

**WHITE PAPER ON TECHNICAL DEVELOPMENT  
APPROACH FOR SAP IMPLEMENTATION PROJECTS**

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## **1. Objectives and Scope of White Paper**

The objective of this white paper is to provide technical development approach for SAP implementation projects in the era of mergers and acquisitions by Fortune 500 companies. This white paper should give an overview of the approach to be followed for SAP implementation projects specifically to integrate companies already running on SAP and legacy as footprint with companies having only legacy (non SAP) applications. Even though this white paper covers the details specific to SAP **Integration** projects, most of the processes documented herewith can be tuned to suit any SAP **Implementation** projects also.

Technical development approach broadly covers the methodology to be followed and the activities in all the three phases of **Define, Execute** and **Operate**.

The white Paper refers to templates at many places based on the assumption that templates already exist.

## 2. Project Phases

Technical development in any SAP implementation project can be considered in 3 phases as indicated below along with the highlights of each phase.

### a) Define

- System and Interface diagram
- System list
- List of Catalogue of process from process teams
- Finalize templates for requirements document, functional design, technical design, Unit testing, string testing, EIT testing and checklists
- Decision to use middleware and translations

### b) Execute

- Completed Requirements Documents,
- Completed functional designs for each sub-process
- Completed technical designs for each technical widget or object
- List of system gaps and fit-related conversion needs
- "In-scope" systems list
- Consolidated list of planned system-process changes
- Batch schedule plan

### c) Operate

- Participation in Go-Live
- Post production support

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### 3. Methodology

The project should be executed via a methodology that everything should be driven by “**BUSINESS PROCESS**”. The input to technical development team should be the catalogue of process validated by the process team. The catalogue of process should divide all processes that exist in the project scope into unique processes, sub-processes within those processes, and activities within those sub-processes. The breakdown can be seen in the associated document list of catalogue of process. This is to be treated as a sample list only.

Sample of catalogue of process.



"Catalogue of  
Processes\_V.1.0.xls"

The Technical Development work on any SAP integration project will include all new and changes to interfaces, conversions, reports, and actual legacy systems.

## 4. Define Phase Approach

The first phase in a project for technical development stream consists of a **FIT/GAP data gathering/documentation** activity led by the process teams in which additional data is collected and documented regarding each of the "**sub-processes**" from the catalogue of process. The Technical Development team will assist in the data gathering and documentation activity by reviewing materials being documented and providing input, participating in reviews, etc. until the sub processes is accurately documented. There will be two forms of documentation by the process team. The first - **Requirement Gathering Document** will be developed for processes and will be used only when the sub-process is new to the footprint. The second - **Requirement Gathering Template** will be more of a summarization of the sub process and will be used for the currently active sub processes in the footprint.

The broad areas covered in the Requirement Gathering Document are: -

- a) Sub-Process description
- b) Description of activities in the Sub-Process
- c) Business requirements
- d) Functional Areas, Business units, Legacy systems involved
- e) Changes and impact on the activities
- f) Configuration requirements
- g) Interface requirements if legacy system will exist along with SAP
- h) Conversion requirements if the legacy system will be retired by SAP
- i) Legacy systems replaced
- j) Gaps
- k) Issues if any

The Requirement Gathering Template will also cover the areas covered in the Requirement Gathering Document but in far less detail. Normally Requirement Gathering Template will be created for existing sub process. The impacts to the existing interfaces and configurations should be considered in arriving at the requirements for new interfaces and configuration.

The accuracy of the above documents can be accomplished thru detailed analytical work. The (Interface architect) analyst that will be working in Tech Dev will be expected to have experience in activities needed to assure the necessary information is collected and confirmed. These analysts will perform interviews of the groups supporting the systems that are identified as part of the project, have discussions with the people involved in the process documentation effort, review existing documentation (when available), etc. to assure the accurate need is stated in the

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**Requirement Document** which is prepared by the Interface architect. The Technical Development leaders of these Interface and Conversion Analyst are also expected to have significant knowledge of the existing footprint of systems and processes and will be performing analytical activities to assure all the needed interfaces and conversions are properly documented. Included in the analysis that they will do is some analysis of the data elements and a verification that all systems, interfaces, and conversions identified are accounted for.

The broad areas covered in the Requirement Document are: -

- a) New Systems/Process into footprint
- b) Configuration requirement
- c) Interface requirement
- d) Conversion requirement
- e) Reporting requirement
- f) Enhancement requirement
- g) Data mapping, harmonizing and clean-up requirement
- h) Existing systems and Interfaces
- i) Issues
- j) Security requirements for users
- k) Learning requirements for users
- l) Initial effort estimates

## 5. Execute Phase Approach

Once the Requirement Documents prepared by the Interface architects are approved by Business, Process design team the execute phase components of the technical development effort begins. A decision is made to allow individual sub-process areas into the execute phase, not needing to wait for "all" the Requirement Documents to be produced. However, it is critical that the entire sub-process be completed before Execute activities begin.

The first Technical Development activity within Execute phase consists of developing **Functional Designs** for each work item identified in the Requirement Document.

