INCOMM AUTOMATES PAYMENT SOLUTIONS

A Modus21 Case Study

Abstract

A case study of how Modus21 implemented a commercial Business Process Management Suite for InComm to automate concept-to-cash implementation of client offerings

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Modus21 is a business-technology consulting firm with 10+ years of Business Process Management (BPM) implementation and integration experience. We remain unbiased and software agnostic. We do not sell or resell software, rather we leverage our expertise to help organizations improve their business performance through the implementation of process and technology.

Introduction

This case study reveals how InComm, an innovation and market leader in payment technologies and solutions, addressed scalability challenges via implementing an iBPMS. To put InComm's growth in perspective, they have grown from a garage-based company to one with an international footprint in just over twenty years. InComm has more than 450,000 points of distribution, 500 brand partners and 1,800 employees globally. To support an acceleration in growth, due to an explosion in the pre-paid gift card market, InComm needed to improve operational efficiency through better information management tools and automation; effectively eliminating their dependence on labor intensive, error prone manual processes.

To address these objectives, InComm chose the Living Systems Process Suite (LSPS), from Whitestein Technologies, to transform processes that support the planning and delivery of the products to retail outlets. The solution manages the complex process of planning and product development using a data driven, case management-based approach. Further, the application integrates into existing systems that provide product data, retailer data, and test/validation services. Robust support for web and mobile users, integrated Business Intelligence, goal driven workflow, and a familiar technology stack, were key features that led to InComm's selection of the LSPS.

This case study is structured as follows – first, it provides additional contextual background and understanding of the goals InComm and the project team set. It then presents details of the Agile vision and roadmap for the solution. This discussion is followed by an examination of the three-phased transitional macro-process diagrams that illustrate the evolutionary approach taken to delivering the full capabilities while not interrupting ongoing operations. The benefits from the solution implementation are then covered. Finally, the last section concludes with a summary of lessons learned.

Background

Since its inception in 1992, InComm has grown to become the world's leading provider of stored value gift and prepaid products, services and technologies. InComm's retail network features most of the premier brands in the big box, grocery, convenience, chain drug, discount, electronics, office supply and other categories. The organization has grown rapidly and scaled its operations using readily available office productivity tools such as Microsoft Excel and email. Like many organizations that grow organically without supporting enterprise technology, growth can only be facilitated via the addition of human resources. This significantly undermines the value proposition of growth by pinning it to a commensurate growth in corporate expense and liability.

InComm desires to continue its growth in the most effective and efficient manner possible. To that end, InComm undertook an effort to facilitate process optimization and automation. Importantly, senior leadership supported this activity given that the implementation effort would follow Agile development practices. This decision was made in an effort to mitigate the risks associated with the development and deployment of a system that would not be adopted by its user base.

InComm set out on a mission for process improvement, determined to achieve the following goals:

- Process optimization and automation
- Legacy and third party systems integration
- Decision support utilizing BI reports, dashboards and real-time monitoring
- Automated notifications and task escalation
- Elimination of unnecessary manual activities and tasks
- Remote access for sales and product teams to perform review and approvals
- Establishment of its Master Data Management System as the sole authoritative data source for merchant and product data
- External monitoring capabilities for internal customers
- Automation of work assignment and prioritization based upon business data

The project focused on eliminating waste due to manual activities and methods (e.g., email, sneakernet, distribution of spreadsheets, etc.) for supporting information flow and status of specific projects and tasks. After careful consideration of multiple implementation proposals, InComm selected LSPS as the solution platform and Modus21 as the integration partner for the effort.

