Acquiring Commercial Off-the-Shelf (COTS) Systems

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# Acquiring Commercial Off-the-Shelf (COTS) Systems

The following table contains guidelines to acquire and implement large-scale or Enterprise Resource Planning (ERP) systems such as those from SAP, Peoplesoft, Oracle, etc. In general, current activities apply to this type of project. The list of considerations following this table can be used to ensure that unique COTS characteristics are factored into the planning and execution of each phase.

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| **Phase** | **Interpretation Guidelines** |
| Plan & Define | The Plan and Define Phases initially focus on refining high-level business requirements for the system and evaluating make vs. buy options. Clearly defined ‘as-is’ and ‘to-be’ business processes are essential for determining whether to purchase a COTS package or to develop a custom solution.  When a decision to purchase a COTS package is made, the focus shifts to the selection and procurement of the best-suited package and vendor(s) to support its implementation. The project team conducts an initial evaluation (often in conjunction with a Request for Information (RFI)) to assess the feasibility of candidate packages to meet minimum ‘to be’ process requirements. The initial evaluation drives definition of the package specification, the requirements that must be met by the COTS system.  The package specification is included in a Request for Proposal (RFP) and is used to define package selection criteria. RFP responses are evaluated against these criteria and preferred packages are identified. In most cases the project will elect to conduct a detailed evaluation, prototyping key aspects of the system in the business environment to identify any gaps between package functionality and ‘to be’ process needs. These gaps are used to guide package selection and often result in customization or extension of the COTS solution.  The definition and associated cost estimates for customization factor into the decision to proceed with the COTS procurement. To finalize the procurement, contracts and implementation plans are completed with the package supplier, the systems integrator, and any vendors providing package customization.  *See* [*Plan & Define Phase Items to Consider*](#_PROCESS_CHECKLIST_–) |
| Design & Build | COTS package implementation typically involves two major activities – customization and integration. This includes the development of reports, interfaces, conversions, and extensions. These activities often involve multiple iterations with key business functionality available first and additional features provided in later releases. Suppliers performing COTS customization  are expected to apply the same rigor and process as in any custom development project. Suppliers and Project managers must also plan to ensure that the appropriate organizational change management and organizational alignment with the new processes of the COTS package are considered in concert with the system design.  Systems Integrators should be monitored to ensure that the system configuration satisfies business requirements and that the configured system will be ready for acceptance testing as planned. Once the configured system is available, system and user tests confirm its acceptability before initiating full deployment.  *See* [*Design and Build Phase Items to Consider*](#_PROCESS_CHECKLIST_–_1) |
| Deploy | This phase is concerned with the rollout of the COTS application components into the production environment. The application is installed into the production environment and users are trained on the specifics for using the new system (including ‘to be’ process changes).  Results are measured to ensure that system performance meets expectations. Audits may be conducted to ensure proper usage and operation once the system has been deployed. Once the system is accepted, its support transitions to the organization contracted to perform operation and maintenance.  *See* [*Deploy Phase Items to Consider*](#_PROCESS_CHECKLIST_–_2) |

# PROCESS CHECKLIST – PLAN & DEFINE PHASES

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| **Intended use of this checklist** | To assist teams for acquiring COTS applications. Use this checklist in conjunction with other process assets during the Plan and Define Phases.  *Refer to the COTS Evaluation Checklist for guidelines on comparing specific COTS package alternatives for selection.* |

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| **PLAN & DEFINE PHASES** | | |
| **ID** | **✓** | **Items to Consider** |
| 1 |  | Are the “as-is” and “to-be” processes well defined and documented? |
| 2 |  | Has a package specification been created that captures project requirements? |
| 3 |  | Does the package specification address the following elements of COTS implementation:   * Required process model and process description * Data model description * Security, quality and performance requirements * Deployment requirements |
| 4 |  | Have the gaps between ‘to be’ business processes and candidate packages transactions been evaluated? |
| 5 |  | Have business requirements been mapped (at a high level) to the supported components of packages under consideration? |
| 6 |  | Have unresolved gaps between the package and To-Be Processes been documented and reviewed with project sponsors? |
| 7 |  | Are required modifications to the To-Be processes (solely because of COTS functionality limitations) acceptable to the business? Are the consistent with global common process directions? |
| 8 |  | What business organizational restructuring is necessary to implement the proposed solution? |
| 9 |  | Have other internal groups used the package or similar technology? Have the factors that contributed to their success or failure well understood? |
| 10 |  | Have all life cycle been factored into the business case? Does this include costs for maintaining and upgrading the system? For re-training? Re-testing? |
| 11 |  | Has the amount of customization that will be required been determined? |
| 12 |  | Have customization costs, including operations and maintenance, been captured in the business case? |
| 13 |  | For major customization efforts, are these activities being treated as a project with an assigned project manager and responsible team? |
| 14 |  | Is this a worldwide deployment? Do regional considerations affect COTS selection? |
| 15 |  | Does the proposed system sufficiently address business criticality? Does the proposed architecture ensure that critical functions remain operational in the event of a server failure, for example? |
| 16 |  | Does the solution fit corporate technical architectural standards? (example architecture areas include: client-server, networks, databases, middleware, operating systems, etc.) |
| 17 |  | Have all interfaces to external systems been specified (e.g., legacy systems, supplier systems, external database sources, external functions, package bolt-ons, etc.)? |
| 18 |  | Has the application programming interface (APIs) been specified for each external interface? |
| 19 |  | Do the external interfaces work effectively within the package’s timing constraints? |
| 20 |  | Have the APIs been negotiated with the other system owners? Have security and access methods been agreed-to? |
| 21 |  | How will new releases of the supporting architecture impact the system (network software, hardware upgrades, etc.)? |
| 22 |  | What version of the COTS solution is appropriate for the project? Is there a new version available soon that better suits project needs? |
| 23 |  | What is the support plan and costs for staying ‘current’ with COTS product releases? |
| 24 |  | Are functional groups affected by the COTS implementation represented on the project team(e.g., HR, payroll, manufacturing, etc.)? |
| 25 |  | Has the project team coordinated with other projects to minimize impact to business/business disruption? |
| 26 |  | Have the project scope and objectives been refined with the selected systems integrators to align expectations? |

