Technology Evaluation and Comparison Report

www.butlergroup.com

Butler Group
a Datamonitor Company

Application Lifecycle Management

Aligning Software Development with Business Needs

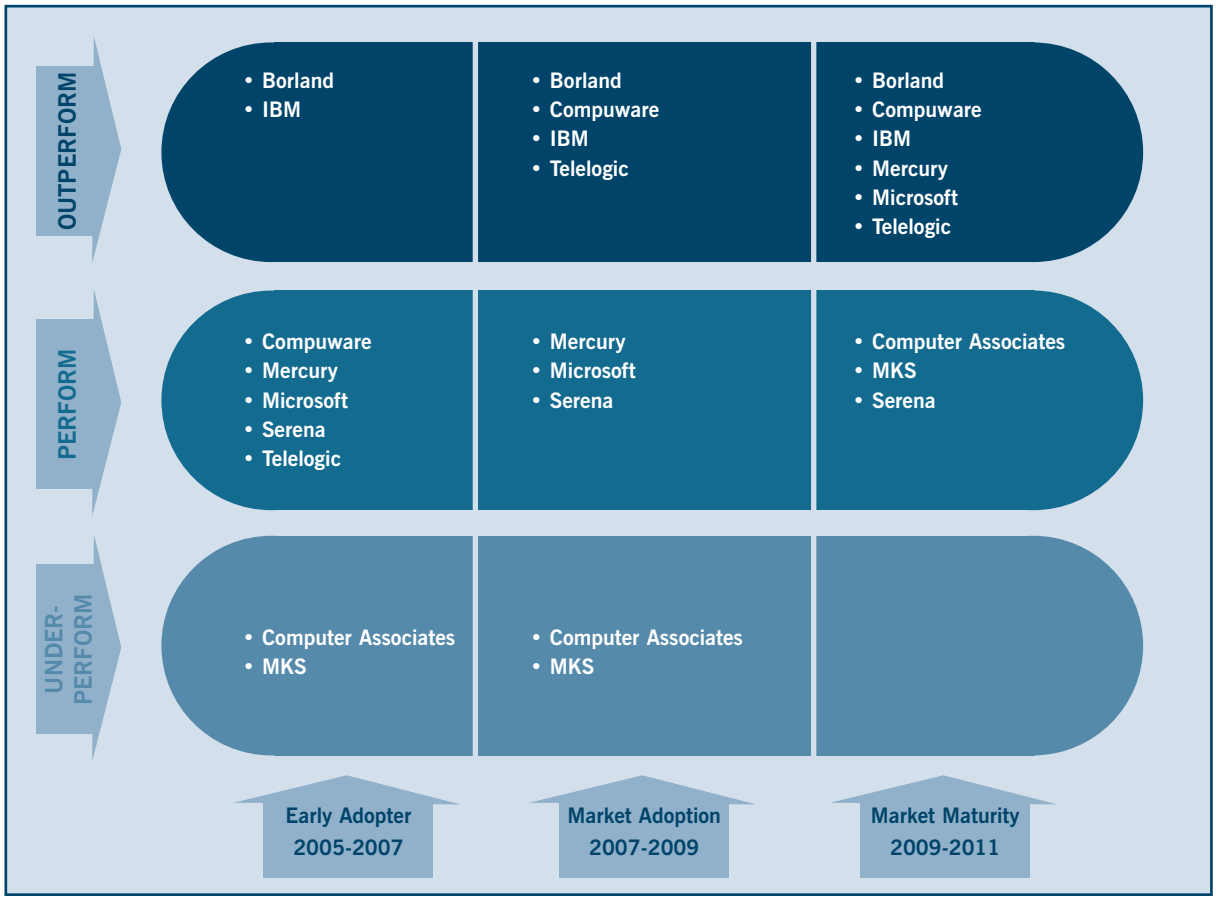
September 2005

Analysis without compromise

Butler Group Market Lifecycle Positions

Butler Group's vendor ranking and assessment model groups suppliers into Outperform, Perform, Under-perform categories, and shows the predicted progress through the three major phases of Early Adoption, Market Adoption, and Market Maturity. Within each group vendors are listed alphabetically; the category definitions are as follows.

- **Outperform:** The vendor has established a commanding market position with a product that is widely accepted as best of breed.
- **Perform:** The vendor has good market positioning and is marketing the product well. The product also offers competitive functionality and performance.
- **Under-perform:** The vendor has poor positioning, has exercised poor timing, and is failing to market effectively. The product may also be deficient or outside mainstream trends.



Product Performance Table

Butler Group's summary of the analysis and market positioning of each vendor's current solution, taking into account all the research as well as how the vendor addresses the market.

Rating	Company/Solution	Butler Group Opinion
Outperform	**Borland** Software Delivery Optimization	Borland has focused on delivering solutions that support the wider application lifecycle for some time, and its Core Software Delivery Platform offering now covers the complete path from software inception to product delivery and management.
	IBM IT Lifecycle Management solutions	IBM is extending, integrating, and aligning its market-leading products in the pre- and post-deployment areas towards an ALM goal, and shows unmatched breadth of vision and strong execution ability.
Perform	**Compuware** Integrated IT Management	Good all-round focus, with broad platform coverage and moving into integrated support for performance management within the lifecycle.
	Mercury Mercury Application Lifecycle Management	Mercury's products provide broad and strong coverage of most of ALM, but lack detail in particular segments compared with some of its competitors that are more development-oriented.
	Microsoft Visual Studio 2005 Team System	Microsoft's entry into ALM, building on Visual Studio.NET, and delivering the first modelling tools for its Software Factory; also a platform for third-party integration (Windows development).
	Serena Serena Applications Framework for Enterprises (SAFE)	Framework approach built on TeamTrack and an integration platform for its own and competitor products. The company is also leading the ALM project on the Eclipse platform.
	Telelogic Telelogic Lifecycle Solutions 1.0	Telelogic has been quietly moving on its vision of support for ALM, and has branched out into the architecture and project management arena via recent acquisitions. A very strong, requirements-focused solution suite, but needs to consider application performance aspects of the lifecycle as well.

