and responsibilities</li> <li>Issues, Assumptions and Constraints</li> <li>Estimation of size and growth of the application</li> <li>Architecture integration: Hardware and Software needs</li> <li>List of deliverables including business processes, business cases, reports, screens, interfaces and reports</li> <li>Data conversion or migration requirements</li> </ul>

Next, the Specification Document is created. The Specification Document is a detailed specification of the Project Scope with the emphasis on the business processes, rules and procedures. The Specification Document contains both the business requirements and technical design. During this step a series of workshops are initiated to define the business process and rules. Business Scenarios, complete with real data, are created or collected. Later, the Business Scenarios will be used to validate the application.

**SPECIFICATION**

Tasks	Outcomes
Customer Research	<ul style="list-style-type: none"> <li>• A list of helpful discovery information is created</li> <li>• Project sponsors assemble and instruct needed resources to gather discovery material and prepare for interviews and workshops</li> <li>• Information is gathered and reviewed in preparation for workshops and interviews</li> <li>• Workshops and interviews schedule</li> </ul>
Workshop and/or interviews	<ul style="list-style-type: none"> <li>• Interviews and workshops are conducted to refine the scope document and detail the business scenarios, business process rules, sample data and architectural integration</li> </ul>
Specification Document (Business Requirements)	<ul style="list-style-type: none"> <li>• Graphical representations of customer organizational overview, each business process involved in application and customer business rules</li> <li>• Define business procedures for each process and each step in the process – Business Scenarios</li> <li>• Create examples with real test data for each different data set that will move through the business process</li> <li>• Define reporting requirements</li> <li>• Detail user and transaction size and growth</li> <li>• Define non functional requirements</li> </ul>
Specification Document (Technical Design)	<ul style="list-style-type: none"> <li>• Presentation design</li> <li>• Object and database model design</li> <li>• Report design</li> <li>• Workflow design</li> <li>• Hardware and software architecture</li> <li>• Performance and Benchmarking</li> </ul>
Specification Review: Static Simulation	<ul style="list-style-type: none"> <li>• Demonstrate the proposed system look and feel. System will not function, but sufficient detail will be available to demonstrate through a presentation and the Specification Document how the system will function</li> </ul>

At the conclusion of the Specification step the application construction begins. The application is assembled to the Specification Document.

**APPLICATION CONSTRUCTION**

Tasks	Outcomes
Construct Application	<ul style="list-style-type: none"> <li>• Construction of application according to Specification Document</li> <li>• Test application with Business Scenarios and test data created in the Specification Document</li> </ul>
Quality Control	<ul style="list-style-type: none"> <li>• Confirm all Business Scenarios function 100%</li> </ul>

Next, is the Testing and Personalize step. This step is often referred to as User Acceptance Testing (UAT). The application is tested by the customer team and recommendations are made during this step to adjust the application prior to final delivery.



**TESTING AND PERSONALIZE**

Tasks	Outcomes
Application demonstration and training	<ul style="list-style-type: none"> <li>• Install application in the pre production environment and train customer testers on how to use the new application</li> </ul>
Application Testing (UAT)	<ul style="list-style-type: none"> <li>• Customer tests application</li> <li>• Recommendations or Punch List produced</li> <li>• Test application with examples created in the Specification Document</li> </ul>
Construct Punch List	<ul style="list-style-type: none"> <li>• Schedule and prioritize Punch List items</li> <li>• Assemble Punch List items</li> </ul>

After the application is tested and approved, the next step is to install the system in the production environment and to train the users.

**INSTALLATION AND TRAINING**

Tasks	Outcomes
Install Application	<ul style="list-style-type: none"> <li>• Install the application in production</li> </ul>
Training	<ul style="list-style-type: none"> <li>• Train the complete user base on the new system</li> <li>• Train the system administrator</li> </ul>
Production Cutover	<ul style="list-style-type: none"> <li>• Transition the system into production according to the defined plan in the Specification Document</li> </ul>

The final step in ObjectBuilders' recommended pathways for application construction is Post Implementation.