Modus21 provided core capabilities in Macro Process Analysis / Business Process Analysis, Systems Engineering and Organizational Change Management for this effort. Modus21's project implementation team ranged between 3-5 resources during the project and followed its industry recognized implementation methodology, which incorporates a unique process analysis and decomposition approach, coupled with best practices around Agile solution development, organizational change, and program management. The methodology is depicted in Figure 1:
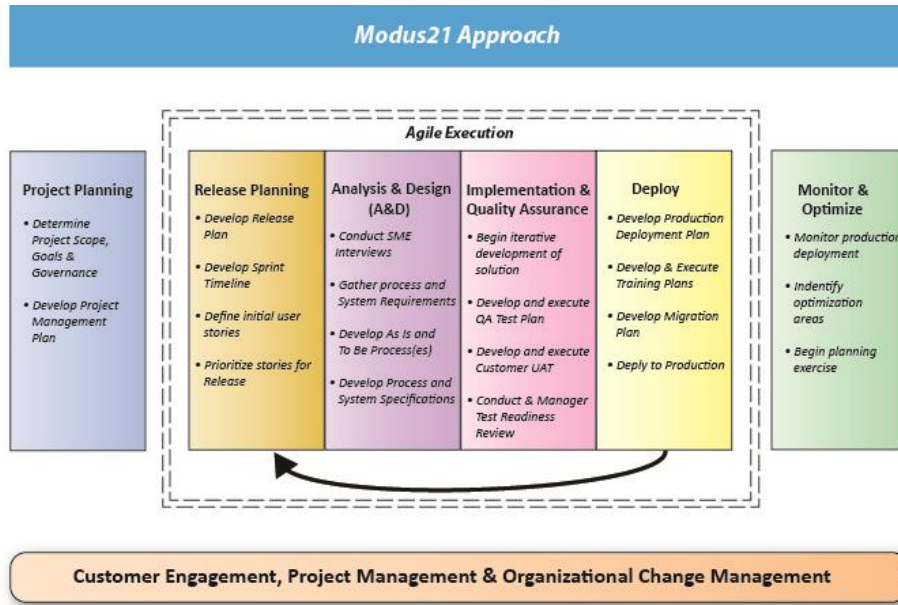
Figure 1: Modus21 Project Methodology

The solution, named LaunchIT by InComm, was delivered into production use within nine months of the project kickoff and substantially transitioned within 15 months to organic InComm support. During the project, the team delivered demonstrable product increments to the client every two weeks for review and managed three major releases and three minor releases into production. Additionally more than 400 users on five continents were trained and an internal team of four support resources were trained and mentored to provide ongoing support. InComm's LaunchIT solution received recognition for this work by winning an award at the 2014 Global Awards for Excellence in Business Process Management and Workflow sponsored by the Workflow Management Coalition (WfMC) and BPM.com.

Vendor and Tool Selection

LSPS

The Whitestein LSPS tool has a proven capability of supporting rapid model based development, while still providing flexibility to support changes in business process with relative ease. Due to the cyclical nature of InComm's business, it was determined that a phased agile development of the solution would provide the best combination of speed and feature delivery. The LSPS tool allowed the implementation team to add layers of complexity on top of already existing workflows, as well as the ability to change workflow as changes were made to business operations.

One of the critical pieces for success of the LaunchIT solution would be the ability to integrate with a multitude of existing, as well as in-development, InComm systems. At the time of analysis InComm was in development of a master data management platform, MDM, designed to alleviate the risk associated with bad product or merchant data. Because MDM is a web based platform, the ease of development using web API's in the LSPS tool became a major factor in the selection.

Modus21

Based on a combination of an industry reputation as a leader in Agile development of BPMS solutions and proven success with the LSPS tool, Modus21 was chosen to lead the development and implementation of the LaunchIT solution. Previous projects led by Modus21 highlighted their ability to deliver solutions of this magnitude as well as the ability to understand and tailor solutions based on the intricacies and complexity of rapidly changing business requirements. Ultimately Modus21 was selected as the implementation partner based upon presenting the best understanding of the problem, a clear plan and a methodology for how to deliver on that plan.

Solution Delivery

To successfully implement InComm's LaunchIT LSPS solution, Modus21 and InComm leadership jointly defined a strategic, three staged implementation plan. This plan would take InComm from the As-Is operations of the product launch cycle to the To-Be state, all the while not interrupting day-to-day operations and with consideration for peak-demand operational periods. Associated with these three phases was also a plan to ramp up InComm development resources to enable full ownership for the continued operations and sustainment of the LaunchIT application.

The team used Agile road mapping and release planning activities to establish feature epics targeted for each of the three phases. This was followed by progressive elaboration throughout the course of the project to define workable user stories for the joint Modus21/InComm development team. While the final feature lists delivered per phase were not identical to those defined per the baseline roadmap, Agile approaches allowed the team to adjust its trajectory and keep key stakeholders aware of the trade-offs in continuously shifting priorities.