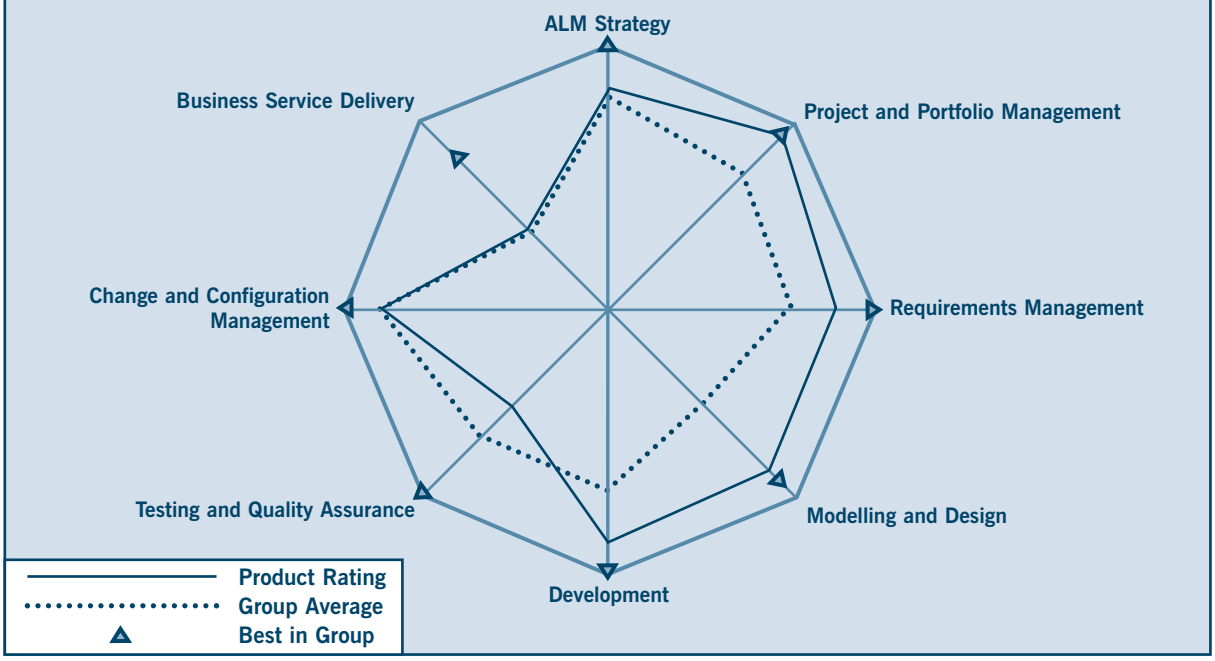
Rating	Company/Solution	Butler Group Opinion
Under-perform	**Computer Associates** Business Service Optimization	CA needs to continue to develop product integration and strength to match its ALM vision, particularly with a focus on the early phases of the development lifecycle.
	MKS MKS Integrity Suite 2005	Good focus on the application lifecycle from a change management perspective, and an excellent integrated product that will be beneficial for organisations that have other tools in place for design and development. However, lacks full ALM breadth, and needs to grow market perception.

6.2 BUTLER GROUP APPLICATION LIFECYCLE MANAGEMENT PRODUCT CAPABILITY DIAGRAMS

The following charts provide a comparative view of the vendor's individual ALM suites.

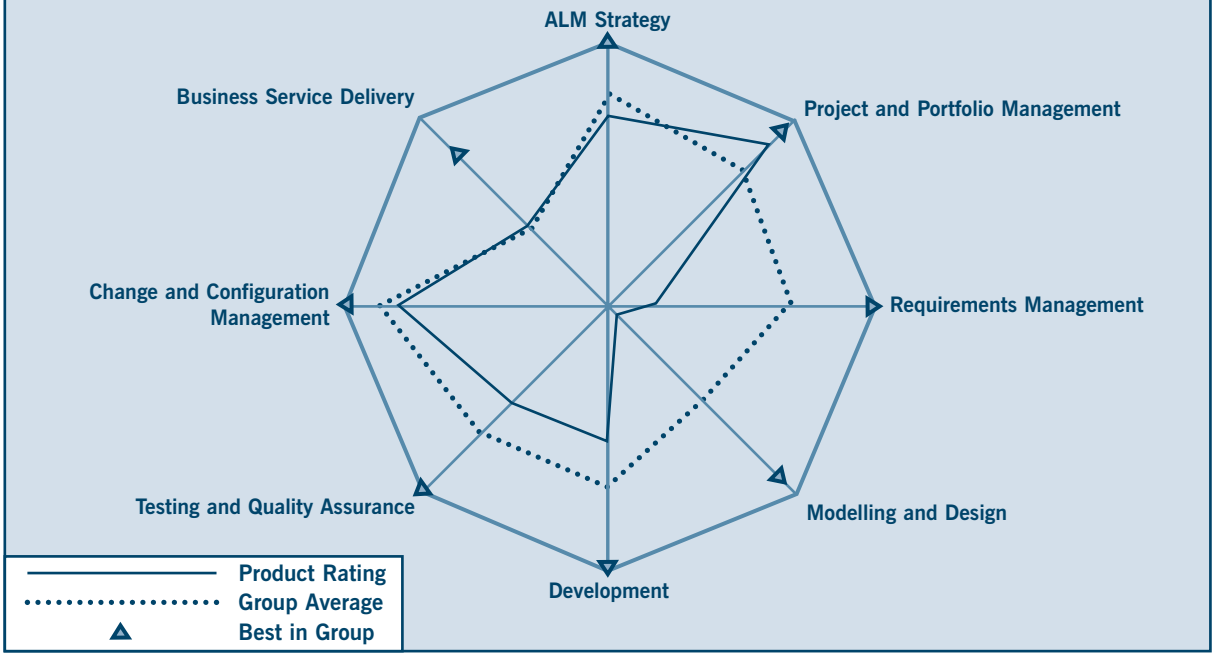
Borland Software Corporation
Software Delivery Optimization

Application Lifecycle Management



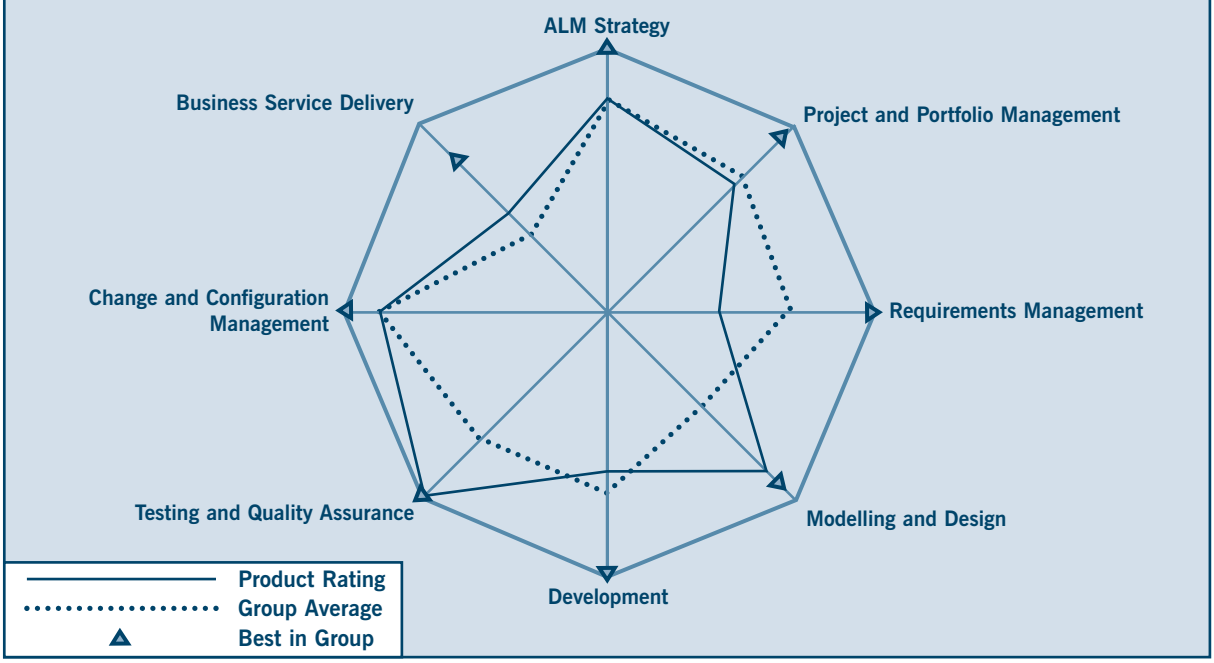
Computer Associates
Business Service Optimization

