Northrop Grumman Case Study

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The Problem

The aerospace industry is facing unprecedented challenges in today's economy. Shrinking budgets for today's aerospace products are the way of life going forward, with the Department of Defense planning a $450B reduction in spending over the next 10 years. The customer is asking for more without more, much like we see in today's commercial marketplace. Industry leaders are reorganizing and rightsizing their companies to prepare for these changes, while at the same time, new, smaller competitors are emerging. To compete, our sector, Northrop Grumman Aerospace System has taken on the initiative to become more agile – not an easy task for a company of almost 23,000 employees.

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The Approach

To face this challenge our sector has been forced to rethink the way we deliver value to our customers. Many of our processes have not changed dramatically since the mid 1990's when the Secretary of Defense directed the government and industry to adopt Integrated Process and Product Development (IPPD) and Integrated Product Team (IPT) concepts "throughout the acquisition process to the maximum extent practicable." Since then, process innovation has been limited to isolated improvements incapable of achieving the level of efficiency improvements expected in today's competitive environment.

The IPT revolution had dramatic effects on how aerospace and defense companies delivered customer value. Centralized process owners, or functional homerooms, were established to support the IPTs. The demand on functional homerooms to manage program budgets led to an increased focus on common processes across our IPTs. This served the industry well until years of government-led defense industry restructuring expanded our diversified product portfolios within a smaller business base. The industry has maintained a focus on common processes even while changing customer requirements and expanding product portfolios were increasing pressure to become more agile.

To support our agility initiative, Aerospace Systems identified the need for a process management system capable of integrating people, processes and systems across formerly segregated process areas. Years of process improvements and cultural shifts have realized efficiencies and savings; however given recent economic challenges, much more remains to be done.

Identify Core Processes

Our initial approach focused on identifying the core processes for delivering value, and recognizing those supporting processes that are common across a wide range of our sector's product portfolio. Achieving our business objectives depends on our ability to effectively deliver value through core processes. It is through these processes that we have the opportunity to generate superior value. Following the findings of Michael Porter in his book titled "Competitive Advantage" we believe desired competitive advantage is created through the way we configure the value chain to provide lower cost and optimum differentiation.

Assess Core Processes

To effectively compete, we are reassessing our core processes and differentiating those processes in a manner consistent with our diverse portfolio of products. This approach has been met with skepticism and frustration of process owners, who for years were encouraged to establish common processes that were built to last. But failure to continuously reevaluate the value of process diversity may lead to a level of stagnation and value degradation that can no longer be tolerated if we are to compete in a diversified defense industry.

Define Operating Models

Our process management organization is working with process owners and value chain leaders leading the initiative to reevaluate our process portfolios and redefine our business model to deliver maximum value. The focus is on current market segments that are already highly diversified by program type, including contract type, contract value, the customer, the life-cycle of the product, and other determinant factors. The result will be an increased number of value creating models, or operating models, organized around program types and defined by an expanded core process portfolio.

Align Models
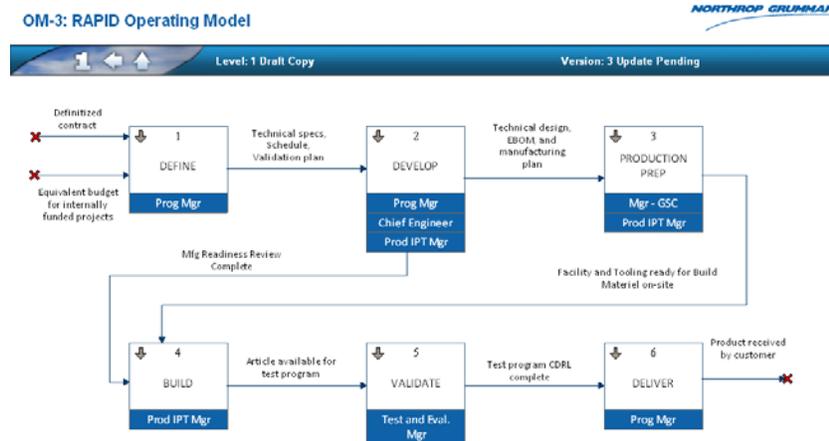
Operating model as an end-to-end value stream

We are utilizing a methodology that consists of three components: clearly defining the source of the value, understanding cost drivers, and aligning the two by organizing our business models to meet program requirements. Each business model is being aligned, including the people, processes and technologies required to deliver the highest value available. Each operating model is being organized to cater to different expectations for cost, quality, speed, and innovation with the appropriate management tools, systems and processes in place to deliver value at the lowest cost to our customers with the greatest return to our shareholders. The goal is to align the

operating models together in an organized and integrated manner that isolates the highly complex and expensive processes in our business from the standardized portions, assuring that the company's cost structure is not distorted by the high-customization needs of specific business segments.

