

EMA™ Advisory Note: CMDB System Deployments in 2008 – the Search for Value

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Where We Are and Why

In June and July of 2008, EMA conducted ground-breaking CMDB research targeting 174 quantitative questionnaire replies and more than 15 in-depth focal interviews. The respondents were 90% from North America and the U.S. specifically, but focal interviews reached out to deployments ranging from Australia to the U.K. The goal was to capture the state of CMDB deployments in 2008 in terms of objectives, budgets, metrics, functional and packaging priorities, what's working, what's not, and what adopters they would recommend to their peers and what they would have done differently.

The research has revealed that CMDB deployments are indeed at a fundamentally different stage than they have been over the past two to four years. Whereas in the past most adopters were in planning stages, currently many are looking to show value in first phase or second phase deployments. Since the CMDB is an enabler, this means planning and documenting what the CMDB is enabling.

Highlights

Highlights from initial findings include:

Most CMDB deployments are less than two years underway, and 43% are less than a year underway.

- Sixty-eight percent are not yet in full-production with their first-phase deployments.
- Data shows a lot of role diversity in core teams, with stakeholder, process guidance, overall management and architectural coordination leading in areas of respondent responsibility. Focal interviews show consistently that there are core teams of four to five in large organizations many with multiple stakeholders.
- Executive sponsors are largely VP or C-level executives, where as day-to-day guidance is mostly director or manager level. Based on a number of metrics and interviews, higher level executive involvement is one of the more consistent indicators of success.
- As of June of 2008, both IT budgets and CMDB budgets show overall growth (59% of the CMDB budgets have grown and 13% have diminished), but 23% are being redirected.
- Seventy-one percent of the respondents believe that their deployment is on budget and on time in the quantitative survey questions, but since many budgets are not fully defined or specific to the CMDB, and since formal phase objectives are not usually in place, focal interviews reveal considerable more ambivalence on this point.

- A growing number, 33%, of CMDB budgets are becoming a part of the core IT budget (versus being undefined, defined annually, or defined in terms of specific phase objectives), and this trend is more pronounced in more mature CMDB deployments. However focal interviews reveal that in many cases CMDB budgets remain bundled in with other initiatives (e.g., ITSM, change/configuration management, etc.) versus discrete in themselves.
- Service desks bundled with CMDB software leads packaging options but asset management, change and release management, lifecycle service management and security/risk/governance are not far behind as choices.
- The importance of automation overall, and workflow-driven process automation in particular has risen to the top of functional linkages and technical priorities. There are two overarching reasons for this based on EMA consulting and research. The first is that workflow and process automation are primary avenues for harvesting the value of the CMDB investment, whether for incident and problem management, or for change and release management, or for service impact, or even for compliance audits, etc. The second is that automating key processes has shown itself as central to the care and feeding of CMDB Systems, whether through discovery and application dependency mapping, or through automating processes supportive of review, or assessments of the accuracy of the data within the CMDB itself.

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- Fewer than 50% of CMDB System initiatives currently have metrics in place for governance. The relative early-phase stage of metrics-definitions was underscored by the fact that only 3-4% of respondents (and in one case only 1%) had “other” metrics to offer than those proposed in the questionnaire. However, most focal interviews recognized the need. “We’re not there yet” is probably the most common response.
- Executive commitment, budgetary commitment, good metrics and good detailed requirements topped the charts for process-and-organizational success factors. This is largely consistent with prior year research.
- Top process and organizational concerns going forward are similarly: budget, executive sponsorship, lack of processes expertise and training, building and managing the core team, and waffling on CMDB commitments across IT – in that order.
- Good “in-house software development” and good discovery software topped technical requirements. These were followed by good services and support for SW deployment and choice of the right core CMDB software. CMDB Systems in 2008 definitely require in-house skills. And while focal interviews reveal that executives, in particular, are becoming concerned with too much customization of CIs, some is still required in most environments. Focal interviews in fact reveal significant in-house efforts to complement the many holes still present in CMDB technologies. EMA anticipates that the industry is several years away from a new phase in CMDB solutions which are significantly easier to deploy and even to integrate across brands.