Application Lifecycle Management



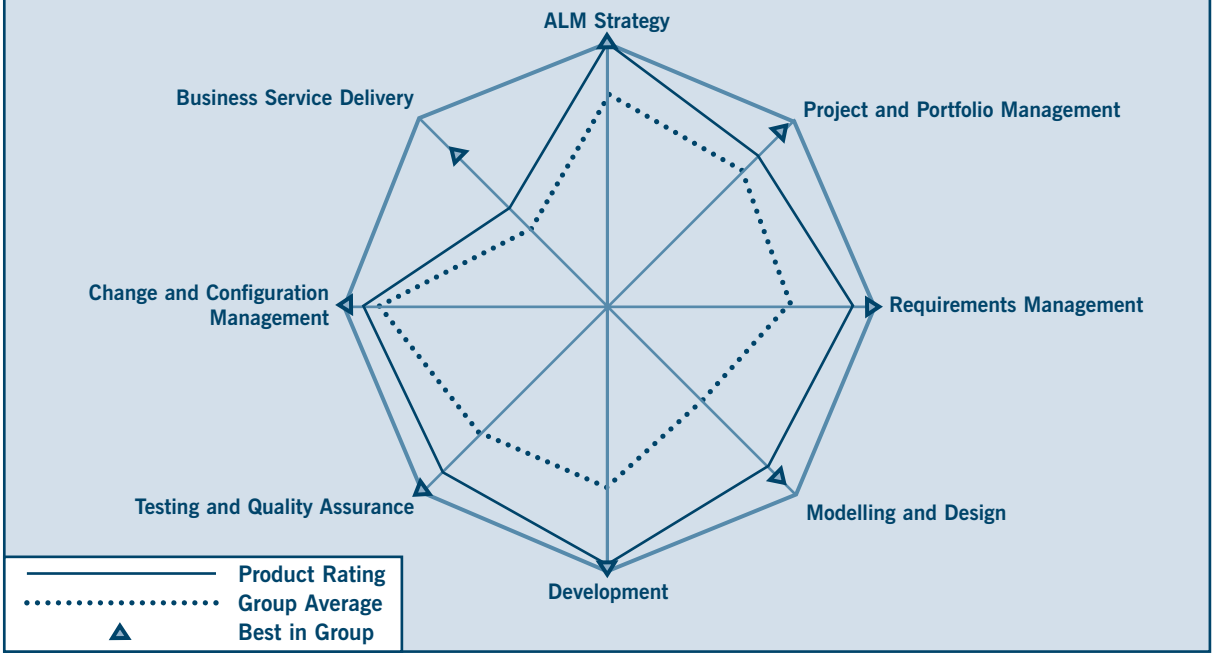
Compuware
Integrated IT Management

Application Lifecycle Management



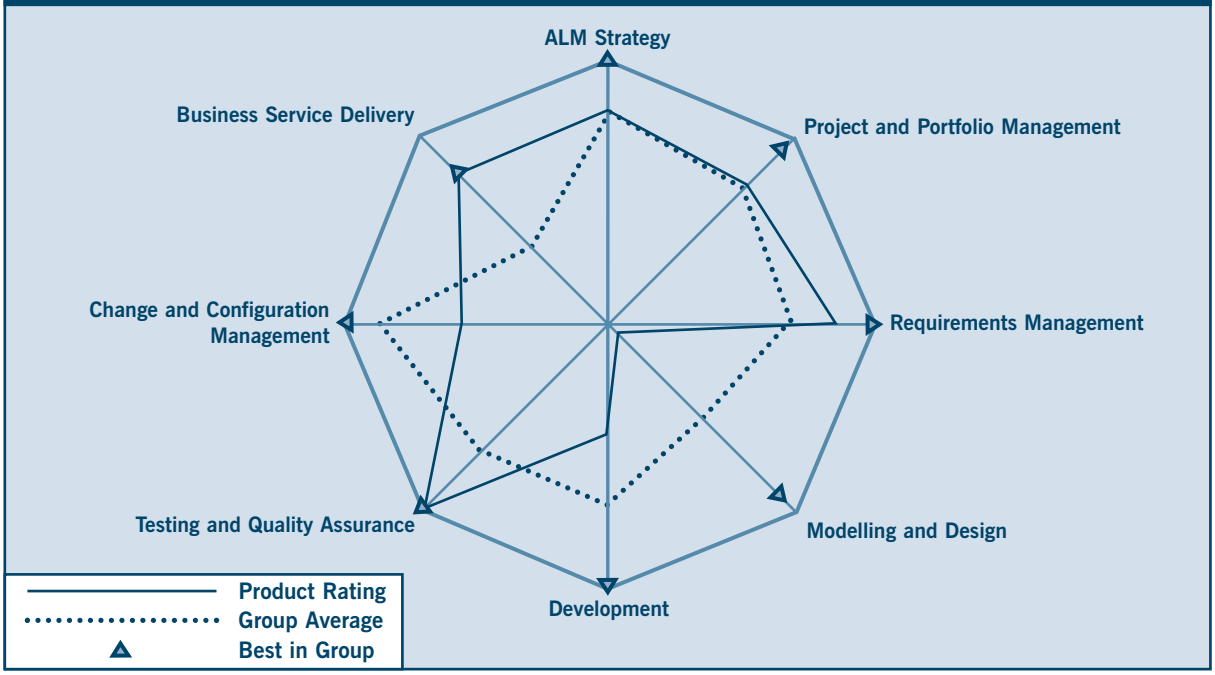
IBM
IT Lifecycle Management solutions

Application Lifecycle Management



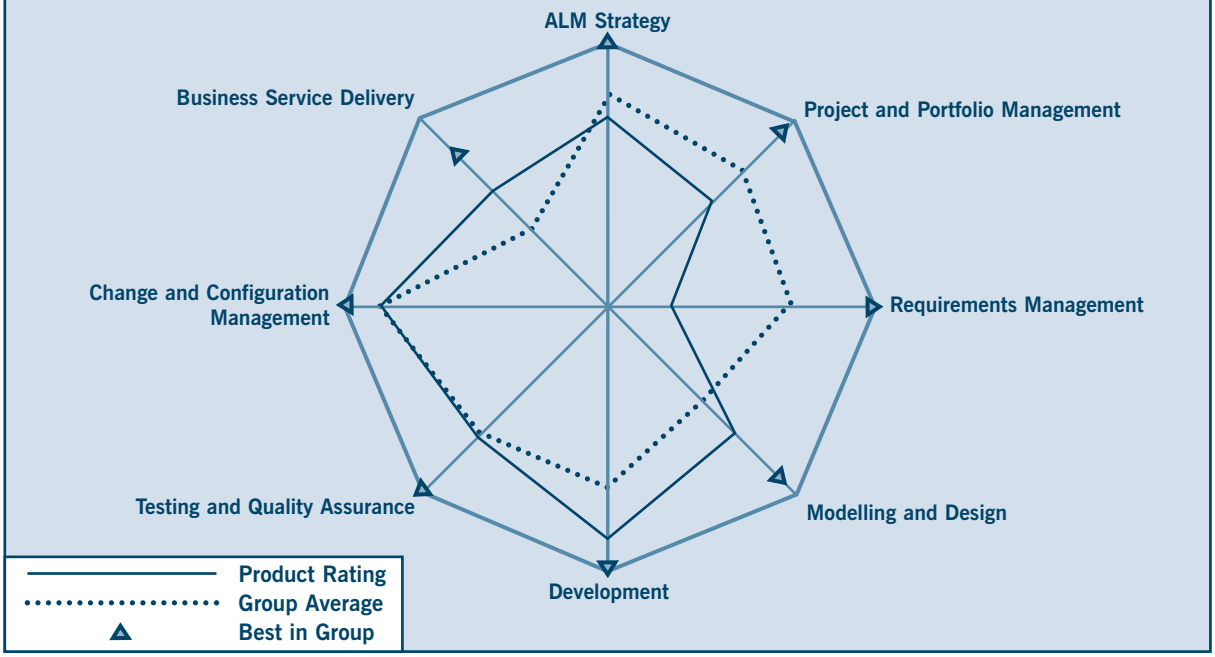
Mercury
Mercury Application Lifecycle Management

