STEP-BY-STEP APPROACH FOR BUILDING AND MANAGING YOUR CMDB

Widespread adoption of the IT Infrastructure Library® (ITIL®) and other best-practice and control frameworks is motivating a growing number of enterprises to implement a configuration management database (CMDB). A CMDB is the core database that "powers" the configuration management system (CMS), introduced in ITIL Version 3 (V3). The CMS is the foundation that supports a complete service lifecycle across IT. (ITIL definitions for *CMS, CMDB,* and *configuration items [CIs]* are given on page 3 of this article.)

Some IT organizations have already made great progress and are starting to see substantial returns. Still, some companies hesitate to get a CMDB project underway because of the level of effort involved. However, our five-stage approach, summarized below, can help you organize your efforts so you can build a comprehensive CMDB with minimum risk and maximum reward. Each stage is broken down into smaller steps that are simple to understand and straightforward to complete. Figure 1 provides a high-level checklist to guide you through the stages and steps.

STAGE I
Assemble the Team and Define the Project
1. Assemble the project team
2. Obtain CMDB knowledge
3. Establish goals and mission
4. Review and define benefits
5. Build a business case

STAGE II
Define Requirements and Create a Blueprint
1. Identify and review governance requirements
2. Review and select supporting best practices
3. Identify requirements to address potential problems
4. Identify inventory and asset requirements
5. Define service catalog requirements
6. Define CMDB requirements to support other processes
7. Define CI level and IT service model
8. Define CI relationships
9. Define CI attributes
10. Design IT service model blueprint

STAGE III
Select Your Solution and Tools
1. Select CMDB solution
2. Plan CMDB population
3. Select tools to automate population
4. Calculate project ROI

STAGE IV
Construct and Maintain the CMDB
1. Construct the CMDB
2. Create CI lifecycle management processes
3. Build supporting processes
4. Populate the CMDB
5. Train CMDB team and users

STAGE V
Drive Ongoing Value
1. Implement measures and metrics
2. Create a service improvement program

Figure 1. Checklist for building a CMDB

Stage I

Stage I involves forming a team, scoping the project, gathering input, and getting funding and approval. Your first step in this stage is to assemble the team. As you do this, keep in mind that success comes from engaging all key constituents and affected IT functions in the project. The right team members will increase your probability of success.

Step 2 is about education; that is, bringing team members up to speed on all aspects of a CMDB — its structure, terminology, scope, relationships with other IT processes, benefits, and the tasks required to build it. This upfront investment eliminates confusion and increases your ability to clearly describe the reasons for pursuing the project.

In Step 3, your team creates and agrees on the goals and mission. At this time, the team should start to identify the measurements used to judge how the goals will be achieved. To do this, the team needs to review the current environment and problems to be solved, and develop a statement of the goals and mission for the project. This effort is critical to getting the project approved.

The goal of Step 4 is to define project benefits and communicate them in terms of key business metrics and measures. An important part of this step is gathering detailed information that will help you build a business case and estimate ROI for the project.

> Stage I involves forming a team, scoping the project, gathering input, and getting funding and approval.

Finally, in Step 5, you use the output of the first four steps to build a solid business case that gains the buy-in and approval of key constituents, the project executive board, and the overall project sponsor. A logical, simple business case works best for winning approval over other projects requesting scarce resources.

Stage II

During Stage II, you document the requirements that will drive the selection of a CMDB solution and guide you in the implementation. In this stage, you work with key stakeholders to document and obtain approval on their subset of requirements. These stakeholders are the process owners of IT functions that will leverage the CMDB, as well as those responsible for compliance and IT asset management. You also capture CI-level requirements that specify what CI relationships the CMDB will maintain.

