A Creative Intellect Consulting Commentary Report

In this report, we put forward the business value derived from connecting ALM with ITSM and the need for greater alignment and collaboration in strengthening development and operations interactions.

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Shorts Overview

Businesses are increasingly impatient with IT organizations that fail to deliver reliably, cost effectively, and on time. In order to support their position, the business is increasingly looking to other solutions and frameworks that focus more on delivering their needs. But delivering software is, often, just a small part of an application service’s lifecycle. Important processes such as supporting users, maintaining the application services, and integrating with other services, all need to be carried out to ensure that business value continues to be delivered.

Once software has been delivered, there is a tendency for the development teams to see it as no longer their problem. The approach tends to be that developers develop and operations operate. The reality for any organization that espouses Application Lifecycle Management (ALM) is that there can be no artificial boundary between the development and operations teams.

IT development and operations work within their own silos, with their own specific workflows, priorities, and goals. The challenge however, is often that neither side has good insight into each other’s workflow processes and practices nor do they share the same toolset and methodologies. In order to effectively support an ALM strategy, there must be connected processes that manage the various stages of the application lifecycle – definition, development, testing, delivery, deployment, operations, maintenance, enhancement, and decommissioning. However, ensuring a seamless flow through the different stages can be a difficult. It comes down to a number of contributing factors: divisions of labor and focus, internal politics, team structure and workflows, and management dynamics.

The business landscape in which IT operates is changing rapidly with the introduction of new technologies and changed end-user practices. Cloud and social computing along with widespread connectivity; the explosion of digital content and interactions; the increasing adoption of more sophisticated mobile devices; and a more IT literate audience, are all impacting and influencing business growth and fuelling demand. Add to this the fast pace of change, the ability to remain competitive and adaptable becomes paramount to sustainable growth. It is all the more reason for tighter alignment and smoother transition and management between key phases of the delivery and operation processes.

A significant percentage of all incidents are the result of some form of failed change, and as the rate of change increases, the number of incidents and percentages will increase unless an organization takes action. Ensuring that both sides of the IT organization are able to deliver application and operational innovations effectively against the backdrop of new technology and application capabilities and business demand is increasingly viewed as a competitive differentiation. Any change and program management needs to be aligned and connected within the context of both the management of the application and infrastructure lifecycle.

The demand for better integration between the development and operations management processes

- Greater trust and alignment between development, operations, and the business: The over-the-wall approach of software development where developed code is simply given to the operations team to execute is a poor model. Lack of a collaborative handover process with buy-in and support from both the development and operations team leaves the users unsure of who is at fault and a culture of blame within IT. This creates an atmosphere of mistrust and weakens the relationships both within IT and between the business and IT.

- Rising user expectations and improved satisfaction with IT: There is a need to quickly resolve problems experienced in the field as user expectations increase. There is a growing intolerance for poor experiences with software applications, whether caused through functionality that does not meet the end-user’s needs or applications poorly deployed or implemented. If a user incident is resolved by a software change, you need an end-to-end integrated process that can validate and
support user verification of the resolution before the user report issue can be closed and the user automatically notified.

- **Increased complexity through technology and business trends:** New and emerging technology trends along with new delivery and implementation models, application architectures, connected devices, infrastructure technologies and middleware are increasing the level of IT complexity. This is impacting the interactions between the development and operations team along with the nature and strength of their handover policies. Crucially, the ability to support reuse and address the different version dependencies that exist between application and system components adds to the complexity challenge. This not only needs the support of tools that help with discovery and traceability but also processes to ensure the checks and balances are in place. Both development and operations need a clear picture of all the application services and system components in play along with their dependencies and relationships to ensure a level of confidence in the release.

- **Greater business value and risk management through improved resource management:** Economic pressures are causing greater scrutiny of budgets, return-on-investments, and other such value-based indicators. Any disconnect between the development and operations teams raises the potential for waste and inefficiencies. The consequence of which not only affects the long term growth aims of the business but may result in dilution of their role as business heads look elsewhere for more effective ways to spend their budget and achieve their goals. Improving risk management through the elimination of uncertainty and waste within the workforce will have a significant impact on maintaining and improving business value. The challenge, however, is that operation resources are split between release and support activities. Gaining the necessary insight into resource capacity in order to take on new project work and assess how the support load is impacting existing release schedules requires integrated resource and release management.

- **Closing the lifecycle gap:** The lifecycle of an application is more than just the initial concept to version one. It has to include patching, ongoing maintenance, future enhancements, and integration with other systems. Whilst the ALM process looks to better address and integrate the upstream IT business management interfaces (where application services are defined and planned) with the development processes, it often stops short of fully interfacing with downstream operational processes such as the service desk functions. These need to feed back into ALM as part of a continuous process.