Application Lifecycle Management



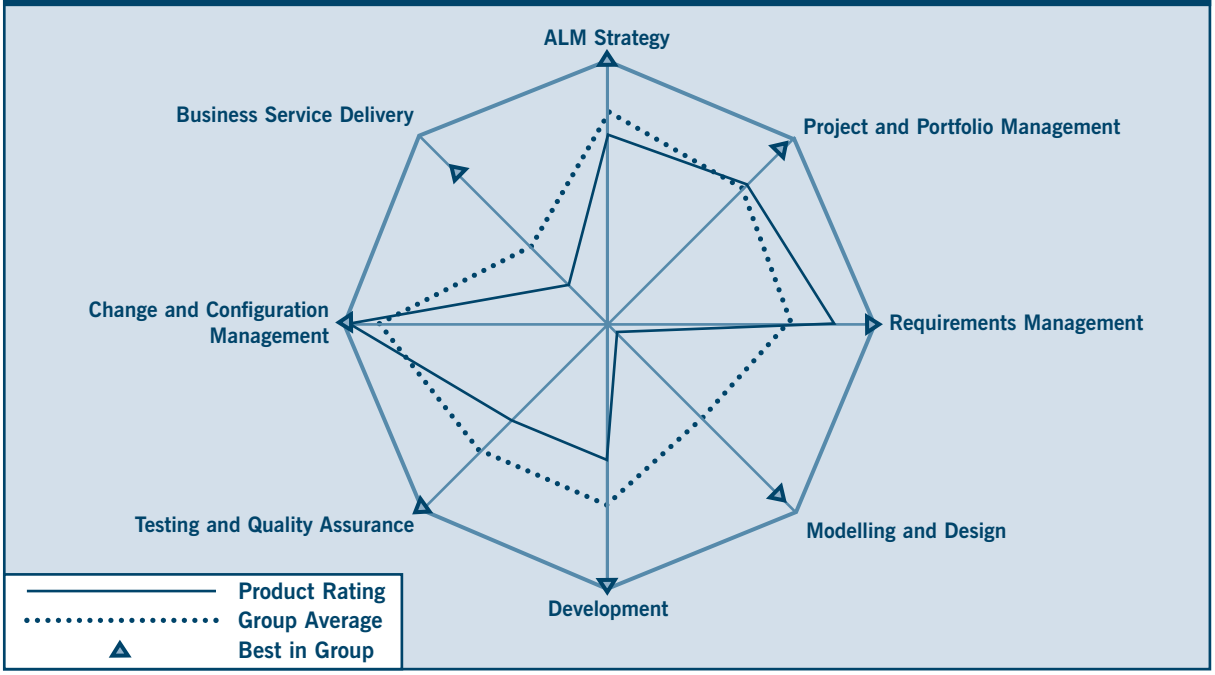
Microsoft
Visual Studio 2005 Team System