Phase 1 Delivery

The Phase 1 workflow implementation of the LSPS, shown at a macro-level in Figure 4, targeted a change in the approvals and management operations of the Launch Management process, addressing several of the common themes arising from user-groups' primary requirements. A subset of the full user base would be first to migrate their processes into the tool, including Product Managers, Merchant Account Managers, Channel Managers, Finance and Launch Managers. Several supporting processes would remain external to the tool, with those respective users continuing to manage work in disparate tracking tools such as Atlassian JIRA and Trello.

Approvals from managers representing their associated merchants and product partners formerly captured in spreadsheets would be captured in an auditable, collaborative workflow trail in LaunchIT. These users would be provided features to enable research and retrieval of product and merchant information from Master Data, fast creation of new launches, reporting on approvals required, and communication and negotiation between parties.
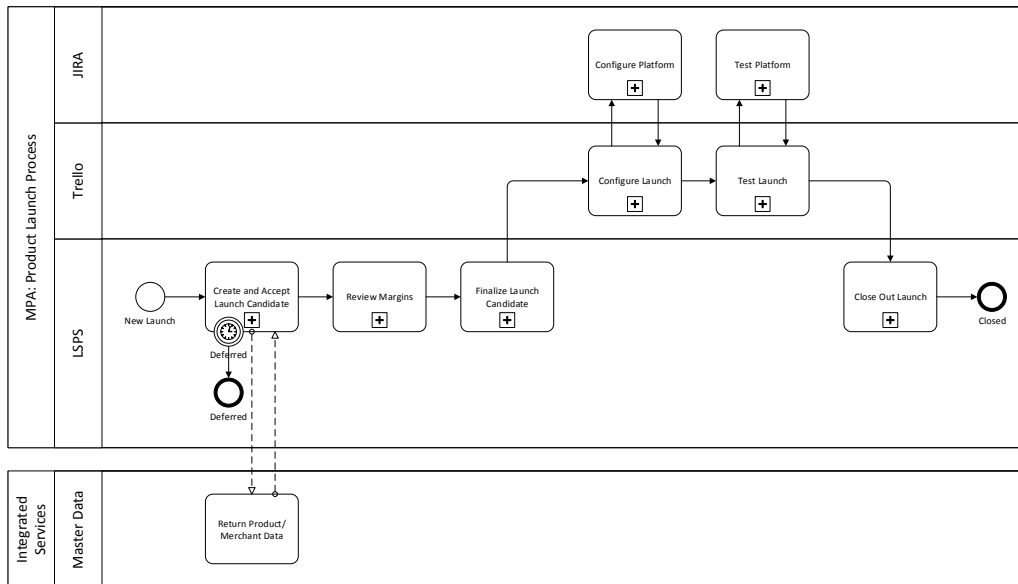
Figure 2: Phase 1 Macro-Level Product Launch Process

Contrasting with previous operations, features were added so that Launch managers would be empowered to make decisions on late product additions to a launch. Merge logic was developed so that projects created later for the same merchants can be evaluated for addition to launches already in flight, given approval by the appropriate associated managers, enabling flexibility while maintaining accountability. Put another way, data (products) specific to one workflow instance (launch B) could be systematically inherited by another workflow instance (launch A) further along in the process, while also forcing launch B's products to catch up to those in launch A. This was only achievable by also meeting further Launch Manager requirements.

The most complex element of the LaunchIT solution was in support of the portion of the workflow managed by Launch Managers, based on the unique and flexible manner in which these users requested to perform work. Typical BPMN limits the user to managing workflow for one entity. In this case, the entity is a launch, where a launch is specific to a merchant. However, for a significant portion of the process, the launch manager users requested to not be limited to working at the merchant level.

Via BPMN, standard looping would allow for product level workflow, while still requiring the user to loop through all products before moving forward the higher level entity, the merchant, to the next workflow step. Alternatively, the workflow could be broken to product level with work items per product, requiring the launch manager to complete a work items per product throughout the product-level portion of the workflow, even when multiple products are at the same stage; also an untenable solution.

To address this requirement, the team designed a product-level signal model, controlled by a custom Java state function. However, as soon as workflow required updating, it was clear that trying to model BPMN gateways and decision paths with Java code would quickly become unmaintainable. The team realized a Maintain goals structure, unique to LSPS, could be used to create an additional layer of workflow.

