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How To Select The ALM Solution That Best Suits Your Needs

A complete guide to evaluating Application Lifecycle Management solutions

Foreword

More and more companies realize that their software development processes could benefit from some optimization. The lack of efficient collaboration, low process visibility, and minimal traceability that is ensured using burdensome procedures are among the most often-cited issues in software development teams. Most teams facing these problems soon come to realize where the problem lies: their software development and project management tools simply don't support the elaborate processes they are using.

Advanced Application Lifecycle Management (ALM) platforms offer a wide range of features and capabilities that help resolve several of the above difficulties, and could also help streamline further development processes. ALM adoption is on the rise in multiple industries: increasing product complexity drives the need for enhanced collaboration and integration, resulting in the adoption of tools that facilitate development.

Thus, the problems are obvious, and the solution is straightforward. However, "ALM" is used to refer to a variety of tools that all claim to help streamline software development processes from the beginning (demands and requirements) all the way through to the end of the lifecycle. With several vendors offering a wide range of software solutions, choosing the right ALM for your needs is a difficult task. In this eBook, we'll explore some of the most important factors to consider when it comes to selecting the Application Lifecycle Management platform that suits your needs.

Checklist of ALM modules & features

First and foremost, it's important to note that as with any other complex problem, there's no silver bullet solution.

Before even starting the search for suitable ALM solutions, you first have to thoroughly analyze your development environment; main problems; internal processes; requirements for the platform; and any features that you'd possibly need in the foreseeable future. Over all other criteria, the ALM software you choose needs to support your individual needs – or needs to be flexibly configurable to do so.

Architecturally, modern end-to-end Application Lifecycle Management solutions consist of the following modules and feature sets:

1. Requirements Management

- Define and rate user stories and requirements
- Derive & assign tasks from requirements
- Re-use requirements from a library

2. Collaborative Project Management

- Tasks, assignment with notifications
  Commenting
- Customizable Kanban boards and
  Activity streams
- Permission-based access control and
  LDAP integration
- Workflows with guards to enable process enforcement

3. Release Management

- Manage releases & delivery
- Release performance monitoring

4. IT Operations (or DevOps)

- Service desk to submit bugs & change requests
- Escalation management

5. Software Development

- Complete change history for all artifacts
- Manage tasks, bugs, and change requests
- Configuration management & version control integration (SVN, Git, Hg)
- Gapless end-to-end traceability

6. Quality Assurance & Test Management

- Test cases to be saved & re-used from test libraries
- Automated testing integration (Hudson, Jenkins
- Test coverage analysis

7. Documentation Management

- Change tracking & management on all documents
- Document approval workflows
- Wiki

If your chosen ALM platform includes all these modules & features, it can be considered a complete, end-to-end solution.

Whether or not you will need all of the above features depends on your environment, processes and individual requirements. However, if these are all included in the ALM tool of your choice, you can be sure it is a feature-rich and future-proof platform equipped to support your evolving needs.

Key factors to consider when evaluating ALM software

Besides the overall architecture of the Application Lifecycle Management platforms you are evaluating, these solutions should offer a few really important features, integrations and methods. Some of the most important criteria to consider when evaluating ALM platforms are the following:

Agile support

Even if you're currently relying on a Waterfall or V-model process, you might want to think about whether you'll be following the example of the thousands of companies and switching to the Agile methodology. While some still have their doubts about this modern framework, development teams adopting the Agile methodology see major benefits in terms of efficiency gained, time to market, product quality, and much more. With adequate quality assurance processes, risks may also be managed and reduced to an acceptable level, enabling Agile to be used in the development of safety-critical end products.

Your chosen Application Lifecycle Management platform should have a built-in Agile layer, even if you plan to stick to Waterfall for now – some companies choose to gradually adopt Agile by first transitioning to a Hybrid methodology, with some elements of Agile slowly implemented in an otherwise Waterfall process.

Out of the box support for various work items

As mentioned above, end-to-end lifecycle management includes the management of requirements, software development (and project management), QA & testing, and documents; with the optional additions of demand management and IT Operations (or DevOps).

Consequently, your ALM solution should have the adequate work items preconfigured: requirements (and user stories), development tasks, test cases, and bugs, as well as a facility to store and manage documents and, preferably, demands. This way, the development process (SDLC) will be mapped and supported by relevant artifacts at each stage of the lifecycle. All changes to these work items should be logged, and links established between them to provide end-to-end traceability.