Application Lifecycle Management



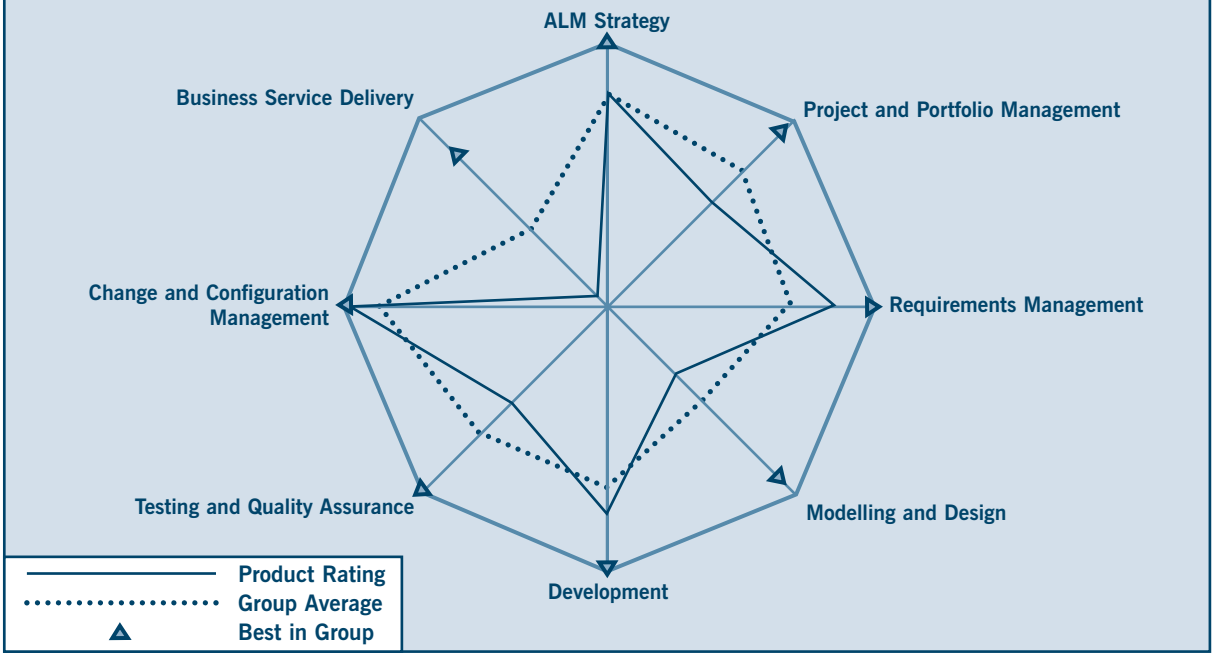
MKS
MKS Integrity Suite 2005

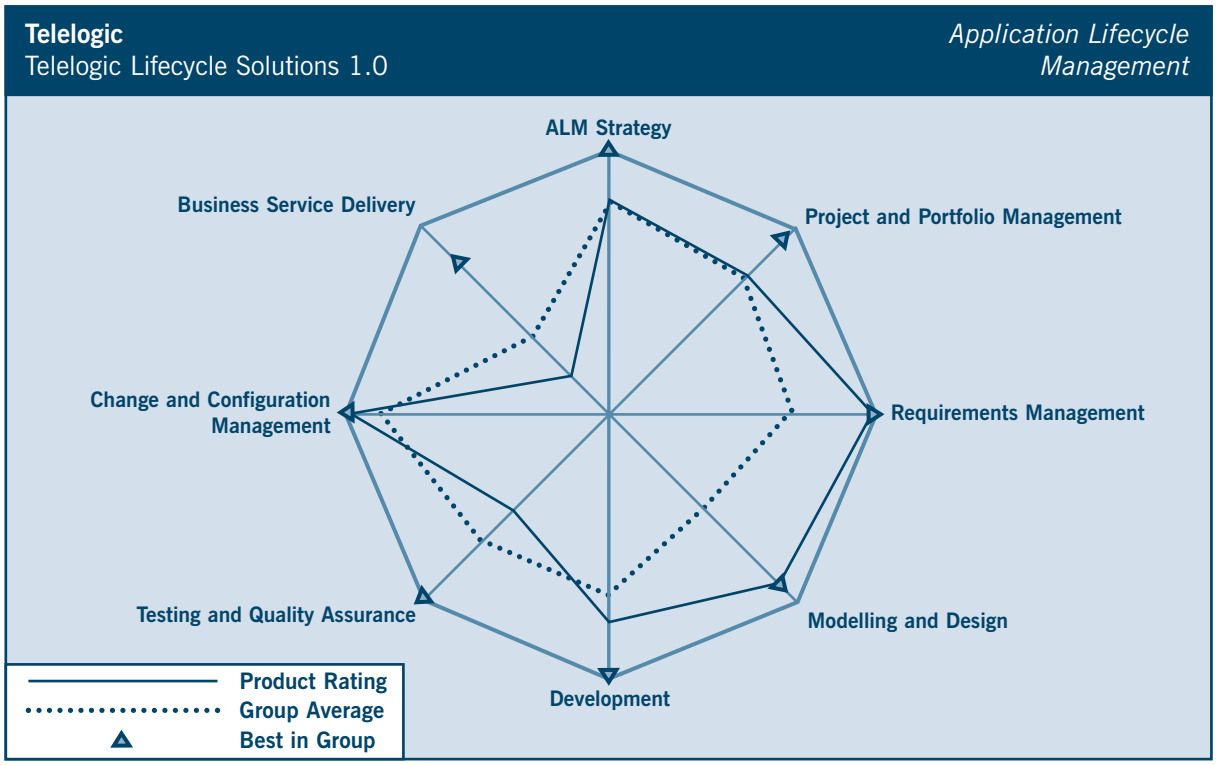
Application Lifecycle Management



Serena
Serena Applications Framework for Enterprises (SAFE)

Application Lifecycle Management





6.3 BUTLER GROUP APPLICATION LIFECYCLE MANAGEMENT MARKET LIFECYCLE RATINGS

About Butler Group Market Lifecycle Ratings

Markets for information technologies typically develop in a predictable manner. New entrants will often create a market that is later pounced upon by large players in the industry. The market then tends to mature into a mixture of the most successful new entrants and the major vendors that have decided to participate. Butler Group's Market Lifecycle Ratings have been designed to reflect these dynamics, by grouping the likely performance of vendors through the three major market phases of early adoption, market adoption, and market maturity.

The Market Lifecycle Ratings diagram is a matrix that indicates the position of a vendor according to both functionality and its market presence. The vertical 'Performance' groups reflect the success of the vendors and the relevant products in a particular market. This is not a financial measure, but a measure of the success of the technology in taking market share. A financial measure would have to take in to account financing, management skills, and economic conditions. Market performance, however, is more related to the marketing skills of the vendor, product positioning, timing, product excellence, and the success of the market.

The vertical axis is divided into three groups, with each making a specific statement about a vendor and its products. **Within each group, vendors are listed alphabetically, and the order and positioning of company names is not significant.**

- **Outperform:** The vendor has established a commanding market position with a product that is widely accepted as best of breed.
- **Perform:** The vendor has good market positioning and is marketing the product well. The product also offers competitive functionality and performance.
- **Under-perform:** The vendor has poor positioning, has exercised poor timing, and is failing to market effectively. The product may also be deficient or outside mainstream trends.

The horizontal axis is similarly divided into three groups, with each depicting a phase in the market lifecycle:

- **Early Adopter:** Represents the early phases of the market when a new technology, promoted by new entrants, is finding early adoption with innovative companies. This phase lasts between two and three years.
- **Market Adoption:** The phase when the majority of technology adoption takes place and typically lasts for two to four years.
- **Market Maturity:** After the market adoption phase the maturity phase represents a time when the market can be reshaped by vendor acquisitions, new product and concerted efforts to make an impact in a market.

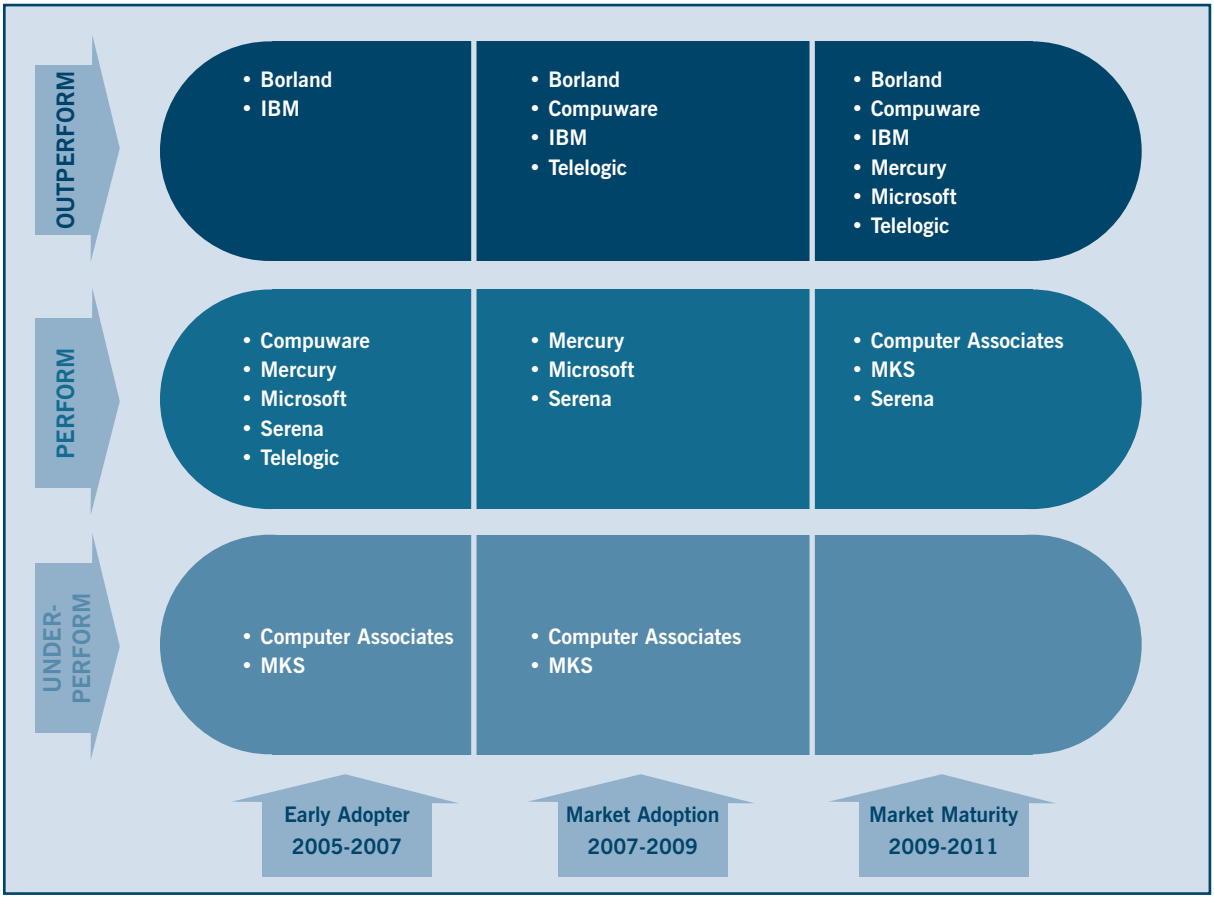


Figure 6.3.1: Butler Group Application Lifecycle Management Market Lifecycle Ratings

Early Adopter (2005-2007)

Although integrated suites of tools have been around for a few years, it is only recently that there has been a degree of agreement as to what the overall area of ALM covers – and it is very clear by taking a swift glance at the Product Capability Diagrams that we are still on the way to consensus.