- The top three technical concerns are “maintaining effective CMDB performance;” “lack of in-house available architectural expertise;” and “identification of systems of record” or trusted sources. It should be noted that systems of record, which are so foundational to CMDB System evolution, are often caught in political turmoil, as most organizations are reticent to rely on management information from tool sets other than their own.
- On the other hand, the number one answer to “what would you have done differently” was “We would not have used in-house development for SW as much as we did.” This was followed by better detailed requirements, better process planning and education, building a bigger team for CMDB deployment, and more attention to communication across IT. In putting two and two together – CMDB deployment teams need to have a high degree of technical expertise, but at the same time, they need to pick their battles wisely and focus their efforts better.
- When asked about changes made that were driven from “lessons learned,” the top four were: better requirements documentation; we are increasing commitment to our CMDB program; we have higher level management support; and higher level executive buy-in. Expanding the number of stakeholders came in fifth. These, as you can see, are overall fairly positive. However, the sixth-place choice (out of twelve options) was, “we are decreasing the scope of our CMDB.”

Sixty-eight percent are not yet in full-production with their first-phase deployments.

The Bottom Line

The industry – or in other words most of you in IT – are beyond treating the CMDB as an existential curiosity, or conversely as a panacea. Most of you, or your organizations, have already embarked on the “CMDB journey” and are looking for some benchmarks or at least signs of value. Yet consistently, as with prior years, no one I have spoken to claims to regret going forward with a CMDB System. Indeed, when asked about “what would you do differently,” a few focal interviews stated that they would have started the CMDB initiative sooner.

Also consistent with prior year research is the “communication factor” – the needs to communicate with stakeholders to build enthusiasm, understand requirements, and manage the process of maintaining, updating and expanding the CMDB System with integrity and efficiency. And the need to communicate with executives to gain, consolidate and grow their support, including budgetary and financial support. Many effective CMDB deployments recognize these requirements, along with the rather significant technical requirements as well.

While reducing the need for customization is a clear value, the expectation that customization can simply be eliminated from a CMDB deployment will be in most cases naive. The choice will really be how much should be done in-house, and how much will depend on vendor services. ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) analysts know of some vendors who don’t promote their third-party integration capabilities in the hope of driving buyer choice to a single brand. So you may have to stand firm and make demands from your vendor/provider, or conversely make the choice of your core CMDB based on the technical advantages and willingness of the provider to work with you in assimilating your key management technology investments.

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Finally, while the move to federation wasn't a core part of this research, it is clearly the wave of the future. There are lots of reasons why federation is beginning to take off. One is simply performance. Depending on a single physical repository to house multiple hundreds of thousands of CIs and their attributes will eventually create performance issues. The other is that most CMDB architects already recognize the difference between mapping the most critical devices and their application interdependencies, and being able to assimilate less critical infrastructure components, say for asset and inventory audits. Or in contrast, the need for a more granular component of the CMDB System to support change, configuration and release management for unique constituencies, such as switches and routers, or telecommunications devices, or, conversely, for in-depth change management of systems, or even desktops and remote devices.

As shown in this research, the notion of federation is implicitly, if not explicitly, apparent in how various vendors are packaging their CMDB solution – whether it's with a service desk focused on incident and problem management, or asset management, or systems and network management configuration solutions, or service impact management solutions, or in some cases solutions more targeted at governance, compliance and security.

One reason for optimism in pursuing the federated, CMDBS vision, is that there are really two “parents” for CMDBs. The first is of course ITIL itself, with its focus on process and best practices. The second is largely architectural, as management technologies evolve to become more intelligent, automated and modular – requiring new types of integration across domains. After all, the need for reconciled and consistent visions of “truth” is as old as IT, but CMDB-related technologies are now allowing IT architects to approach this problem in radically different ways. The sudden growth in CMDB System deployment represents a confluence of both of these ideas (process and architecture). This is borne out in real-world deployments that typically require a pairing of architectural with process expertise with evolving support for unique constituencies that, over time, will invariably lead beyond an all-or-nothing single repository and towards more successful federation.