Customizability, highly configurable architecture

While preconfigured work items are essential, it is imperative that the entire ALM solution can be customized to perfectly suit your development team's needs. The right ALM platform can be tailored to your internal processes with configurable work items, fully customizable workflows, flexible reporting options & custom project analysis data.

Consider what information you'd like your artifacts to store. If your ALM solution allows you to add custom data fields, you'll be able to simply tailor the platform to your needs. Once you have your work items configured, you should be able to drive them through a custom workflow that matches your internal processes. If your end products are under government regulation, or you're seeking compliance with FDA, ISO, IEC, etc. standards, permission-based access, process enforcement, and approval processes with some form of validation (ideally, e-signatures) are also important features to have.

Gapless end-to-end traceability

Ensuring complete traceability is among the most important reasons why companies switch to ALM. Being able to establish links between all work items (from user stories or requirements all the way through to testing & release) provides process visibility, helps ensure test coverage, and greatly facilitates compliance audits. Ideally, your ALM solution will offer traceability on each item (historical traceability: a complete change history of all artifacts), and process traceability (links established between artifacts to ensure process visibility), as well as a way to visualize the traced links & processes.

In addition to the general transparency and process visibility that traceability offers, it is also of vital importance if you're aiming to achieve compliance with various industry standards. Practically all FDA, ISO, IEC etc. standards, as well as other (government) regulations require developers to ensure and prove full traceability.

Integration points

Implementing a new ALM solution doesn't mean you have to throw out all your tried and tested single-point tools. You may want to keep some of them, and use them together with the new platform. Consequently, in addition to tailoring the ALM to your internal processes, you should be able to integrate it into your preexisting toolchain. Advanced Application Lifecycle Management suites offer integration points with various tools and file formats such as IBM® Rational® DOORS® (ReqIF), Atlassian JIRA®, Microsoft Office, etc. Look for a platform that offers open APIs (REST or Swagger) to let you create your own integrations.

One important consideration is the integration with Microsoft Office. MS Word and Excel are standard solutions that, despite their limited functionality, are still widely used in all industries for various purposes (mainly requirements management). As they are widely recognized and used, you will most likely have to work with clients or partners that use these documents. One useful feature to have is the round-trip export-import functionality, which lets you export data to MS Office documents, make changes, then reimport those changes to have them all merged with data stored in your ALM. This helps ensure data consistency across teams and software tools.