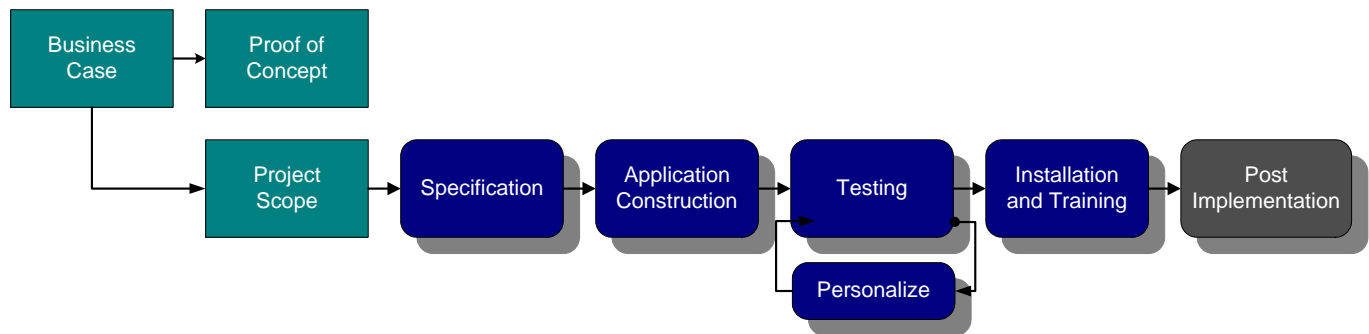
**POST IMPLEMENTATION**

Tasks	Outcomes
Meet post-implementation needs	<ul style="list-style-type: none"> <li>• Final debriefing and quality control survey</li> <li>• Review maintenance plan</li> <li>• Define additional project phases</li> </ul>

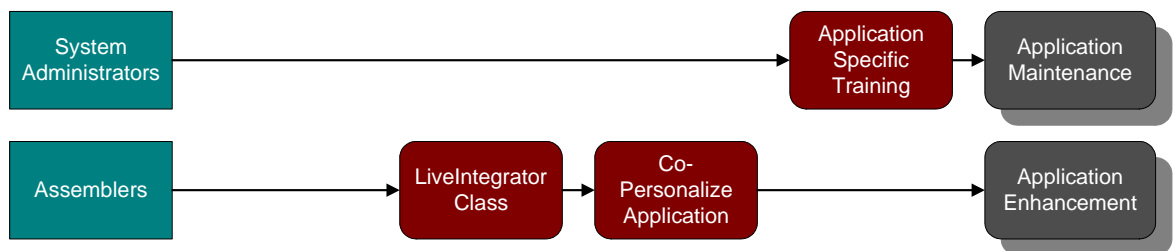
## Recommended Training Pathways

ObjectBuilders’ recommended pathways for training are depicted below in Figure 3: Recommended Training Pathways. Custom training is available to meet an organization’s specific needs. ObjectBuilders has three recommended training pathways for System Administrators, Assemblers (Super User or light Developer), and Developers. The training can take place in conjunction with the application construction.

### Application Construction



### Training: Application Maintenance and Enhancement



### Training: New Application Construction

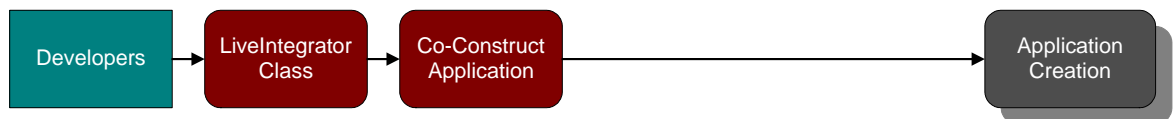


Figure 3: Recommended Training Pathways

The first pathway is for System Administrators. During the Installation and Training step of the application construction, System Administrators receive application specific training. At the conclusion of this training, System Administrators will be able to maintain the system after implementation.

### SYSTEM ADMINISTRATORS

Tasks	When Conducted	Outcomes
Application Specific Training	Installation and Training	<ul style="list-style-type: none"> <li>System Administrators will be able to maintain the system after implementation</li> </ul>

ObjectBuilders also has a recommended pathway for Assemblers. During the Application Construction step, Assemblers receive a LiveIntegrator™ class. The Assemblers have the ability to jointly personalize the application during the Personalize step of the application construction.

**ASSEMBLERS**

Tasks	When Conducted	Outcomes
LiveIntegrator™ Class	Application Construction	<ul style="list-style-type: none"> <li>• Ability to modify and enhance applications including: users, security, presentation, business models, allowed values, workflow and more</li> <li>• Understanding of how enhancements affects the overall application</li> </ul>
Co-Personalize Application	Testing and Personalize	<ul style="list-style-type: none"> <li>• Assist in real application personalization features and functionality</li> </ul>
	Post-Implementation	<ul style="list-style-type: none"> <li>• Ability to modify and enhance the application</li> </ul>

Developers receive an advanced LiveIntegrator™ Class during the Specification Document step of the application construction. Developers will actually co-construct the application.

**DEVELOPERS**

Tasks	When Conducted	Outcomes
Advanced LiveIntegrator™ Class	Specification Document	<ul style="list-style-type: none"> <li>• Ability to design new application components including: screens, business object model, reports and workflows</li> <li>• Ability to create new applications</li> <li>• Understanding of how to Integrate third party products and technology</li> <li>• Understanding of deployment styles</li> </ul>
Co-Construct Application	Application Construction	<ul style="list-style-type: none"> <li>• Assist in the creation of the application</li> </ul>
	Post-Implementation	<ul style="list-style-type: none"> <li>• Ability to create new applications</li> </ul>

Overall, the Software Factory Assembly Methodology follows traditional methodologies, but embraces a much more efficient manufacturing paradigm for application assembly. It is process-oriented and has been modified to support high quality, scalable, and rapid development. ♦

***ObjectBuilders is the  
Leader in Assembled  
Business Software.***

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