- **Adapting to new development approaches:** An increasing number of organizations are adopting new development approaches such as Agile. However the Quality assurance and testing and operations teams along with the users need to be represented as part of the Agile project team. Unless the reality of this hybrid ecosystem of process workflows, practices and dynamics are not address or aligned within the context of the Agile delivery process, there will be a significant bottleneck between the speed of development and the approval for deployment and implementation to production.

- **Architecting for service levels:** The business environment is increasingly competitive and business units are demanding high levels of service for their key applications. This changes the development dynamic with architects now needing input from operations about the environment in which an application will be deployed in order to have an optimized design. Consideration for the process workflows that operations employ will also be required to anticipate challenges and dependencies to the overall design and changes made if necessary.

- **Improved transparency:** The relationship between operations and users has already started to become more transparent. The use of collaborative systems and dashboards means that business units can see service availability and the state of any incident reports via their browser. Development now needs to be part of that transparency so that operations and users can see where it is in terms of its
delivery. This will enable users to plan for the adoption of new software and operations to effectively plan resources to support the introduction of the software. Better connection and alignment between development and operations can offer a level of visibility that can prevent either side from surprises when software is released, thereby avoiding delays to the scheduled “go live” delivery dates.

**The development and operations bridge in a nutshell**

It is not sufficient to talk about IT and its business responsibilities, you need to be able to monitor and prove its efficiency.

Already in place are two frameworks that jointly focus on business service delivery and value, and ongoing service and user support. They do so from two core perspectives and interconnecting lifecycles: IT operations through Information Technology Service Management (ITSM) and IT development through ALM.

ITSM is focused on the consumer’s view of managing IT services where the **consumer**, not the IT department, is the most important person. At a high level ITSM provides the relevant metrics and processes required for IT governance, feeding into the lifecycle management processes driving application service delivery and operations. ALM, on the other hand, governs the delivery of software in the context of **business priorities, operational demands, and end-user expectations** *(download “CICShorts ALM” for ALM guidance)*.

The barrier between development and operations is often more rooted in internal politics, team structure, and management dynamics than in organizational efficiency. The latter is impacted by poor handover policies at the interaction points.

ALM came about as one approach to remove that barrier. However, ALM is still widely seen as purely a development framework with little to no operational element. This demonstrates a failure of many organizations to fully address the ALM remit and implement it effectively.

ITSM, on the other hand, is the practical side of Management Information Systems and is seen by some as part of a wider collection of process frameworks and methodologies including Total Quality Management (TQM), Six Sigma, and CMMI. It also has a relationship with Information Technology Infrastructure Library (ITIL) in so far as ITIL has a set of components and services specific to ITSM. The most important role of ITSM in any organizations is to champion the IT service consumers when dealing with IT service governance.

It is possible to break ITSM into two key disciplines, each of which has its own set of methodologies:

- **IT Service Support** – concentrates on the physical aspect of IT services including Configuration, Change, Release, Incident and Problem Management, and the Service/Help Desk function.

- **IT Service Delivery** – concentrates on the delivery of the service and covers Availability, Capacity and Service Level Management, and Service Continuity. It may also encompass the Financial Management for IT Services function although in many organizations, that role is split into different departments such as finance, IT, and business units.

**The fundamentals of the development and operations bridge (connecting ITSM and ALM)**

Bridging the divide between development and operations is about understanding the requirements, constraints and working practices of both sides and then bringing about alignment and connection between the processes and tools at the points of interaction.
Interaction connections

The overlap between the different disciplines covering the interactions between IT development and operations are:

- **Change management** – deals with maintenance of software such as patching or changes to the environment in which the application is deployed.

- **Configuration management** – ensures that the software can be deployed in the same state, repeatedly. In a highly virtualized environment this is a critical interface between development and operations that ensures an application can be deployed across multiple hardware without impacting the virtual machine, the application, or its dependencies.

- **Release management** – allows operations to plan for deployment and users to know when an application will be delivered.

- **Issue / Defect management** – is the link between the service desk that deals with user problems and the process that identifies whether they are operational or development tasks. Typically these form the basis of any problem resolution process or strategy.

- **Application packaging and deployment (or Release Package deployment)** – a stage of the ALM process that links together the build, quality assurance processes, and release management processes and which requires input from both development and operations.

All of the above signify important interfaces where both the development and operations teams need to come together to ensure effective deployment, release, and change management. Conversely they also signify the likely failure points when software is thrown over the wall to operations.

On top of all these there are workflow, monitoring, and reporting elements with ALM that should be adopted by both groups. The introduction of collaborative systems and dashboards into the monitoring, recording, and auditing of ALM is making it easier for teams to begin to work more closely together and to ensure that the users are also part of the ALM process.

