

COM DEV International Ltd.

Manufacturer improves time to market and operations by partnering with New Toronto Group and using Adobe® LiveCycle® ES to automate engineering support processes

COM DEV

www.comdev.ca



In Partnership With

New Toronto Group

www.newyyz.com

Industry

Manufacturing

Challenges

- Streamline and automate engineering change notice (ECN) review and sign off
- Reduce rejection rates
- Cut costs and manual data entry associated with Material Number Requests (MNRs)
- Improve data integrity
- Gain better visibility into procurement processes

Solution

- Engineering collaboration
 - Automate processing and management of ECNs and MNRs
- COM DEV is using Adobe LiveCycle ES solutions to automate review and approval of engineering change notices and streamline management of Material Number Requests.

Results

- Realized considerable time and cost savings from combined efficiencies in automated ECN and MNR processes
- Cut ECN rejection rates and times
- Reduced manual data entry into more than 50 SAP screens
- Increased data accuracy with more automated form completion and data capture
- Leveraged opportunities for parts re-use and bulk purchasing

The drive for perfect quality

A spacecraft and all of its components must withstand extremes of vibration, pyrotechnic shock, cosmic radiation, and tremendous temperature fluctuations. There are no service calls, repairs, or replacement parts once a spacecraft is launched. The failure of a single component on a spacecraft such as a satellite can jeopardize an investment of several years and hundreds of millions of dollars; therefore, anything less than perfection is not tolerated.

At COM DEV, a world-leading manufacturer of space hardware subsystems for satellites and other spacecraft, systems integration partner New Toronto Group and Adobe LiveCycle ES (Enterprise Suite) solutions are helping the company reach the aim of perfect quality, while accelerating product time to market and achieving substantial efficiencies in operations.

“Our streamlined manufacturing support processes, aided by Adobe LiveCycle ES and the New Toronto Group, have put us on target to achieve a considerable reduction in cycle time for processing engineering change notices,” says Ron Service, MIS director at COM DEV. “We are also seeing fewer errors, which positively affects time to market and customer satisfaction.”

Key to engineering support

Since its founding in 1974, COM DEV has supplied equipment for more than 700 commercial, civilian, and military spacecraft—more than any other company in the world. Over 80% of all commercial communications satellites ever launched have had COM DEV technology on board.

Engineering change notices (ECNs) and Material Number Requests (MNRs) are central to COM DEV’s engineering and manufacturing processes. ECN documents help manage changes to designs released for procurement or manufacturing. MNRs are designed to control parts procurement, including planning and lead times, costing, storage conditions, shelf life, import and export regulations, and customer delivery.

Growing demand for process automation

Over the years, the processes for managing both ECNs and MNRs had become more time-consuming for COM DEV. The company had been using a legacy forms automation system, but it was no longer capable of supporting the volume and complexity of COM DEV’s engineering processes.

The number of ECNs at the company had risen due to factors such as increased project scope, parts obsolescence, and product line expansion. Cycle times for ECNs had also grown considerably due to a lack of process management. Previously, design changes were made in 3D models and CAD drawings of parts prior to creating ECN forms. Once changes were approved, the 3D models and CAD drawings had to be updated. During the review cycle it was difficult to clearly communicate the intent of the changes to internal and external stakeholders.

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COM DEV wanted to reduce cycle time for ECNs by enabling parallel versus linear reviews, dynamically updating information and engineering drawings directly within the ECN forms, and managing work lists so that, for instance, ECNs that were out for customer approval would be excluded from engineers’ to-do lists.

The company also wanted to improve process controls through several strategies, including flagging urgent change requests; maintaining comment histories; associating the ECN to the root cause and specific business area; and eliminating erroneous rejections by departments that might be afraid of being penalized if they were identified as responsible for the error or change.

For MNRs, COM DEV had been using an approach that required manually inputting information into nearly 50 data input screens in SAP—a time-consuming, error-prone process. The approved parts list, declared components list, and bill of materials were managed in separate spreadsheets. This could lead to inadvertent errors and to confusion from customers about which parts would be included in their spacecraft. There was also little visibility into which parts had been approved for purchase and which parts were already in stock, hindering the ability to reuse parts or procure them in bulk.

Streamlined engineering support processes with LiveCycle ES

To help address these issues, COM DEV began working with New Toronto Group, a provider of software development, consulting, and education services that combines robust architecture, design, and delivery models with new and emerging software technologies. As a long-time Adobe solutions partner focusing on enterprise Adobe implementations, New Toronto Group provided LiveCycle training and helped COM DEV with forms development, process design, and custom software development services to streamline integration with SAP systems.

Today, engineering groups at COM DEV use an application that leverages Adobe LiveCycle ES to fill out ECN and MNR process documents electronically using intelligent, dynamic forms that update automatically based on user interactions. The PDF forms save time because they are pre-filled with pertinent information from SAP through web services enabled by Adobe LiveCycle Reader® Extensions ES. Information entered into forms is automatically updated in SAP through LiveCycle Forms ES. Review processes among the company’s dispersed development teams are efficiently managed using LiveCycle Process Management ES.

With the new solution, both ECN and MNR processes are streamlined. For ECNs, the solution based on LiveCycle ES has resulted in a substantial cycle time reduction by enabling simultaneous reviews, real-time visibility including dynamically updated CAD drawings and 3D models, and sophisticated work list management. LiveCycle ES also improved process controls by expediting urgent change requests and eliminating erroneous rejections.

With the engagement of New Toronto Group and deployment of LiveCycle ES for managing MNRs, dynamic forms tailored to the type of material requests now trigger the required SAP screens to be filled in automatically, significantly reducing data entry time and effort and improving data integrity. The approved parts list, declared components list, and bills of materials are now linked and generated from SAP to promote visibility into inventory and create opportunities for bulk purchasing.

Impressive time and efficiency gains

The solution has resulted in numerous benefits. With regard to ECNs, COM DEV expects a considerable annual cost savings. The review process time for each ECN document has been reduced by 15 minutes on average, improving efficiency and reducing the cost of making changes. Rejection rates have been reduced as well. The company also expects to reduce ECN processing cycle time overall—an important factor in improving time to market.

In the first year after its implementation, COM DEV raised 9,600 MNRs. The new MNR workflow resulted in impressive time and efficiency gains. For instance, by reducing the configuration and document management workload, the company has streamlined operations. In addition, by standardizing on parts, reusing them, and eliminating cumbersome spreadsheet tracking, the company achieved added annual savings.

Systems At A Glance

- Adobe LiveCycle ES (Enterprise Suite). Components used include:
 - Adobe LiveCycle Forms ES
 - Adobe LiveCycle Reader Extensions ES
 - Adobe LiveCycle Process Management ES

Meeting aggressive goals

Beyond the time savings, the solution is having a significant impact on productivity at COM DEV. Employees can do their jobs better because there is far less manual data entry related to MNRs and less confusion about which ECNs need to be reviewed, by whom, and when. Forms can be completed faster because they are pre-populated with information from SAP and updated dynamically. ECNs are routed to the business area associated with the cause of the change, saving time for non-responsible engineering groups. Throughout the process, the ability to track comments offers better long-term compliance, archiving, and auditability.

“We set some very aggressive goals around efficiencies, cycle time reductions, and reduced rejection rates,” explains Debbie Schuett, project manager for COM DEV. “By moving to Adobe LiveCycle ES and working closely with New Toronto Group, we were able to hit these targets. We are now looking to streamline other important internal processes using LiveCycle ES.”

For More Information

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