The key point to make about this diversity is that there isn't a single generically “right” place to start. There *is*, by contrast, a “right place for you” to start – and you can't find the answer for that in ITIL or from a vendor trying to sell you a CMDB solution. You need to assess your own operational and business objectives, dialog and communicate with key stake holders, and judiciously decide where to begin based on readiness, resource, and impact.

IBM CCMDB: An EMA Perspective

A number of small and large IT management vendors are pursuing broad service management strategies. Yet few of these vendors have the breadth and depth that IBM has in their product and technology portfolios to cover the service stack from business services to IT services to the infrastructure domains that include network, storage, security, application, database, server and mainframe technologies as well as enterprise assets and facilities. And the IBM Service Management strategy is continuing to grow and strengthen through integrations across its portfolio.

IBM has built its Tivoli service management solutions around their service management engine which is included with their Tivoli Change and Configuration Management Database (CCMDB), Service Request Manager, Asset Management for IT and Enterprise Asset Management solutions. And take note that the service management platform includes a drag and drop workflow engine for task automation without programming. This J2EE-based platform also includes other common technologies such as GUI, data mode, reporting, security and role based management. These are the type of capabilities that enable seamless integration across a complete service management solution.

The service management platform allows different tools within the same solution to access and view the same CIs and process artifact which are stored in the CMDB. The service desk staff, while processing an incident, can see CI attributes and history and determine if something has changed to cause the incident. The change advisory board (CAB) can review the change and results of technical and business impact analysis as part of the approval processes. Both the service desk staff and CAB members not only see the same CI and relationship information as provided by the CCMDB, but also use the same GUIs which provides a common look at feel. Of course the role based management capabilities can also prevent different groups or individuals from seeing information they are not entitled to access.

The Tivoli CCMDB is appropriately a corner stone of the IBM service management strategy and a closer look is in order. Through IBM's member level participation and contributions to the CMDB Federation, and the resulting CMDBf draft specification for federating CMDBs and management data repositories (MDRs), the CCMDB will gain access to a wider variety of information sources without additional programming through a standards-based integration. As EMA has long espoused, the ITIL CMDB is moving to a system approach. EMA has and continues to call this the CMDB system while ITIL V3 has introduced the Configuration Management System (CMS) concept. Simply put, the value of the CMDB is derived from its CIs and their relationships and the number and type of CIs and relationships can be greatly extended in a federated system of CMDBs and MDRs.

The CCMDB also includes an integrated discovery, reconciliation and application mapping solution called IBM Tivoli Application Dependency Discovery Manager (TADDM). This enables IT to discover CIs and their relationships, add them to the CCMDB, provide visibility of CIs to IT users, assess whether configurations are compliant and track changes over time. TADDM provides strong discovery and relationship mapping capabilities spanning the IT infrastructure.

EMA feels that IBM has an outstanding service management strategy and portfolio to enable improved collaboration and organizational automation by linking the CMDB with best practice workflows. IBM's Service Management initiative is one of the industry's most aggressive, including significant acquisitions and internal development efforts. IBM clearly understands the value of being a leader in the upcoming wave of CMDB implementations fueled by ever-increasing adoption of ITIL in the U.S. and evolving maturity in many IT environments that are now demanding a more holistic, trusted source of data for the enterprise.

Signing Up with a CMDB!

Corporate and IT background

This is a pension fund in northern Europe with about a half million customers. They support not only pensions but also life insurance and health care for clients who want faster or more complete coverage than the state provides. Clients are predominantly larger companies seeking services for their employees, which take about as much paper work as far less scalable individual clients.

The firm has about 1,000 employees with an IT organization of about 200 people. The IT department is concentrated in one geographic location with a number of remote, small individual offices.