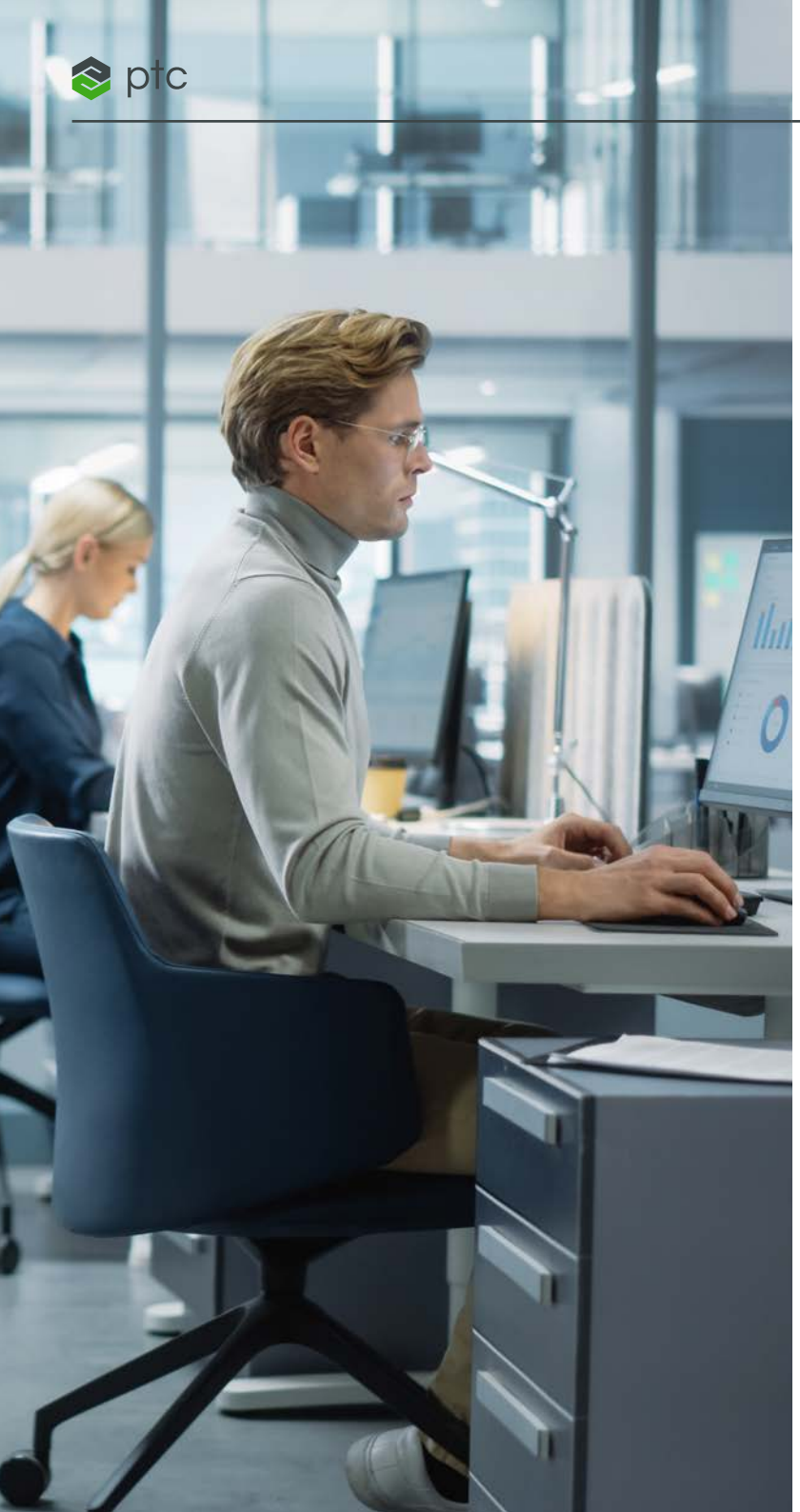
Consulting, rollout services, support

Purchasing an advanced solution is one thing. Being able to use it is another. Since a valuable ALM tool should be tailored to your individual requirements, you'll have to make sure you understand the software's architecture, are able to configure it to your needs, and that your team members can also use it efficiently.

Thus, training programs (workshops, webinars), educational materials (how-to videos, blog posts, etc), consulting, and adequate support (the ability to submit bugs and change requests any time, and receive solutions to your issues in a timely manner) are also vital. Consider whether you will need to be able to access support in more than one language, whether custom service level agreements (SLAs) may be arranged, what support options are available, and support hours (according to your own time zone).

On-premise and hosted (SaaS) versions

Determine whether you'd like to host your own ALM platform (e.g. because your corporate policy requires you to move it behind a firewall), or would prefer using a software as a service (SaaS) solution centrally hosted in the cloud by the vendor or a third-party company. SaaS solutions offer better scalability, since you won't have to upgrade your hardware to add large numbers of new users. However, feedback speed may be affected, depending on the geographical location of the server. In addition to security considerations, you'll also need to estimate the costs of both options.



Security, administration, reliability

In addition to LDAP integration to help manage users, SAML and SSO (single sign-on) are important features to look for in your chosen ALM platform. These enable convenient solutions to the problem of user authorization, and provide improved security. Your Application Lifecycle Management platform should also handle permission-based access to certain work items, and process enforcement & validation options such as required e-signatures for certain actions. Secure SSL encryption should also be supported, and if you're not behind your own firewall, it's a good idea to pick an ALM that offers some kind of protection against intruders. The support agreement or negotiated SLA should also include the guaranteed reliability (availability and performance) of the product.