In the Outperform category we believe that two vendors particularly shine out – Borland and IBM. Recognised as heavyweights in the application development market, both have been enhancing their strategies in this area. Borland has evolved its ALM offering with its most recent Software Delivery Optimization suite, which offers a high degree of role-based integration of the various aspects of the application lifecycle. IBM is extending, integrating, and aligning its market-leading products in the pre- and post-deployment areas towards an ALM goal, and shows unmatched breadth of vision and strong execution ability.

In the Perform section, we believe that Compuware demonstrates good all-round focus, with broad platform coverage. Mercury's products provide broad and strong coverage of most areas of ALM, but lack detail in particular segments compared with some of its competitors that are more development-oriented. Microsoft's entry into ALM, building on an already strong Visual Studio.NET, shows it now starting to deliver the first modelling tools for its Software Factory concept. Serena Software has not rested on its laurels since the acquisition of Merant. The Serena Application Framework for Enterprises (SAFE) suite of products is built on a framework approach, making the most of the TeamTrack capability, and is an integration platform for its own and competitor products. The company is also leading the ALM project on the Eclipse platform. Telelogic has been quietly moving on its vision of support for ALM, and has branched out into the architecture and project management arena via recent acquisitions.

Butler Group believes that both Computer Associates and MKS at this stage are in the Underperform area. Little-known player MKS provides an excellent vision of ALM, but its solution, although well packaged, lacks the breadth of focus that Butler Group considers necessary for wider ALM. With its plans to consider both metrics and application management in the future, it is likely that in market performance terms it will move up in the future. Computer Associates (CA) needs to continue to develop product integration and strength to match its ALM vision, particularly with a focus on the early phases of the development lifecycle.

Market Adoption (2007-2009)

As more and more organisations start to address the wider area of ALM, rather than just focusing on the pure application development area, we see greater widespread adoption of such suites rather than their individual elements. In this phase, most very large organisations are likely to embrace ALM, focusing especially on the portfolio management aspects, as well as recognising the importance of improved links to operations.

In this phase, we see Compuware and Telelogic moving up to the Outperform area, as their suites mature, building on their existing strengths and fleshing out the areas where they had missing or less well-integrated products. We also expect to see further delivery and maturing of Microsoft's ALM offering for .NET. In a similar vein we expect Mercury to continue to build its ALM suite, with possible further acquisitions.

There is always the possibility that other players may enter the market, perhaps coming from one of the individual areas where they already have strengths, and then adding to their toolsets by focused acquisition.

Market Maturity (2009-2011)

In around five years time, we believe that the ALM market will be really maturing, as the concept of a framework that other elements plug into becomes widespread. Vendors will differentiate themselves by the smoothness of integration, or still by their original emphasis (for example on the management of change, or the strength of requirement-focused development). Vendors with a more developer-centric focus should by this stage have recognised that the overall emphasis of ALM is as much on the other areas of the lifecycle, and therefore we see by this stage that Microsoft is likely to move up to Outperform the market. By the time of this phase we expect to see Microsoft's Visual Studio Team System and open source Eclipse to have fulfilled their promise of being key, multi-vendor, ALM integration platforms for .NET and non-.NET applications respectively.

CA and MKS will have broadened their offerings (either by further development or by focused acquisitions) and moved up to the Perform section.

IBM: IT Lifecycle Management solutions

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a Datamonitor Company

IBM IT Lifecycle Management solutions

Abstract

IBM is developing its existing product ranges in the development and deployment spaces in support of customers' moves to wide adoption of ITIL-oriented processes throughout their IT capabilities. The Rational and Tivoli portfolios are being extended, integrated, and aligned, and IBM has also developed services capabilities and on-line advice to counsel customers' approach to ITIL adoption. Few vendors have capabilities as extensive as IBM's across the application lifecycle, and its plans will allow customers to consider a far-reaching ALM approach that integrates technology-driven management across the entire IT function. Some features, such as an ITIL-oriented management database, are to be delivered in the near future, but what is already in place constitutes a strong set of offerings, of which many individual elements and product groups are market-leading. In Butler Group's opinion, it may be only IBM's larger customers that can feasibly gain the full benefits of IBM's complete ALM approach, but there are sufficient attractions for the wider audience as well.

KEY FINDINGS

- ✓ Market-leading development and run-time solutions.
- ✓ Scope to impose management across the whole IT function.
- ✓ Integrated Rational Unified Process.
- ✓ Strong ITSM approach and alignment with ITIL.
- ✓ Extensive automation features enable cost reduction.
- *i* Advanced features are still under development.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

IBM has an extensive roadmap for delivery of more products in both the Tivoli and Rational families, and for integration of some other elements of its ALM approach.

▶ FUNCTIONALITY

Product Analysis

IBM's positions its approach to Application Lifecycle Management (ALM) as part of a response to the pressures that are bearing upon IT departments: those of excessive and pressing change, pervasive compliance demands, innate complexity of IT environments, and the need to reduce costs of overheads such as management and administration.

IBM has leveraged the insight of its own IT services capability, and established the Process Reference Model (PRM) for IT (see Deployment) as the starting point for establishing better functional capabilities within IT departments. There is much in common between IT Infrastructure Library (ITIL) processes and IBM's PRM, but there are also differences – IBM supports ITIL, rather than adopting or being limited by it, and sees ITIL's definition of development-related needs, for example, as limited and requiring extension as well as IBM's support.

Due to the breadth of IBM's offerings, it is able to extend ALM far more widely than most other vendors, into the application deployment space. This approach brings the potential for more wide-ranging benefits, as management is applied across the whole lifecycle, including the transition of cost allocations, requirements, and performance for applications as they go into production.

While the breadth of this undertaking is considerable, IBM is able to leverage a huge range of in-house technology to automate the processes involved with IT disciplines, in order to bring about improvements for customers. For example, the company has products that undertake key activities such as data mining, process management, and process automation, all of which are generally marketed to improve efficiency within a customer's business applications and processes – using the same technology in the context of improving IT-related processes can enable the delivery of business benefits with relation to IT functions.

Product changes in support of this are well under way, with some released already, but in some areas development is still ongoing. A major element of the approach is to align and integrate a number of products from the Rational and Tivoli brands, extending also to integration of the processes used in conjunction with the products. Examples are the alignment of the IBM Rational Unified Process (RUP) with IBM's individual approach to ITIL IT Service Management (ITSM), and standards-based enablement of closed-loop feedback from applications in the deployment environment to development teams, in order to diagnose efficiently any functional or performance problems, or deal with enhancement requirements. Additionally, WebSphere process management capabilities, such as modelling, integrating, monitoring, and managing business processes, allow customers to maintain flexibility to adopt change, while enforcing management and control requirements within development processes. Collaboration capabilities from Lotus will also be used to enable better team interaction across lifecycle phases.

The planned capability of information integration will be based around the ITIL model, with the IBM implementation known as a Change and Configuration Management Database (CCMDB), leveraging DB2 technology. It is planned to become available for early adopters in the second half of 2005, with general availability in 2006.