This stage comprises ten steps:

1. **Identify and review governance requirements.** Focus on identifying governance and regulatory compliance efforts that you want to improve with the CMDB project, and document the CMDB requirements.
2. **Review and select supporting best practices.** Start with the IT processes that you have targeted for improvement through access to a CMDB, and then identify best practices that these IT processes can use.
3. **Identify requirements to address potential problems.** If there have been previous CMDB projects, identify problems encountered and turn lessons learned into project requirements. This effort can help you avoid many potential implementation and support issues.
4. **Identify inventory and asset requirements.** Pinpoint how inventory and asset management requirements will affect the project. Keep in mind that while asset, inventory, and configuration management are similar, they are different enough to warrant specific requirements.
5. **Define service catalog requirements.** Identify requirements that specify how the service catalog will leverage the relationships between services and the underlying CIs. Understanding which CIs relate to a particular service enables you to better meet service level agreements and allows you to conduct service-based costing.
6. **Define CMDB requirements to support other processes.** Turn IT process touchpoints with other IT functions into specific requirements. Make sure the requirements reflect how other groups will interact with the CMDB, and incorporate any special needs these groups have.
7. **Define CI level and IT service model.** Define the optimum level for CIs to help determine the overall breadth and depth of the structure of your CMDB data model.
8. **Define CI relationships.** Identify the specific CI relationship data that you will maintain in the CMDB.

9. **Define CI attributes.** Define which CI attributes will reside in the CMDB and which will reside in federated data stores.

10. **Design the IT service model blueprint.** Construct the blueprint using the requirements you have identified for the service catalog, the IT business processes, and the IT service model design.

Stage III

SELECT YOUR SOLUTION AND TOOLS

Stage III completes the planning process and technology selection so that you can move ahead with building, populating, and deploying your CMDB. Step 1 for this stage is evaluating available solutions with respect to your requirements, selecting a CMDB solution and supporting technologies that align with those requirements, and procuring the solution and tools.

During Step 2, you plan how to populate the CMDB, including federation strategy and mapping CIs to data sources. You'll also need to document business rules that enable automated handling of precedence, reconciliation, and normalization. This is essential to populating the CMDB initially and maintaining ongoing data accuracy.
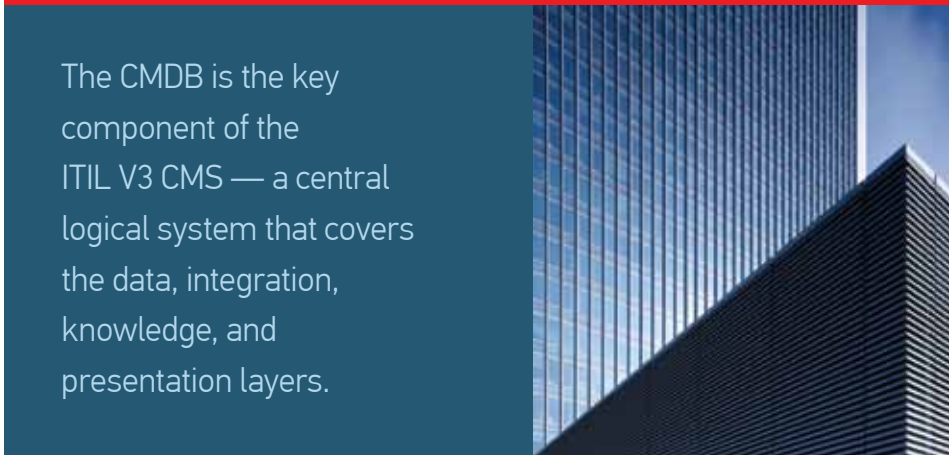
In Step 3, you identify and purchase additional discovery and automation tools to facilitate CMDB population. A broad range of tools is available to help automate CMDB data management.

Finally, in Step 4, you use data collected from the previous steps to create a financial analysis of the expected costs, benefits, and ROI. This information will guide the project implementation team as you move into Stage IV.