Signing Up with a CMDB

The respondent joined this company after working both at IBM and at another company in shipping. The respondent believes that ITIL should become a context for helping IT evolve towards better business alignment and better operational efficiency, and that in order to effectively pursue ITIL, investment in a CMDB System is essential. His belief was so strong that he made executive buy-in to supporting a CMDB System initiative a condition for employment.

The respondent's current roles include overall direction for the CMDB deployment, as well as responsibilities for the application development environment, for release management, change management and configuration management.

Core Game Plan for the CMDB System

According to the respondent, "We have been building it up slowly. But what we have is not normal in that we are developing the CMDB capabilities as an enabler without any single urgent objective forcing us to rush. In this way, we can be more thorough and systematic in how we develop it. We can let the CMDB evolve and get the information we need, and then shape it to specific objectives as people begin to take advantage of it."

ITIL Uptake

Interest in ITIL had predated the CMDB deployment, but it had in the past not been effective. "There were some people in the company interested in going the ITIL way, but they couldn't agree amongst themselves how to proceed, and so they couldn't convince management." The respondent's commitment to ITIL and the CMDB foundation should help to turn this around. For instance, they currently do have a group responsible for approving changes even if it's not yet formally a Change Advisory Board.

Brand Choices – the IBM TADDM Solution

The respondent was introduced to The Tivoli Application Dependency Discovery Manager (TADDM) through his ongoing relationships with IBM. He was interested in its capabilities for automatically checking the status of configurations relative to application services. He had joined his current company three years ago, just after IBM had acquired Collation, and the notion of application dependency mapping seemed like a good idea.

According to the respondent: “We had a mess in the infrastructure. We had two people just trying to document the servers -- just looking at the HW side – to determine how many servers we had and how were they connected to the network. To make matters worse, we had outsourced services with responsibility for managing the infrastructure, and they didn’t know, either. Management agreed that we needed to automate to capture this information and establish a solid foundation.”

This company has been using TADDM for three years, IBM’s CCMDB, and they also bought Maximo for asset management. They participated in an early adoption program and had Maximo integrated with TADDM in December of 2007. Currently, they do discovery with TADDM and then transfer the CIs they want from the CCMDB which is federated with Maximo. They are using two IBM sub-contractors and a DBA, with added architectural support “if things get very technical.” They do their own search definitions in house.

TADDM scans the full environment and discovers thousands of CIs, CI attributes and interdependencies across their three hundred servers. But the respondent is a believer in not making at least the initial phase CMDB too complex, so only a small percentage are actually visualized and brought into the CCMDB. They are not yet customizing CIs and classes, but plan to in the near future, “once other parts of the organization will get more involved and specific constituencies need more specific support.”

They are looking to provide workflow/ process automation support for change management through the Maximo integration. And they are currently testing the service desk capabilities within Maximo to see how they work with TADDM and the CCMDB.

Metrics and Budget

Metrics are not yet in place, as the deployment isn’t yet mature enough. So far the respondent has invested several hundred thousand dollars in terms of software – but is getting strong support from IBM with reduced financial expectations as they evolve to become a showcase site.

What Would You Have Done Differently?

“We clearly underestimated the complexity of our infrastructure and should have applied more people to that task. TADDM requires access to all parts of the infrastructure, and we weren’t really clear about the challenges there. We spent a lot of time with our service provider trying to get access to our own components, a process that at times became confrontational. But now they’re becoming more accepting of the CMDB initiative and its requirements.”

Future directions

Right now we are evolving a number of disciplines – asset management, configuration management, support for change and release management – from being quite anarchic to being more mature. We’re starting to see more and more people respond to the CMDB.

A CMDB Deployment that Began Before ITIL “Got Famous!”

IT Organization and Business

This is a global, financial services organization based in Europe but with offices, globally, in six continents. It has major hubs in the U.S., Europe and Hong Kong, and an IT organization of about 1,900. The organization is currently in the process of reorganizing its IT organization as the COO will become more directly responsible for IT. Also, the company is evolving from a model in which IT organizations were allocated to business units individually – towards a more centralized model.

The respondents are currently a part of a group called IT Infrastructure Services, which has cross-line—of-business responsibility and includes about 400-500 professionals globally. Most of this group is consolidated into a central organization in Europe.