Figure 5 is a screen capture from the LSPS Process Development Environment. The figure shows the tool's Goal-Oriented extension to BPMN (GO-BPMN) that drives the selection of LaunchIT's workflow plans, which are modeled in BPMN 2.0 based processes. Each of the workflow plans may represent one to many steps in the workflow. LSPS uses two distinct goal-types in the GO-BPMN structure to manage workflow activity coordination: Achieve Goals and Maintain Goals. Achieve Goals stay active until a specific condition is met, achieving the goal. Maintain goals stay active as long as a specific condition is true, maintaining until no longer true.
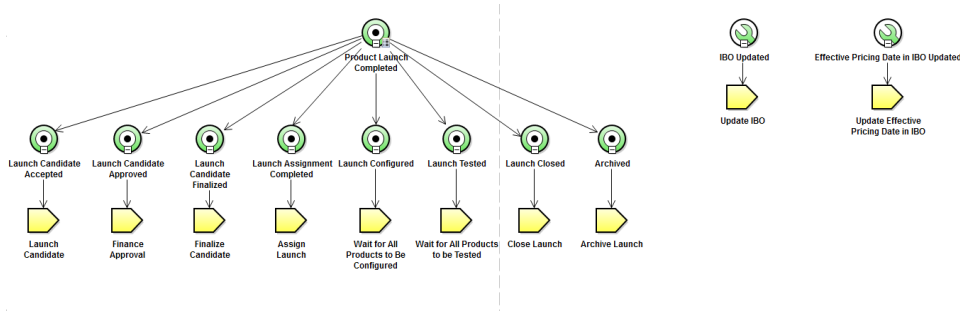

Figure 3: LaunchIT GO-BPMN Goal Structure

By establishing Maintain goals for each possible state of the flow products must follow, and modeling the associated product level process as a signal driven flow, a structure where products could dynamically flow through the process was developed. In short, an active Maintain Goal in this case represents a work item that must be completed as long as at least one product is in the state respective to that Maintain Goal. Work items collect and display as many products reach a particular workflow state per the active Maintain Goals. Figure 6 displays a subset of the full workflow that each product dynamically followed as a sub-component of the launch. This solution, believed to be something only achievable with the LSPS, has eliminated the constraints of a standard BPMN process model and replaced it with a signal driven goal-oriented model.

Using a similar pattern, a third layer of workflow was also added to track product test results and adjudicate failures when products undergo one or more types of testing, specific to each merchant and platform's unique requirements. To summarize, each launch is for a merchant who will receive one to many products. Those products will undergo one to many types of tests to ensure they are prepared to function at the merchant locations. Goal-oriented BPMN makes this multi-layered, dynamic scheme possible.
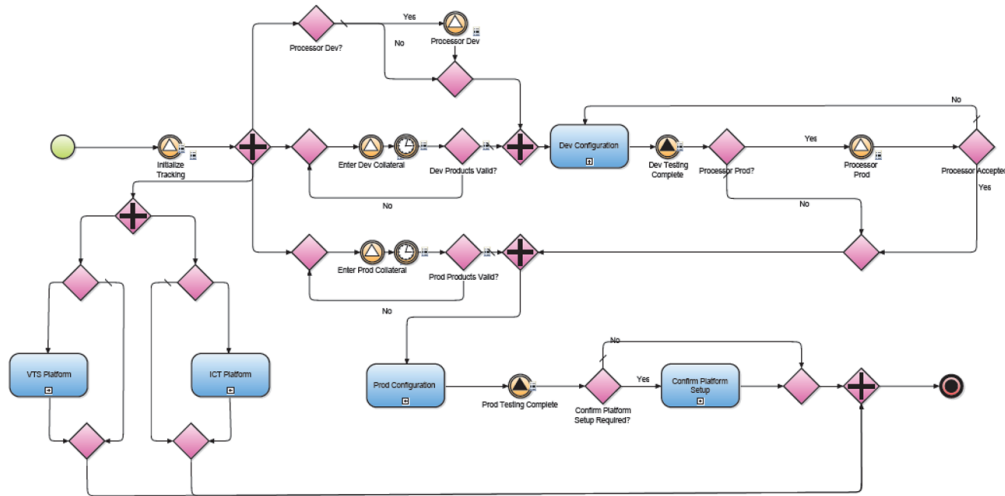
Figure 4: LaunchIT Product Level BPMN Workflow

Upon achievement of original Phase 1 goals, the system was put under UAT. Based on feedback from the event, the team jointly agreed with InComm leadership to delay Go-Live in order to add additional workflow logic, a Home dashboard, and role-specific UI customizations.

