

Automation Works When You Do: Lessons Learned From Test Automation at Holly Corp.



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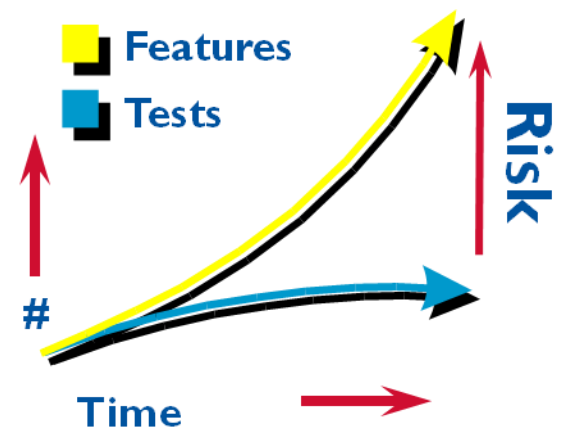
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[Agenda

- Why Automate?
- Holly Background
- Holly's SAP Background
- Our Situation
- Why Automate our Testing?
- Automated Testing Approach
- Results
- Lessons Learned
- Future Plans

[Here Is Your Problem

- SAP is all about change
 - Service packs, upgrades, enhancement packs, new applications
- Business is all about change
 - Mergers, acquisitions, new locations, new products and services
- Cycle times, resources are under pressure
 - Do more with less, faster
- SAP flexibility, integration introduces risk
 - Unintended up or downstream effects



[This Is What You Need

- End to end validation for critical processes
 - Comprehensive coverage across operational areas
 - Assure changes do not introduce errors
- Automated, accurate execution
 - Liberate process experts from manual test tedium
 - Produce reproducible, documented results rapidly
- Enterprise data strategy
 - Predictable, reusable data environment
 - Provide necessary test conditions repeatedly
- Integrated change impact analysis
 - Identify what needs to be tested
 - Know what isn't being covered



Case Study: Holly Corp

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[Holly Background

- Two publicly traded companies on NYSE
 - Holly Corporation (HOC): Refining & Marketing
 - 3 refineries
 - Tulsa, OK
 - Artesia & Lovington, NM
 - Woods Cross, UT
 - Holly Asphalt Company
 - Total refining capacity: ~255,000 bpsd
 - Holly Energy Partners (HEP): Transportation Master Limited Partnership (MLP)
 - Pipeline & terminal network bringing crude into and refined products out of each refinery

[Holly Background (cont'd)

- Has grown organically and inorganically
- Headquartered in Dallas, TX
- Consistently performs at or near the top of peer group based on Return on Investment (ROI)
- Focused mission: No exploration & production and no retail
- Fiscally conservative: Typically operates with little debt; low leverage model
- Scheduled to merge with Frontier in mid-2011.
 - New company will have five refineries, all in the mid-continent region of the U.S.
 - Total combined refining capacity: ~440,000 bpsd.

HollyFrontier Asset Maps



¹ Excluding eliminations

² Excluding eliminations and unallocated corporate expense

[Holly Landscape

- Went live in May 2007
- Landscape includes:
 - MM
 - SD
 - FICO
 - TSW
 - TAS
 - HR
 - Workflow
 - BI
 - BOBJ
 - BCS
 - BPS
 - Portal
 - XI/PI
 - SolMan
 - EHSM



[Why Automate Testing?

- We needed an automated testing solution to manage constant change
 - Service Packs
 - 'Lights-Out' Testing for ongoing changes
- Did not want to have to use developers to script tests
 - Business experts knew business processes
- End to end testing was difficult to achieve in compressed cycles
 - Too many transactions, too little time
- Purchased Worksoft Certify ® in early 2009
 - Project was put on hold due to a major acquisition in June and then another one in December

[Why Worksoft?

- Recommended by SAP for test automation
 - SAP Certified Partner
 - Integrated with Solution Manager
- Recommended by Gartner
 - Worksoft is the leader for testing SAP applications with their strong support for the SAP Ecosystem.
 - Worksoft customers have in excess of 50% of their functional tests automated, leading all other vendors in the Magic Quadrant.
 - Their products have high customer satisfaction, with very high automation rates and fast time to productivity.
 - Worksoft strengths are in its resilience of tests to application changes, a high degree of reusability, and the leading edge script-free technology that enables a higher degree of test automation success.

[Why Worksoft Certify Suite?