CMDB Planning

“Before ITIL became ‘famous,’ we started an initiative to consolidate technical metadata - -and make it available to support several of our more critical processes. We wanted to ascertain which applications are in use, which servers are in use, etc. One of the main drivers for this was application cost accounting, to better understand how our resources were effectively supporting individual lines of business.”

This initiative began around 2004. The initiative was aligned with the Data Services Department within IT Infrastructure Services and included three-to-four committed staff and as many as ten individuals who were “sometimes involved.” “We started with a top down approach – with the applications rather than the servers. We started with an application catalog.”

This team also developed an “infrastructure component directory” to show the relationships between the infrastructure and the applications, which was populated manually. This evolved over the course of 2005.

ITIL Initiatives Help to Focus the Effort

The Head of Global IT Services was highly committed to getting this initiative underway, to achieve “self-compliant change management and reduce the impact on changes to critical business services. And this led to a more focused commitment to ITIL.

“Our end-to-end change and release management - -started in 2005—and this was aligned with the ITIL processes. We saw that our plans for an infrastructure component directory fit well with ITIL’s concept of a CMDB. So we began to focus heavily on ITIL processes in 2006 and 2007.”

The end-to-end scope of the project became “a self-compliant change and release management capability.” “The stress has always been more on the applications and logical components, like a process for the HR application, rather than the physical components – such as infrastructure hardware.”

Over time groups were created for infrastructure objects, such as a group for all Unix Servers, or for all mainframe databases. Over time this organization will include network infrastructure as well as systems infrastructure.

Making CMDB Software Investments

This organization did a thoroughgoing evaluation of CMDB capabilities across an initial ten respondents to an RFP, which were then narrowed down to three or four for second round pilot evaluations. This was in 2005. The company “has an affinity for IBM” and in the end selected the IBM CCMDB. This choice was made just prior to the Collation acquisition (TADDM) and prior to the Maximo acquisition, both of which are now integrated into the overall capability.

“Basically, the processes we are using – are change and release management leveraging the Maximo service desk and we have a set of assets in Maximo which can be used as a form of CIs for these processes.” In the fall of 2008 or winter of 2009, this organization plans to export CIs discovered through TADDM and copy them into the CCMDB and Maximo, which will also serve as an auditing capability. This group has also developed something of its own “reconciliation engine” to ensure that what’s discovered across multiple sources will be represented in the CMDB System consistently. This reconciliation capability will eventually be migrated into IBM software.

Currently there are about 14,000 CIs discovered in TADDM and 600 CIs in Maximo. The goal is to grow the number of CIs in Maximo slowly while certain issues are addressed, such as evolving the data model to support mainframe CIs and CI information, and defining workflow and process automation extensions for the CMDB System.

Metrics

This organization has a number of metrics or KPIs in place to do with assessing the effective growth of the CMDB. Some of these include:

- The number of CI classes under configuration control
- The number of CIs per class
- The average time to bring a CI into configuration management
- The number of newly registered CIs per week
- Average time required to generate reports
- The number of reports run
- Number of “misfits” between authorized and discovered states
- Average time to verify / audit consistency between authorized and discovered CIs

Budget

The budget for the CMDB initiative is project based and tied to the broader initiative around change and release management and application/service accountability.

What Would You Have Done Differently?

“I would have spent more time earlier on understanding the importance of processes in conjunction with the CMDB deployment. To better understand the full scope of configuration management.”

What Piece of Advice Would You Give Them?

“You shouldn’t start with 10,000 CIs. Try to define the core requirements and build from those. And remember that configuration management is like accounting for the company on a business perspective—it provides benefits for all of the IT functions just as accounting supports all of the business functions.”

Comments on IBM Services and Solutions

“We’re in close cooperation with IBM and the IBM lab. It has been invaluable for us to see where IBM is going and to have the kind of dialog we do with them. We chose to partner with IBM very deliberately, and very carefully, and so far, at least, we are quite happy with the results.”