To achieve a dashboard-styled user Home page, LSPS' integrated Vaadin web framework provided a comprehensive widget set from which to build. Users, depending on role, are provided a Home landing page with BI widgets that show status/health of their launch portfolio and a filterable list of projects to which they are a stakeholder, as defined by rules and associations captured from master data. Work that is specifically the responsibility of the current user is separated to a secondary Worklist page. Figure 7 shows an example of the new dynamic user interface:
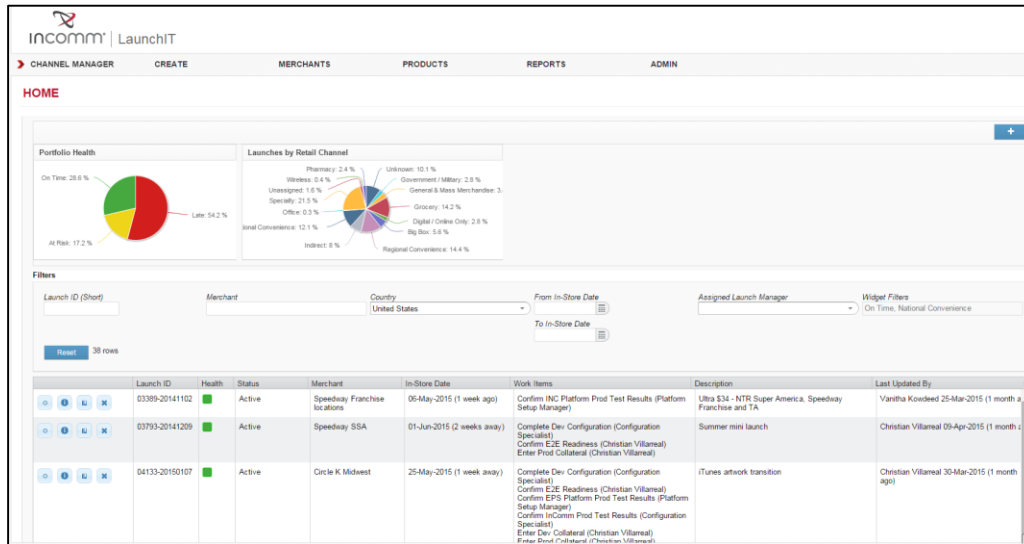

Figure 5: LaunchIT Home Page

Phase 2 Delivery

With the integration of two data services and additional workflow focused on a new user group, the Phase 2 implementation's primary purpose was to transition a large majority of the work of the Configuration Solutions team out of Trello and into LaunchIT. Figure 8 shows the Phase 2 workflow implementation of LSPS.
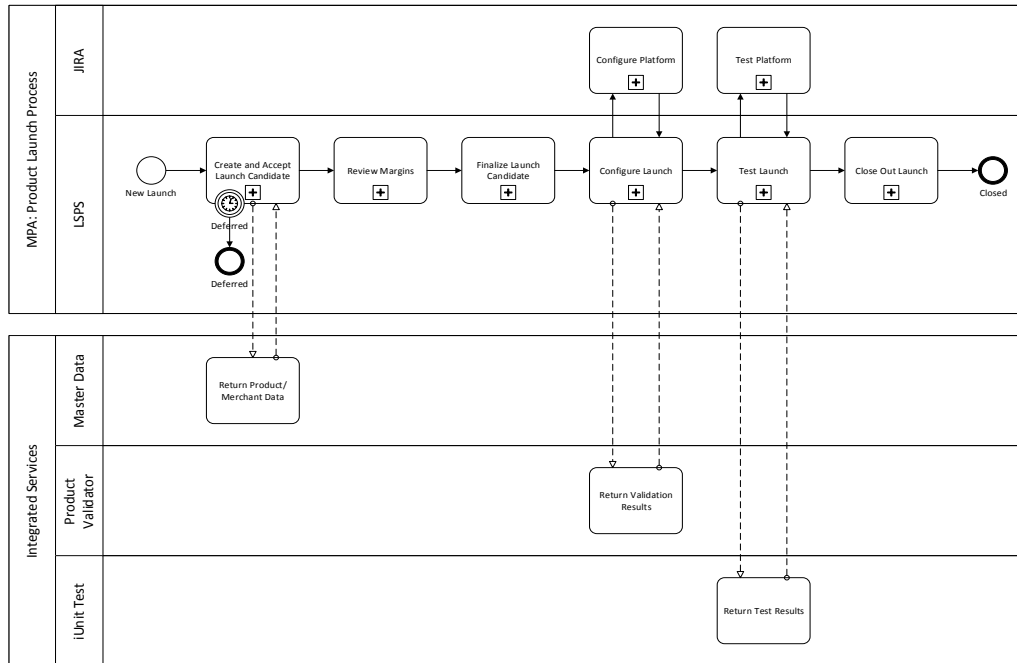