The Functional Design document should cover the following: -

- a) Justification and Business requirement
- b) Responsible Organization
- c) Assumptions
- d) Design Specification and constraints
- e) Error Handling and Reporting
- f) Performance consideration
- g) Security requirements
- h) Testing requirements
- i) History to be converted
- j) Pre deployment and post deployment activity
- k) Final effort estimation

All analysts who are part of the Tech Dev team are expected to have some experience developing such documentation and possess the necessary analytical and communication skills needed to find the requisite information. The legacy system components of the functional design will require input from the legacy system analyst assigned however, the Tech Dev team analyst will be overall accountable for the completion of functional design. The Tech Dev leads and legacy system change leaders will assist in finding the necessary resources from the legacy, process, and/or business to assist in this effort they will also perform peer reviews of all

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documents produced. They will also provide the analyst assistance in understanding the existing systems and process footprint.

The next activity after functional design is technical design. **Technical Design** is the part of the project where the very specific approach and programs that will be used to address all elements of the functional design are designed and documented.

The Technical Design template to be used for all non-legacy system changes and SAP changes should cover the following:-

- a) Program attributes
- b) Functional description
- c) Technical flow
- d) Program Logic
- e) Data & Error handling
- f) Key test criteria

Legacy system components will also be required to develop technical design documentation. However, the format of that documentation is tailored at the discretion of the Legacy system work coordinator. The Legacy system change leader will ensure that the format used by the various legacy system service providers captures the necessary elements of a technical design. The Technical design documents for the non-legacy system changes will be created primarily by the ABAP team; however, the interface and conversion architects will be involved in the creation of all of them and be solely accountable for a number of them (including all those that don't require ABAP coding). Again, the analysts and programmers constituting the Technical Development team and made available from the Legacy systems are expected to have experience in creating Technical design documents and the Interface Architect, ABAP, and Legacy system change leaders will be reviewing the documents for completeness and accuracy.

The ABAP and legacy development teams take over ownership of the next activity within Execute. The **Coding and Unit Testing** efforts will consist of writing the specific code (ABAP or legacy system code) and then performing tests to assure that the code meets the requirements documented in the technical design. The ABAP coding activities have numerous coding standards and naming conventions that will be followed and will be communicated from the ABAP leader to the ABAP team separately. The legacy systems are expected to follow the development standards used by the specific legacy system being changed. The ABAP leader and legacy system work coordinators will be responsible for Quality Control aspects such as code reviews, reviewing unit test results, etc. The Legacy System Change Leaders will also perform some quality assurance activities such as reviewing unit testing activities for completeness and quality.

After Coding and Unit Testing, **String Testing** activities are conducted. The intent of string testing is to begin the validation that the newly coded object meets the need defined in the functional and technical design. For interfaces it will also validate that the sending and receiving system changes are working together successfully. For conversions and system changes it's a first chance for the analysts to assure all the parts/components are working properly. For changes that included a change to the SAP footprint (e.g. new SAP interface), the Technical Development analyst will be accountable for working with the legacy system in performing this test. In cases where the change was solely legacy system related, the legacy system change leader will be accountable for working with the legacy system analyst in confirming the

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completeness of the test. The interface and conversion leaders will again be accountable for overseeing the completeness and accuracy of the string tests conducted by the Technical Development ICE analysts.

String testing is primarily the conclusion of the activities directly under the control and direction of Technical Development. Most of the Tech Dev roles will continue after string testing on other roles that are under the direction of the testing and cutover leaders. These activities will include performing mock and actual cutovers, participating in functional testing, and conducting expanded interface testing. Technical Development team will still maintain accountability for fixing problems found during other aspects of the project.

One final note regarding the Technical Development organization. The process teams have primary accountability for developing the necessary configuration; however, Technical Development will have a role of assisting the process teams in developing the configuration as well as maintain the ultimate accountability to assure the configuration changes make it into the production system and do not adversely impact the rest of the footprint. The leader and analyst roles will assess all change requests to determine if there could be adverse impacts throughout the system. The work done will follow the same type of activities listed above (e.g. Development and Unit Testing will include developing or reviewing prototype configuration and getting the configuration transported to the appropriate test system). Other key activities will include assuring the various developments and testing environments get updated with production support changes, the interface and conversion impacts of all configuration changes are properly analyzed/assessed, etc.

## **6. Operate Phase**

- Participation in Go-Live. Some of the important activities performed by tech dev team during go-live
  - Participate in conversion automated and manual
  - Validate all transports are migrated to production.
  - Manual configuration activities
  
- Post production support
  - Project related activities
  - Reviewing control reports
  - Reviewing cancelled interfaces
  - Monitor jobs, run times etc.
  - Assist in Manual conversions
  
- Business support
  - Transactional assistance post go-live-transaction entry, reversals etc

## **7. Conclusion**

Managing an SAP integration project with number of Legacy system can be really made possible by establishing processes and guidelines to manage and drive the SAP and Legacy development. This white paper will hopefully provide an insight and framework for managing such projects.