



CASE STUDY



Company Profile

Cubic's Defense Group has provided realistic live combat training systems for military forces as well as virtual training systems, constructive simulation support, force modernization, battle command training, communication/surveillance technology, education and engineering & technical support since 1951.

When Cubic initiated a search for a Configuration Management tool, the requirements were many. The ideal tool had to address the heavy process requirements of our industry, while still enabling efficient and auditable business process. We envisioned a centrally managed and configurable tool, accessible from around the globe into which we could integrate our many business processes and paper-based data. Whatever it was, it had to incorporate defect, process and artifact management capabilities in a single package. We were tired of maintaining multiple tools to do what we thought a single tool should and could do.

After a thorough search and down selection to a small list of costly tools, we were pleasantly surprised by Intasoft's AllChange, a versatile and affordable solution. Among other compelling features, AllChange was eventually selected and implemented for its strengths in both workflow automation and work product management. Also key was its integration with Engineering and other productivity tools upon which we relied.

Problem

Context

When we initiated our search, we were dependent on a legacy tool that was fast becoming unsupportable. We were also concerned with reducing paper consumption while improving access to operational data. The chief driver came when the

company decided to achieve Level 3 certification for Capability Maturity Model Integration (CMMI), a globally recognized standard for Systems and Software Engineering process, fusing our many business agendas into one. Compared with any other in-house tool, or indeed any other tool we managed to locate in a comprehensive six month trade study, AllChange showed promise as the solution.

Objectives

Our key objectives entailed long and short term goals:

- ◆ Migrate out of aging Configuration Management tool set.
- ◆ Implement software change and release management processes via automation.
- ◆ Standardize software development processes and lifecycles.
- ◆ Enable standardized reference controls and data storage schemes.
- ◆ Normalize business processes across disparate regional offices.
- ◆ Reduce waste, cost and improve efficiency.
- ◆ Establish a platform for future process improvements.

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Finding the Right Partner

The following identify some of the trade study criteria used to evaluate both AllChange and its supplier, Intasoft:

- ◆ Fit for Software Configuration Management (SCM) case
 - Change and Defect Management
 - Release Management
 - Asset & Record Management
- ◆ Fit for Development case
 - Version control
 - File branching, merging and comparison
 - Baseline control
- ◆ Vendor presences and product knowledge
- ◆ Support infrastructure
- ◆ Secure data access
- ◆ Usability & Performance
- ◆ Ease of administration
- ◆ Extensibility to other business process areas

We have since successfully implemented AllChange and find it to have met, and often times, exceeded our expectations. We are continually pleased with the level of support, insight and innovation supplied by Intasoft.

Solution

Process

A substantial part of our policies and processes were in place at the time of AllChange's selection. Unfortunately, they were chiefly paper-based and

uniquely implemented from project-to-project. Upon implementing AllChange, the primary challenge was emulating our processes in our AllChange project configuration and successfully rolling it out to the Engineering organization.

Key management personnel and Systems engineers collaborated to retool our general workflow, expressing them in our AllChange configuration. The vendor helped us along in this process, making key recommendations and demonstrating a masterful hand with their product. Within a few shorts weeks we had pilot projects started in AllChange.

Since its adoption, AllChange has become a central platform from which we deploy new developmental processes and work product standards while managing the day-to-day change and release of our products. Due to discipline and efficiencies gained through its use, we are now in control of our developmental process, able to plan our software builds and baselines around our business needs. AllChange has played a significant part in implementing and demonstrating standardized process and metric collection to CMMI assessors.

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Specifics

There are a handful of specific applications of the AllChange tool that have become indispensable to our projects. These are as follows:

- ◆ Baseline definition and control
- ◆ Rule-based workflows
- ◆ Software change metrics
- ◆ System level auditing
- ◆ Real-time notification

Baseline definition and management had always been a challenge. Our previous tool made it difficult to take reliable snapshots of our design instances. Its lack of operability forced us to maintain snapshots of designs on CDs (rather than in the tool itself). Thus, when a design changed, no matter how small the change, we had to retake a complete image of the design and burn it to media. All too often it was easier for our support teams to modify fielded systems on the spot rather than to try to follow our laborious change management and baseline capture process. In itself, this could build days into a release cycle. This issue sometimes required us to take shortcuts for efficiencies sake, implementing incremental departures in fielded designs from those under formal control. By contrast, AllChange allowed us to easily create baselines based upon collections of change requests directly within the tool. Moreover, any time a change went through, AllChange features allowed us to incrementally update our baselines directly within the repository. This meant we no longer needed to manage baselines as a single, monolithic entity, but that we could layer changes onto previous baselines in small or large chunks as befitted our needs.

Rule-based workflows are another important facet

of our AllChange usage. With AllChange's easy-to-use configuration tool, we were able to make custom change request forms and solicit end-users for different field values based upon the process that was appropriate for the type of change declared by the user. For example, if a change was due to a defect, we were able to solicit defect-oriented information, while a change to implement new functionality would elicit an entirely different set of data. The net impact is that we now collect data related to a change that is meaningful to each specific issue where previously we only collected a one-dimensional set of change data. This capability has since helped us to collect software change metrics specific to the various events that can spark change (new development, defect resolution, enhancements, risks and the like). These metrics are helping us to reduce our cycle times, measure the quality of our defect detection and improve effort estimation.

Another aspect of AllChange that has proven to be valuable is its system level audit capabilities. With minimal configuration, we were able to track meaningful field changes in AllChange's highly accessible status logs. For us, this was not just about tracking change, but building accountability into our culture.

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The feature allowed us to see who was changing what and when. When coupled with rule-based workflows, this helped us detect who allowed changes to take place without unit testing or cross checking with architectural designs, two important elements of our developmental process.

Finally, while it is a small, unobtrusive feature, we have grown to appreciate AllChange's dynamic e-mail notification engine. Our previous tool tended to mail too many people, far too often with useless canned data. This was so endemically annoying, that it became common to use e-mail features to block or delete auto-generated change notifications. With AllChange, we were able to configure notification to contain meaningful content, delivered to individuals or groups only when it directly concerned them.

Evaluation

Results and Benefits

AllChange has not generated a substantial savings in our day-to-day process of checking source in and out, doing builds and integrating systems, but it has not added any overhead either. Where we have seen a gain is in the standardization of our processes, which is likely to be an area of much more gain. It is difficult to quantify the cost of numerous people doing things differently, but we are confident that, over time, the improved standardization, enhanced data access, work product management and auditability fostered by AllChange will yield great returns. Moreover, the support in our drive to achieve Level 3 CMMI certification is expected to lend the company a competitive advantage over other mid-tier defense contractors.

Another likely area of savings is tool consolidation. As with many companies, Cubic has many disparate tools with various applications and stakeholders. Some of these have web interfaces. Some are walled off with limited access for security reasons. Some of these are tiny homegrown applications while others are large, high cost enterprise tools. Whatever their application, be it financial, personnel management, or product development, most of them are disparate and we spend many hours trying to coordinate their functions and data in reports, proposals and other kinds of meaningful work products and communications. Cubic is just now beginning to explore the opportunity to leverage a single configurable tool, with forms, workflow, artifact versioning and storage to consolidate the functions and databases of such tools within a single eloquent, cost effective solution like AllChange.



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