Figure 6: Phase 2 Macro-Level Product Launch Process

Users no longer need to work simultaneously within LaunchIT and external tracking tools like Trello. Users also no longer must export data via reports for input into the validation and test services and then manually capture results and provide back to the LaunchIT workflow for appropriate routing based on service results. Rather than results-entry, the workflow now focuses on results review, providing pass/fail results with drilldown explanations in the failure cases. Based on failures, users can determine appropriate action for re-processing, or may follow defined escalation paths.

By adding the two integrated services and additional business rules that determine routing of products via the dynamic workflow previously described, a substantial portion of products previously sent to the Configuration Solutions team could be automated through a large portion of workflow, assuming the associated product data passed both validation and testing. Also, by running the Validation service while the launch was still in the hands of the Launch Manager rather than a Configurations Specialist receiving invalid data and having to back-track the process, the risk of wasted cycles was lessened.

Phase 3 Delivery

The final Phase of Modus21's involvement focused on moving additional users types into the tool, including both Platform Managers and InComm Digital Services. Both user bases, again,

had separate tracking systems for their portions of overall launch responsibilities limiting transparency to information while launches remained in those stages of workflow. Figure 9 shows the final transition from disparate tracking mechanisms.

Rather than tasking launch managers with offline follow up to personnel managing setup of merchant-associated hardware platforms for entry into the workflow, with those personnel tracking their tasking via JIRA or some other method, the platform personnel's work was merged into the tool. Each platform's unique process will be triggered, within the dynamic Maintain goal workflow structure, based on the platform indicated in the merchant's master data and user selection.

InComm's digital platform, which supports merchants with an online presence, follows a two staged process rather than a singular end-to-end process to launch products. Design, development and implementation of these separate but related processes were added very quickly based upon re-use of existing patterns.
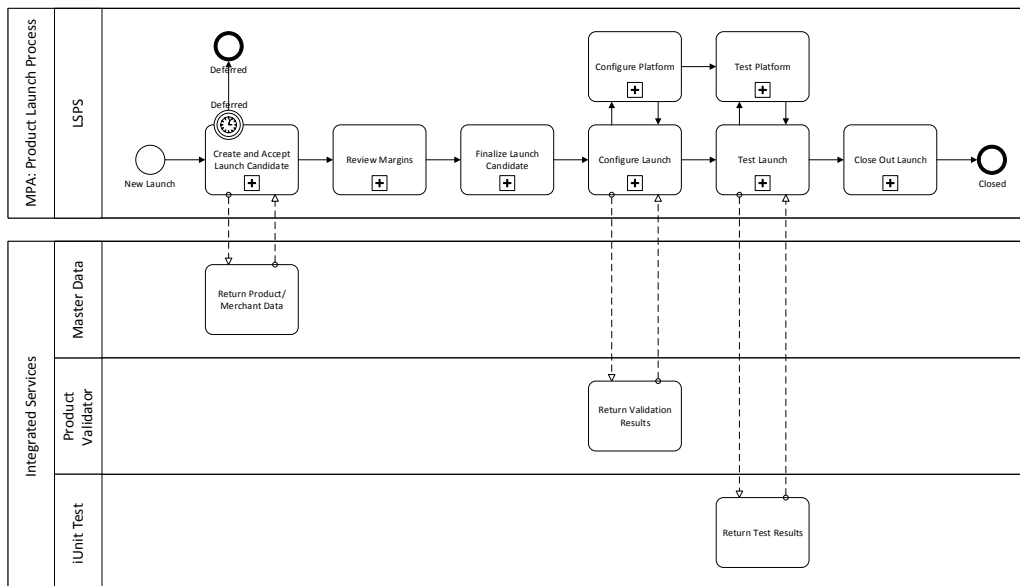