Stage IV

CONSTRUCT AND MAINTAIN THE CMDB

With the first three stages behind you, you're ready to construct your CMDB and build CI lifecycle management processes and CMDB supporting processes. Step 1 involves installing CMDB hardware, software, and supporting technologies to make your plans a reality. You will also need to determine your federation strategy so that you can identify and establish integration points to federated data stores.

> The CMDB is the key component of the ITIL V3 CMS — a central logical system that covers the data, integration, knowledge, and presentation layers.

With installation complete, you proceed to Step 2, creating CI lifecycle management processes. This step establishes processes for adding new CIs and updating CI data throughout the CI lifecycle. You define a lifecycle plan for each CI type and then document how you will perform and control each part of the plan.

ITIL V3 Definitions

Configuration Management System (CMS): "A set of tools and databases that are used to manage an IT service provider's configuration data. The CMS also includes information about incidents, problems, known errors, changes, and releases, and may contain data about employees, suppliers, locations, business units, customers, and users. The CMS includes tools for collecting, storing, managing, updating, and presenting data about all configuration items and their relationships. The CMS is maintained by configuration management and is used by all IT service management processes."[1]

Configuration Management Database (CMDB): "A database used to store configuration records throughout their lifecycle. The Configuration Management System maintains one or more CMDBs, and each CMDB stores attributes of CIs and relationships with other CIs."[2]

Configuration Item (CI): "Any component that needs to be managed in order to deliver an IT service. Information about each CI is recorded in a configuration record within the configuration management system and is maintained throughout its lifecycle by configuration management.

"CIs are under the control of change management. CIs typically include IT services, hardware, software, buildings, people, and formal documentation such as process documentation and SLAs."[3]

In Step 3, you document the processes required to support and manage the CMDB. Any flaws in current processes must be eliminated, and any new processes must be built and documented.

Now you're ready for Step 4, capturing the CIs along with their associated attributes and relationships. Populating the CMDB includes federating data stores, gathering data, and reconciling data. At the end of this step, your CMDB is ready to use.

Last, but not least, Step 5 is about training the CMDB team and users. Training is critical for ongoing management and maintenance of the CMDB. Training also encourages wide adoption, which will result in faster ROI.

Stage V

DRIVE ONGOING VALUE
The final stage of your CMDB project is about continual service improvement. In the first step, you implement metrics that enable effective ongoing management of CMDB-related processes. You identify metrics that support the overall goals of the project, as well as metrics that help the CMDB manager and CI owners with the ongoing management and update of the CMDB.

Step 2 calls for following a service improvement program that focuses on a narrow set of key metrics and related targets. If met, these key metrics will ensure that the CMDB continues to have quality data and that it will deliver the key benefits that were expected when the overall project business case was approved.

A Final Thought
CMDB technologies have matured in recent years, and companies are beginning to realize numerous benefits from a fully functional CMDB. These benefits, along with the wider adoption of ITIL V3, will motivate many more companies to implement CMDBs. The CMDB is the key component of the ITIL V3 CMS — a central logical system that covers the data, integration, knowledge, and presentation layers. Many IT organizations have the CMS elements already but not combined within an integrated system.

The experiences of companies that have already put a CMDB in place shows that a staged approach works best. By breaking down the overall CMDB construction process into achievable component parts, you can make rapid progress while ensuring that you end up with a solution that provides visibility into how the IT infrastructure relates to business services.

By following the lifecycle approach outlined in ITIL V3, you ensure that IT integrates with the business to derive business benefits. The resulting CMDB solution will empower your IT staff to make business-savvy decisions that move the enterprise forward.

For a copy of BMC Software's in-depth *Step-by-Step Guide to Building a CMDB*, visit www.bmc.com/experts/reference-books/cmdb-books.

END NOTES
1. ITIL® V3 Glossary V3.1.24, 11 May 2007. See *Configuration Management System*.
2. Ibid. See *Configuration Management Database*.
3. Ibid. See *Configuration Item*.

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