IBM already provides a broad spectrum of products covering ALM areas (see the following table), and many within the Rational and Tivoli product families are in the market-leading bracket as development management, or run-time management tools.

ALM Capability	IBM Product(s)
Product and Portfolio Management	IBM Rational Portfolio Manager
Requirements Management	IBM Rational RequisitePro
Modelling and Design	IBM Rational Software Modeler, IBM Rational Software Architect
Development	IBM Rational Software Architect[1]
Testing and Quality Assurance	IBM Rational Manual Tester, IBM Rational Functional Tester, IBM Rational Performance Tester
Build and Deployment Management	IBM Rational ClearCase
Change and Configuration Management	IBM Rational ClearCase, IBM Tivoli Configuration Manager
Software Asset Management	IBM Rational ClearCase, IBM Tivoli Asset Management
Application Performance Management	IBM Tivoli Business Systems Manager, IBM Tivoli Service Level Advisor, IBM Tivoli Monitoring, IBM Tivoli Enterprise Console, IBM Tivoli Monitoring for Transaction Performance, IBM WebSphere Studio Application Monitor, IBM Tivoli Provisioning Manager

[1] Developers may use a variety of tools: other possibilities include IBM Rational Web Developer for basic Web development; IBM Rational Application Developer for added Java 2 Enterprise Edition (J2EE) capability, UML 2.0 modelling and portal development; and IBM Rational Software Architect if a full range of functions is required.

In some areas, the IBM Rational product 'family' is tightly integrated, but some others are less so (for example, products use a number of different repositories). Rational product integration avoids the need for the user to experience swapping into and out of individual products.

Across Tivoli products, similar benefits are available by designing and operating workflow processes to match IT departments' needs, with the underlying Tivoli products fulfilling roles in support of the workflow-driven processes.

Product Operation

The IBM Rational Software Development Platform (SDP) comprises a number of integrated products from the Rational family, with standard roles defined for executives, business analysts, project managers, architects, developers, testers, and deployment managers during the application lifecycle. Activities control the flow of tasks between the roles, and along with the other standard artefacts defined in RUP (requirements documents, change requests, models, code, test materials, and defect reports) these comprise the information value and control points within the processes. The WebSphere Business Integration Modeler, facilitating workflow design, and a number of Tivoli products, are also included. The following summarises the use of products within the SDP by development team members:

- Business managers use IBM Rational Portfolio Manager to manage innovation change programmes collectively.
- Business analysts, business users, and developers use **IBM Rational RequisitePro** to understand requirements and track their changes, to model user interactions (using the standards-based Unified Modelling Language, (UML) in order to validate the requirements, and also to define test cases for the requirements.
- Project managers use **IBM Rational ClearQuest** to provide activity-based management, such as workflow processes to define team procedures such as issues handling, or management of defects or enhancements. The product is shipped with templates for some common processes, and incorporates notification of team members with task-related or other information.
- When notified by ClearQuest of a task, an architect or business analyst uses **IBM Rational Software Modeler** or **IBM Rational Software Architect** to update the relevant UML models with changed or new requirements.
- A developer uses **IBM Rational Software Architect** (or others mentioned as a footnote in Product Analysis above) to create or update code, based on the model. The model and code are synchronised to reflect the change.
- Testers use a number of tools (**IBM Rational Manual Tester**, **IBM Rational Functional Tester**, and **IBM Rational Performance Tester**) to undertake successive levels of software testing, using the SDP to manage defect tracking and prompt any debugging or remediation.
- **IBM Rational ClearCase** provides life cycle management and control of software assets, with facilities such as integrated version control, parallel development support, baseline management, and build and release management.

The use of UML within Rational products throughout the development process, greatly aids better understanding by all roles of the nature of the requirements, and the SDP enforces consistency within the tools. All changes to artefacts are under software control via **IBM Rational ClearCase**, and traceable via activities through **IBM Rational ClearQuest**.

Workflow design, using IBM WebSphere Business Integration Modeler, can be used to define and change processes throughout the lifecycle. IBM provides templates for many standards methodologies and ITIL-based processes. Processes are also executed with WBI, which offers real-time monitoring and reporting of its operations.

The Rational products are all based on the open Eclipse standard, with the Eclipse Model Framework (EMF) providing metadata storage for the SDP, and Eclipse 3.0 Core Function underlying the integration between Rational products.

From the Tivoli family, the products that collectively offer Application Performance Management are as follows:

- **IBM Tivoli Business Systems Manager**, which integrates service level data from IBM Tivoli Service Level Advisor, and legacy Tivoli and third-party monitoring tools, onto an executive dashboard.
- **IBM Tivoli Service Level Advisor**, which provides predictive service level management capabilities that generate alerts when SLA violations are likely to occur, and take corrective avoiding actions.
- **IBM Tivoli Monitoring**, a family of monitors for essential system resources, detecting bottlenecks and potential problems, and enabling automatic recovery from critical situations. This product has many modules that provide specialist functionality for technologies such as integration, databases, transaction performance, messaging and collaboration, and others – for example, Tivoli Monitoring for Transaction Performance monitors transactions, and integrates the information with system resource information from other monitoring applications from Tivoli and third-party suppliers.
- **IBM Tivoli Enterprise Console**, which delivers problem visualisation, and automated diagnosis and resolution, to improve system performance and reduce support costs.
- **IBM WebSphere Studio Application Monitor** helps to improve application availability and performance by providing advanced real-time problem detection, analysis, and repair across heterogeneous environments, whether mainframe or distributed.
- **IBM Tivoli Provisioning Manager** automates formerly manual tasks of provisioning and configuring infrastructure elements, such as servers, operating systems, middleware, applications, and storage, allowing easily configurable control via a suite of automation packages.

To enhance customers' ability to leverage value quickly from Tivoli products, IBM has made available a facility called IBM Tivoli Unified Process, which is available via registration on-line at IBM's Web site. It is primarily a means of advising customers how to implement ITIL processes, and where appropriate it includes guidance on using Tivoli products and IBM services to achieve this. These latter features are called Tools Mentors, and IBM is committed to encourage vendor partners to add Tools Mentors that describe their own products' abilities to contribute to customers' ITIL implementation programmes, and thereby extend the knowledge base within TUP.

Product Emphasis

The Rational product family already provides excellent coverage of many pre-development and development areas of the application lifecycle. Butler Group is impressed by IBM's plans to extend its capabilities, and enhance users' efficiency while adding flexibility and imposing strong management. The roadmap to integrate the capabilities of Rational and Tivoli products are ambitious, and when delivered will amount to an industry-leading approach to ALM, although the ability to benefit from its entire breadth may be limited to sizeable customers.

▶ DEPLOYMENT

IBM makes available a number of products and services to help customers align with its ITSM vision. Figure 1 illustrates its range of IT Process Managers, which are used during services engagements for customers adopting ITSM.

These are founded on Component Business Models (CBMs) provided by Business Consulting Services (BCS), part of the IBM Global Services organisation). CBMs are models that componentise the processes within customer organisations, and are based on template models based on BCS consulting experience of a wide range of customers within a number of vertical sectors, which are then modified to accurately represent each customer's business.

The second level of model is the PRM for IT, in which the IT processes that underpin the business are modelled in alignment with the CBM. The PRM can be used to represent existing IT processes, but also to model adoption paths that are suitable to take the customer's IT capability from its current state to a more advanced level based on ITSM.