Assign Process Ownership

One key element allowing us to accomplish our goal is our commitment to single process ownership. Every process is assigned to one process owner, who is responsible for defining the process, insuring that the process is capable, and managing the process across the entire life-cycle of the program. This has created a sense of ownership and has resulted in common policies and procedures where appropriate and customized procedures where differing business segments have legitimate requirements. This reduced the level of policies and procedures across non-core, or common processes, and resulted in specific procedures for those processes that were true differentiators within their own operating models.

Utilize technology

Achieving our goal in this constrained budget environment requires its own level of innovation and technology. It had become apparent during the analysis phase that we could not achieve our goals using the historical approach of defining, organizing and managing our processes using traditional text-based documents. We needed increased capability, one that better integrated people, process and systems, with an enhanced user interface, that allowed employees to quickly adapt to the new technology without a steep learning curve.

We started by defining our requirements. Our first approach was to develop a system internally. We identified the process attributes we wanted to integrate into the new system. We explored the options of integrating social media applications to allow us to create process user communities. We wanted to be able to bridge the cultural divides and break down the geographical boundaries that existed in our company. We believed that a social networking capability was an important part of this, as it would help our 23,000 employees spread across the U.S. collaborate and communicate to share ideas and break down traditional barriers we faced in the past.

During our systems definition phase we revisited an application we had on our servers that had been used years ago to map processes. That system, then known as "Nimbus control-ES", had been used to create static process flow diagrams that were used to enhance text-based documents. We contacted the company and discovered several software enhancements had been made which might meet our requirements. The upgraded application was now known as "Nimbus Control", and after a brief discussion we learned many of the recent upgrades were suited to our system requirements.

Personalized process deployment by role

Basic requirements, such as role-based personalization and subscription meant that we could easily target the right process information at the right employees. In addition, what we had termed "process 360" in our requirements document, or the ability for the process user to provide feedback to the process owner, was available out of the box. We saw process 360 as a way to get immediate feedback from process users, allowing our leadership the ability to review user feedback in the same way we use customer feedback on our products. Other features, such as the ability to roll out process changes through the applications workflow process, insuring process users are immediately aware of the changes, underpinned our decision to adopt the new Nimbus Control product as our process management platform going forward.

Process users provide immediate feedback while viewing process

Our goal is to use the software to develop process flows aligned with target customer segments and future operating models that strike the right balance between customer variability and the cost of complexity. While it is uneconomical to customize operating models for every customer segment, instead we will standardize shared and simple processes across segments, and tailor the few critical, complex core processes to deliver a differentiated customer solution and, at the same time, drive down costs.

The defined operating models will build on our strengths while allowing us to expand quickly and economically into new market segments. This approach allows us to flow the simplest and most predictable products and services through the most efficient, shortest cycle time and least expensive work stream. Higher risk, longer cycle time and less predictable projects will flow through a more robust and expensive operating model. The work streams will be kept separate to prevent contamination—easy operations don't require expensive management and operational infrastructure that complicated activities need. The work streams will also include guidelines to tune them as market conditions and costs change over time.

The Result

We are currently focused on converting those text-based documents that are key process differentiators within our rapid prototype operating model to an electronically-deployed format. Refining our rapid development processes is a key part of our sector's strategy to improve the front end part of our business that grows revenue over time and positions us early in an emerging market segment to be viewed by our customer as the premier leader in delivering timely and cost effective products.

Getting the right governance process in place was determined to be a key performance parameter for this phase of the project, so we chose to implement the first phase of document conversion with the help of Nimbus' provisioning organization. It has allowed us to develop the standards that will guide all future in-house implementation efforts while we take advantage of their experts in training us how to map our entire inventory of procedures and work instructions that comprise our quality management system. Our budget and schedule would not allow for rework, and with Nimbus working side by side with our subject matter experts, we have been able to move quickly through the process documents that will comprise our rapid prototype operating model.

Exposing the weakness

It was not long before we started realizing the benefits of using an intelligent process management application. The visual process mapping approach has exposed process errors, making way for immediate improvements and reducing the need for tribal knowledge by process performers who had to fill the voids that had existed in our process libraries. We have a long way to go to reach the level of capability we expect from the project, but we are excited with the progress we are making working this together as a team.

Home page of the intelligent operations manual which provides all process information in one, visually comprehensible location

Moving to deployment

We have targeted the end of 2011 for the initial deployment of the new rapid prototyping operating model. We are estimating work will not be completed for several more months, which, when complete, will position us to be able to use this new streamlined, aligned and linked process model across the entire rapid prototype business segment. I will be updating you on BPTrends periodically to allow you to follow along with us on our journey.

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