Available license types, TCO, free evaluation

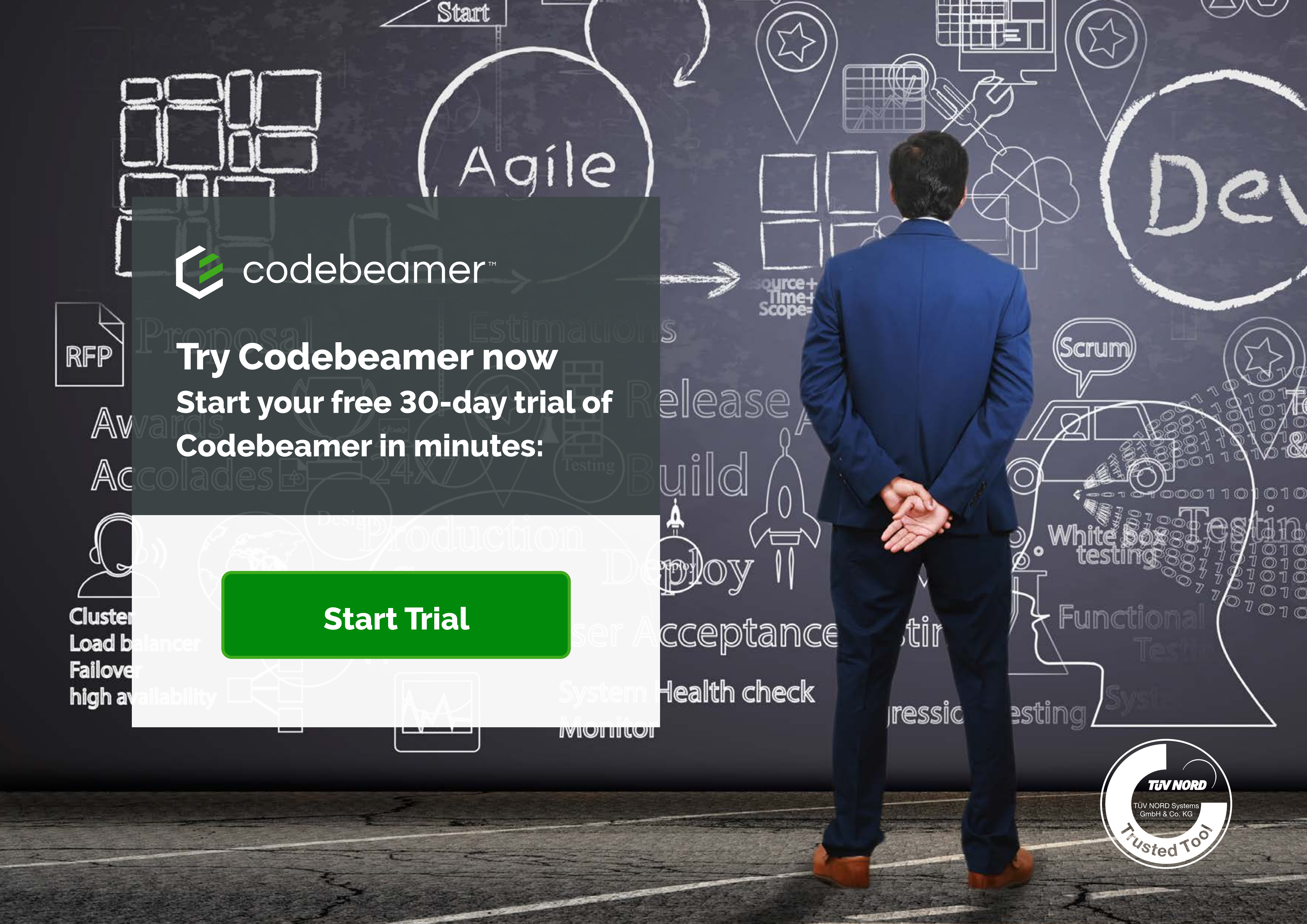
It might be obvious, but rather than making a decision based on a simple comparison of quotes for your required number of users, make sure you calculate the Total Cost of Ownership. This is greatly dependent on a lot of things, mainly the types of user licenses available, and how you're going to use them. For instance, named and floating user types may be available: named can only be used by a certain user, while more expensive floating licenses may be used by anyone (but only one person can be logged in at a time). You'll also have to add the cost of support, version upgrades, any necessary integration, training/consulting costs, and the costs of any additional hardware needed to host the ALM platform.

Finally, it's also important that the ALM tool's vendor offers a free evaluation – 30 days at minimum, but preferably for a longer period. This gives you enough time to dive deeper into the ALM solution's capabilities, ask for help to test support reaction time & helpfulness, and to thoroughly explore whether the tool would fit all your requirements. Remember: even if you run out of time, some extension can usually be arranged, just ask your sales representative. It's also important that you should be able to migrate all data from the evaluation copy to your actual production license.

Evaluate, compare and purchase

Even with all this knowledge, finding the perfect Application Lifecycle Management platform will be a strenuous task most likely involving several members of your team thoroughly evaluating numerous solutions.

If you're looking to save a bit of time and effort, relying on reports by widely recognized analyst companies such as Gartner or Ovum is a good idea. These companies conduct regularly updated evaluations of ALM tools available on the market, and create profile ALM reports to help your decision. Ovum calls their report a Decision Matrix, while Gartner releases Magic Quadrant reports every year.



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