The Implementation Reference Model for IT is used to model and agree stages of the development, deployment, and application management, that can be reached along the path to adopting more advanced processes, and incorporates a Component Infrastructure Roadmap (CIR) that details the product and process adoptions that are necessary in order to achieve this. The Rational and Tivoli product families support the CIR, and the RUP and Tivoli Unified Process enable customers to implement ITSM within their development capabilities and deployment environments.

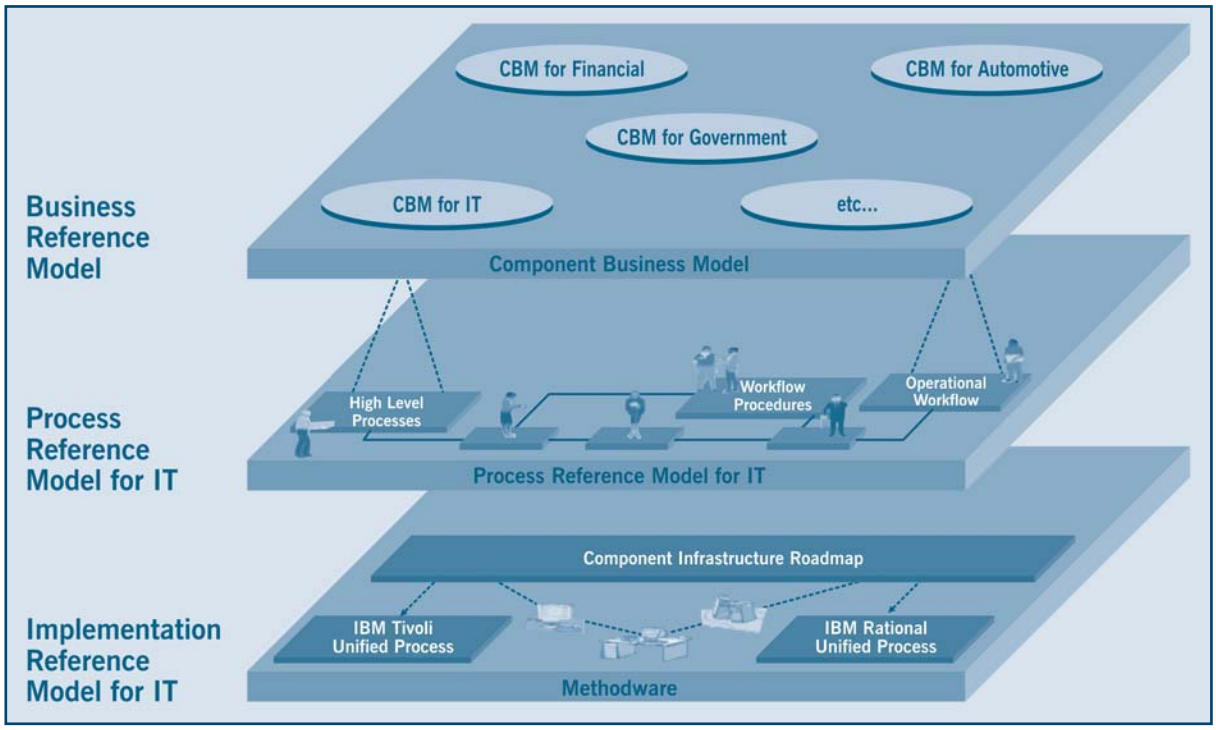

Figure 1: IBM's Approach to ITSM

IBM can provide process templates that support Capability Maturity Model (CMM), and CMM Integration (CMMi), Extreme Programming, and Agile, in addition to RUP, which is supported out-of-the-box. Customers can select which Rational products they require, but all Rational suites include the core products known as the IBM Rational Team Unifying Platform, an integrated suite of infrastructure tools and management process that includes the following:

- IBM Rational RequisitePro.
- IBM Rational ProjectConsole, which provides managers and team members with access to complete project information within the underlying Rational repositories, via a single Web site.
- IBM Rational ClearCase LT.
- IBM Rational ClearQuest.
- IBM Rational TestManager.
- IBM Rational SoDA, a document generation and reporting tool that provides a common interface to well-known publishing tools.
- RUP.

PRODUCT STRATEGY

IBM sees IT Lifecycle Management (ITLM) as the use of products and processes to facilitate the integration and alignment of the business, development, and operations silos within IT. It aims beyond optimisation within IT silos, towards aligning these disparate groups, without undermining their ability to continue specialisation. IBM has recognised and defined this space, and is now building a framework comprised of process guidance, integrated technologies, and services to help organisations overcome associated challenges, including: IT governance; managing change; ensuring functional quality and system performance; accelerating deployment; managing compliance, risk, and security; adopting service oriented approaches; and employing strategic sourcing.

IBM's target market for ALM is large enterprises, and mid-market organisations with 100-1000 employees. Services are often a key part of customers' needs. With Independent Software Vendors (ISVs), alliance, and business partnerships, the number of those supporting IBM platforms is in the thousands. IBM itself is developing a strategy of bundling middleware elements and highlighting their capabilities for specific vertical industries.

Sales to large enterprises are direct, or via solution providers; via channel partners to mid-market; and via telesales, and Web for small transactions. There are various licensing options for IBM products. On mainframe platforms, products are usually licensed via a Monthly License Charge, which includes both right to use, and support. Other platforms are licensed on a one-time charge basis with the licence fee including one year of support, an additional subscription payable for new versions, with support and subscription renewable on an annual basis. IBM is able to leverage its Global Financing unit to provide flexible payment terms for customers.

Annual maintenance and support provides access to trained technical support resources who can answer questions on how to achieve technical aims, as well as provide help with problem reporting, problem resolution, and problem tracking. The subscription entitles customers to receive new versions of the software.

In general, most components will have one major release each year, with several minor releases for maintenance purposes, or to support some new version of an underlying component (e.g. operating system).

COMPANY PROFILE

IBM is the world's largest IT company, with more than 329,000 employees in 2004, and it operates in over 160 countries. In 2002, Sam Palmisano became IBM's CEO and realigned it with an initiative to enable 'on demand', which has since pervaded the whole company and its products. Although its aims also relate to business strategy, on demand is enabled by IBM's middleware technology, and has to be mirrored in technology strategy – its delivery has been defined as requiring software to be based on open standards, to enable integration, to cater for virtualisation of resources, and to be autonomic (resilient to failure).

IBM common stock is listed on the New York Stock Exchange (NYSE: IBM), and on other exchanges in the United States and around the world. The company's revenues in the last three completed financial years were as follows:

Year	2004	2003	2002	2001
Revenue (US$ billion)	96.3	89.1	81.2	83.1

IBM manufactures a broad range of computers, including mainframes, network servers, and peripherals. Its services arm employs about half of the employees, and contributes just under half of the company's revenues. IBM also specialises in infrastructural software, offering solutions based on its DB2 Information management software, WebSphere integration and development, Lotus collaboration and messaging, Rational development and testing, and Tivoli infrastructure and run-time management products.

SUMMARY

IBM is one of very few vendors with a range of software products that allows integrating a serious, enterprise-strength, application performance management capability with other areas of ALM, and the result being likely to add significant value. It has capitalised on this opportunity with the same innovative tendency that has characterised the rest of the development within its software business in recent years, and its detailed plans to bring together the two sides of the IT divide – development and operations – bring customers' hopes of unifying or aligning these capabilities within reach. For customers that have IT operations of a scale that justify the investment that will be required to leverage IBM's extensive offerings, Butler Group believes that new and highly significant levels of benefits may well be gained.

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