- Needed a single solution for validating business processes that span SAP and non-SAP platforms
 - Had to be easy to use by subject matter experts and business analyst vs. using technical programmers
- Worksoft's repository data model approach was unique
 - No coding, not ever
 - Easy, efficient to maintain
- Worksoft offered strategic consulting, best practices
 - How to organize validation effort
 - How to manage test data with the test scenarios
- The Worksoft suite for SAP offered automated change detection, impact analysis, data management

[Holly Refining and Marketing Consolidation Project

- Major business project with a strong IT component was kicked-off in early 2010
- Consolidation of all of Holly's marketing and crude procurement activities into a single commercial entity
- Affected every product sale and feedstock purchase in the company
- Required extensive testing to assure accuracy of all transactions
- Huge master data impact
- Ideal opportunity for automated testing

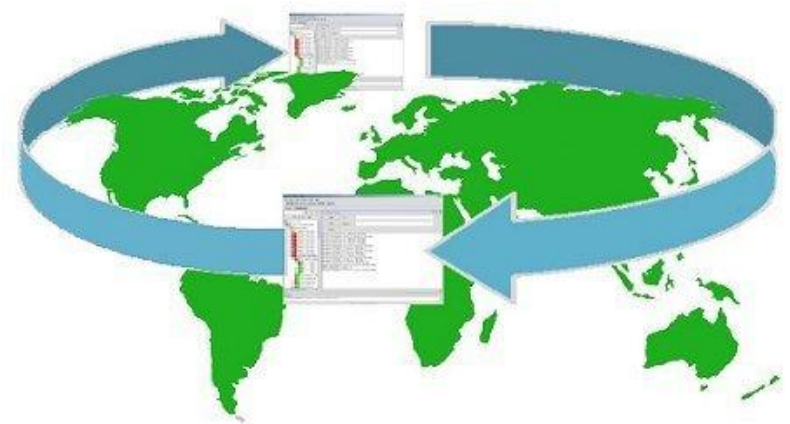


[Automated Testing Approach

- Automated testing of rack feeds, TSW, and TMW transactions
- Had to get 95% invoice net value accuracy to go-live
- Team:
 - Five functional SAP analysts
 - One Worksoft consultant (8 weeks)
- Took rack files from Production, ran the same files into QA, compared in Excel
- Also took documents in QA (from client copy), re-ran same transactions into QA, and compared results in Worksoft
 - Worked better
- Also compared COPA values and characteristics

[Automated Testing Results

- Ran ~12,000 transactions through the tool in a two week period
- Took 6-8 hours to run set of 2,500 transactions
- Was harder to compare transactions with variability, like different number of line items on FI document
- Did require a dedicated PC
- Didn't stop on errors



[Project Results

- Rousing success!
 - Email from President: Invoicing rate accuracy better than before
- No impact to cash flow or financial reporting
- Project needed to go-live no later than 1/1/11, and we did hit that target
- Did not use a single developer to develop automated testing scenarios
- Expect to re-use many of the test scenario components in future testing efforts

[Lessons Learned

- Needs to be run like a project
 - Testing scripts don't just 'happen'
 - Need strategy, focus and resources
- Build reusable components
 - String together to build end-to-end business process scenarios
 - Example: VF01 – *Create Billing Document* was created once, then reused in several testing scenarios
- Master Data – two approaches
 - Populate master data for all tests at beginning of testing cycle
 - Create master data as first transactions in every scenario
- Standard reports are useful for audit, training
 - Screen shots for compliance
 - Training materials & documentation

Seeing is Believing

The image displays two overlapping windows from the SAP Process Designer suite. The background window, titled 'View Process - Cross Platform End to End Order to Cash', shows a detailed process flowchart with steps such as 'Create Sales Order (Web)', 'Shopping cart', 'Checkout', and 'Post Sales Order (SDAP-VML)'. The foreground window, titled 'Certify', shows the execution results for a process run on 9/23/2009 at 11:06:54 AM. The results table shows that most steps passed, but one step, '06 - Accounts Payable Supervisor Approval - SBWP', was aborted.

Title	Status	Elapsed Time	Start Time	End Time	Created By
001 - MASTER PROCESS - HISD TRAVEL - 9/23/2009 11:06:54 AM	passed	70.4076	9/23/2009 11:06:57 AM	9/23/2009 11:08:19 AM	admin
01 - Create a Travel Request - PR05 - 9/23/2009 11:00:55 AM	passed	12.7816	9/23/2009 11:01:04 AM	9/23/2009 11:02:20 AM	admin
001 - MASTER PROCESS - HISD TRAVEL - 9/23/2009 9:52:04 AM	passed	202.7513	9/23/2009 09:52:07 AM	9/23/2009 10:06:59 AM	admin
07 - Transfer Expenses to FI - PRWW - 9/23/2009 9:30:43 AM	passed	16.9376	9/23/2009 09:30:50 AM	9/23/2009 09:32:09 AM	admin
06 - Accounts Payable Supervisor Approval - SBWP - 9/23/2009 8:38:23 AM	aborted	55.5313	9/23/2009 08:38:28 AM	9/23/2009 08:40:01 AM	admin

Summary statistics from the Certify window:

- Total Steps: 103
- Passed: 99
- Failed: 0
- Process Count: 8
- Skipped: 4
- Layout: Aborted: 0

[For More Information

- **Contact us for:**
 - A discussion
 - A demonstration
- **Let us help you:**
 - Analyze your business drivers
 - Build your own business case
 - Achieve your business objectives

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Thank you