ITSM-ALM alignment

What is not covered by ALM is the service driven governance from a user perspective that is part of ITSM. However, ITSM itself overlaps with many of these disciplines ensuring that there is a consistency of process and approach across users, developers, and operations. As such, ITSM helps to close the Application Lifecycle Management (ALM) governance loop by:

- Making sure that the needs of the user are kept at the heart of the ALM process.

- Creating a seamless handover between the developers and the operations teams through procedures, methods and by monitoring this handover phase.

- Laying the foundation for the ALM process to be more than a development approach by creating the governance structures needed for management across the application from initial requirements gathering to service problem resolution and final decommission.

- Overseeing the SLAs agreed between the IT consumer and the IT delivery and operations team at the start of the application service definition and that any failure is logged, understood and rectified.

Fundamentally the key elements in supporting a development and operations bridge through greater ITSM and ALM alignment and integration are: Integrated processes; Common view of business services; Common release calendar and Integrated resource planning.
Guidance strategy for strengthening the development and operations bridge

To resolve the disconnect between development and operations and to ensure that they, together, are both being responsive to the business, does not require wholesale transformation to the way they operate. Instead, improvements to existing processes and integration between the different views of common tasks will yield significant results. This needs to be overseen by the business sponsor, through a governance framework that ensures that everyone is working to the same goal.

People and processes:

1. **Assess interface practices:** Understanding the workflows especially at the interface between development and operations will help identify gaps and failings that need to be addressed.

2. **Align and connect common processes and services:** Common processes such as release, change, configuration, and defect management need to be aligned from both development and operations.

3. **Employ a common view:** Using a common interface with role specific views means that it is possible for development, operations, and users to understand what is happening as it affects them. This should be the starting point for all dashboard and communications.

4. **Focus on team integration:** It is important that operational considerations and concerns are addressed from the outset if the development process is to execute effectively. Those who have effectively implemented and deployed Agile have seen significant benefits from ensuring that development, operations, and users are represented on every team. This enables coherent communication of any issues to be relayed to the interested parties and decisions taken in an effective manner.

5. **Testing and Quality Assurance play an important mediation role:** This is the one team that can span the users, development, and operations providing use cases, test services for new software, and the validation of patches for existing applications. By using BI type analysis, they are best placed to understand the unspoken problems between the key players and provide processes to improve the quality of IT.

Tooling strategy:

1. **Integrate repositories and ensure visibility and traceability throughout:** Each team will have its own preferred tools, often storing data in their own repositories. While it is desirable to have a single repository it is not always possible. What is possible is the sharing of data between the repositories which makes it easier to acquire information. Look for support for federated and distributed repository strategies with provisions for applying audits and maintaining visibility and traceability of all artifacts and change processes.

2. **Expose and apply common metrics:** It is hard to judge the effectiveness of a solution without an agreed set of common metrics. There are no clearly defined development and operations interface metrics at present but it is possible to look at what metrics are currently gathered by both teams to define a common set of values. This becomes even more important when the business moves to a service-led environment where everything is judged against service level agreements.

3. **Support automation where you can:** Whilst hard to achieve in all areas and for all processes, automation can help to bridge the gap between the processes and workflows of development and operations teams. Neither developers nor operators are able to manually account for every piece of software deployed, keep a tab on process changes and exceptions, or obtain the predictive insights into the impact on the application design from configuration changes and infrastructure patches. In
tracking the deployment and configuration of assets in virtualized distributed environments, automation becomes crucial.

**Business engagement:**

1. **Define the business priorities and categorize application services:** Whatever happens with the development and operations relationship, the business must decide what it wants and it will be incumbent upon the two groups to manage their relationship at the interface to deliver on what the business needs. It will be important to prioritize application services in order of business criticality. Failing to make this distinction properly will hamper service continuity and weaken the handover process bridging the development and operations team.

2. **Look to effective communication:** The business must ensure that it gets the right level of communication from all parties and where that doesn’t occur, must hold them to account. This means using the dashboards and data that is provided and actively engaging with development and operations to resolve issues rather than getting involved in finger pointing.

3. **Demand a more holistic view of performance and cost:** Once the business has decided upon the service level for a particular application it needs to do its own monitoring. It should also build its own understanding of how different applications impact on the ability of IT to deliver. After all, the business is the purse holder and has to be prepared to make monies available for additional resources but only where they are required and not just pay for unnecessary upgrades.

In order to provide the business with what it demands from IT, two core groups need to work better together. If IT development and operations are to be part of seamless IT delivery aligned to the goals and dynamics of the business, there is a need for greater consistency and integration of the processes between these two important interfaces.