# PROCESS CHECKLIST – DESIGN & BUILD PHASE

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| **Intended use of this checklist** | To assist teams for acquiring COTS applications. Use this checklist in conjunction with other process assets during the Design and Build Phases. |

| **Design & Build Phases** | | |
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| **ID** | **✓** | **Items to Consider** |
|  |  | **PLANNING** |
| 1 |  | Does the overall plan focus on delivering business value to the user early in implementation and on reducing the overall project risk by allocating risks across increments? |
| 2 |  | Have current and future incremental enhancements been planned? |
| 3 |  | Are plans and steps for data migration in place? |
| 4 |  | Do data migration plans address current system data extraction, data clean-up approaches, identification of conversion sources and media, acquisition of external data, historical data needs, and data verification? |
| 5 |  | Are training plans in place for users and support personnel? |
| 6 |  | Are test plans in place? Will system integration testing be conducted prior to release for acceptance testing? |
| 7 |  | Have users been involved in reviewing the potential solution? |
| 8 |  | Do deployment plans include to user migration to the new system? |
| 9 |  | For data conversion, are audit and controls in place to ensure successful conversion? |
|  |  | **SYSTEM INTEGRATION** |
| 10 |  | For business critical applications, have the failure modes been analyzed and planned for? How are server failures handled? Network failures? Others? |
| 11 |  | Is there a disaster recovery plans in place for the system? |
| 12 |  | Do, including timing and data conversion rules and associated translation tables? |
| 13 |  | Have interface and conversions design specifications been reviewed? |
| 14 |  | Have interfaces to existing systems been fully validated? |
| 15 |  | Has data conversion been validated and successfully completed? |
| 16 |  | Are recovery plans in place to ensure that unconverted data is addressed prior to system deployment? |
| 17 |  | Is configuration management in place for the system and its environment, including hardware, network and software components, as well as configuration parameters? |
| 18 |  | Has a baseline been established for the package and its environment? |
| 19 |  | Are servers tuned for batch and real-time application usage? |
| 20 |  | Are clients, servers, and network components optimized to satisfy performance requirements? |
|  |  | **CUSTOMIZATION/EXTENSION** |
| 21 |  | Are significant customizations being tracked as their own projects? |
| 22 |  | Have customization requirements been clearly defined for each incremental release? |
| 23 |  | Are the supplier’s Design and Build Phase customization activities monitored to ensure that they are performed using acceptable processes and produce the required deliverables? |
| 24 |  | Have custom reports been defined and implemented? |
|  |  | **TEST** |
| 25 |  | Does the system meet the business needs for which it was commissioned? |
| 26 |  | Do test scenarios ensure each process performs correctly and is fully integrated with all other global and local processes, including reports, interfaces, and enhancements? |
| 27 |  | Is documentation provided that details which requirements are met be the release? |
| 28 |  | Have test cases been documented? Results? |
| 29 |  | Has the test environment been checked to verify that it has been set up properly? |
| 30 |  | Has the system been stress/load tested under worst-case conditions? Does the system meet performance requirements under these conditions? |
| 31 |  | If automated testing is performed, are test scripts captured and under configuration control? Have they been evaluated to ensure that they are testing the functionality that is important to the business? |
| 32 |  | If an independent supplier is executing the tests, are organizational personnel actively monitoring the testing to ensure proper execution and results recording? |
| 33 |  | Are system configuration changes made during testing approved before implementation? Are changes documented and tracked? |
| 34 |  | Do custom reports produce accurate information? |

# PROCESS CHECKLIST – DEPLOY PHASE

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| **Intended use of this checklist** | To assist teams for acquiring COTS applications. Use this checklist in conjunction with other process assets during the Deploy Phase. |

| **Deploy Phases** | | |
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| **ID** | **✓** | **Items to Consider** |
| 1 |  | Is the Deployment Plan in place? |
| 2 |  | Does it the Deployment plan include fall-back positions in case the system does not perform as expected? |
| 3 |  | Are service level agreements in place for ongoing maintenance? |
| 4 |  | Is an audit function in place to monitor the effectiveness of new business processes and system usage? |
| 5 |  | Is a plan in place to handle future COTS upgrades and modifications to any custom interfaces? |
| 6 |  | Has dynamic data, that is, data that changes frequently, been converted into the new system? |
| 7 |  | Are controls in place to ensure that dynamic data is in step with current systems prior to the new system cut over? |
| 8 |  | Have pilot implementations or periods of parallel execution been completed with satisfactory results? |
| 9 |  | Are pilots conducted regionally to ensure localization issues are addressed? |
| 10 |  | Is the usage and performance of the new system monitored after cut over to ensure it is effective in operation? (items to consider monitoring include: response time, load balancing, data integrity, effectiveness of manual procedures, security mechanisms, processing times, etc.) |