Figure 7: Phase 3 Macro-Level Product Launch Process

Conclusion

The LaunchIT solution went live in late March of 2014, with Phase 2 deployed in July and Phase 3 in October of the same year. To date, over 450 users have been on-boarded into the system. This user base is spread across the US, Canada, Puerto Rico, the UK, Australia, and Japan, representing merchants from an even broader regional spread on five continents. The system also supports merchants with a solely online presence.

LaunchIT has provided a variety of benefits for InComm, which should only increase as users continue to adopt the tool and the InComm development team continues to deliver new features and enhancements. To summarize these benefits, both realized and anticipated:

- Single source of data means one version of the truth and confidence that the data is current;
- Reduced rework in creation of launches; the right product and merchant information is used the first time;
- Visibility into the cause of bottlenecks, as managers can identify who is holding up the process
- Automated escalations provide reminders and health calculations provide a focused method for prioritization of work;
- Reduced risk of incorrect billing and impact on customer relationships based on insertion of Finance into the process earlier with collaboration built into their portion of the workflow to ensure financial data is accurate before the launch proceeds;
- Speed of creation based on application features expedites conceptualization phase for front-end users;
- Ability to do research - users can search on products and merchants to identify potential matches that meet all of their criteria before even starting the process;
- Business rules ensure the right group has the right data at the right time via validations and gateways; also reducing rework;
- Integration of services means less time finding and managing exceptions by pushing those exceptions earlier to the right person in the process; and
- Rather than a person managing a significant part of the process, the tool is managing the process, also lending to scalability.

In addition to these benefits provided by the application, there are also several specific to LSPS as the platform:

- Additional goals can be added at any time that govern the process or portions of the process without necessarily impacting any existing flow; and
- Powerful ability to propagate new workflow changes to running instances ensuring that as business processes change, items in-flight do not need to be recreated or handled with external monitoring to be sure they meet the new process requirements.

As is standard with Agile, the Modus21 team held a retrospective at the conclusion of the engagement. Among the large number of lessons learned were several that are applicable to any BPMS implementation:

- A paradigm shift from nearly limitless flexibility (and opportunities for errors) to rules and workflow (where there's no undo button) will be met with major user resistance
- A reports-last mentality during road-mapping will not get senior leaders on board; leadership needs visibility and transparency built into the solution from the start
- Users do not blame bad data, they blame the system; therefore establishing clean and verified master data up front can help preserve goodwill and minimize user frustration due to data issues masquerading as system issues.

- Pushing tools to the edge of their capabilities and stretching BPMN to support multi-level flows created unintended performance trade-off, requiring additional analysis and optimization time; both customers and developers must be aware of potential risks when breaking new ground

InComm's success with the LaunchIt solution is rooted in their commitment to innovation and insight as to when it is best to outsource solution development that is outside their traditional area of expertise. Both Whitestein Technologies and Modus21 also share a similar commitment to innovation, demonstrated by the LSPS's Goal-Oriented extensions to BPMN 2.0 and Modus21's proven Agile BPM implementation approach. LaunchIT is truly the result of a cooperative effort amongst partners committed to a shared vision. The end-result is that InComm can continue to grow and expand with the knowledge that the automation and visibility provided by LaunchIT is behind the scenes, quietly enabling their scalability.

AUTHOR:

Mr. Daniel Ragan is a Consultant and Project Manager with Modus21 with fourteen years of management consulting and project management experience in the federal and financial industries. Mr. Ragan served as Project Manager and Lead Analyst for Modus21's implementation of the InComm LaunchIT LSPS solution. Mr. Ragan holds a Bachelor and Master of Science in Mechanical Engineering from the University of Maryland, as well as Master Certificates in Applied Project Management and Lean Six Sigma from Villanova University. He also has certifications as a Project Management Professional (PMP), Agile Certified Practitioner (ACP), and Certified Scrum Master (CSM).