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Inside:

Ben Rand (l), president Insyte Consulting, speaks with County Executive Chris Collins at 2008 ASQ Six Sigma Conference.

STI-CO Gains 67% Reduction in Time to Develop New Product

Learn how an Orchard Park company found the answer to, "Why can't we turn out as many new products as we would like?"

STI-CO Industries, Inc. (STI-CO) specializes in the design and manufacture of antenna systems for emergency, police, fire and investigative communications. Primary customers include federal, military, state and local agencies in the U.S. and Canada. The company is especially known for its covert antennas, used in undercover operations. Their interoperable antenna simultaneously handles the multiplicity of different radio frequencies used by fire, police and emergency agencies for emergency response coordination.

STI-CO is a woman-owned business, founded in 1967 with sales of approximately $3 million annually. They employ 30 people. Product development, sales, and manufacturing are conducted at their location in Orchard Park, NY.

STI-CO competes against larger companies by developing new products which are customized to meet its customers' requirements. STI-CO is eyeing potential sales growth from new applications and new markets, but that growth is dependent on the development of new products.

Situation — "Why does it take so long to develop our products?"

For the last few years STI-CO's sales have not grown to targeted goals. In addition, several new products on the company's development 'wish list' were not started. The new products were intended to pursue strategic new growth markets. Products under development were taking a year or longer to com-

Scott Crawford & John Dzikoski analyze radio transmission characteristics on STI-CO's new magnet mount roof antenna.

plete – much longer than expected. In some cases the completed products did not meet sales expectations.

The five person engineering team was hard at work on multiple projects, but the more technically difficult projects seemed to be languishing. The culture within the company was very positive, and cooperation among departments was very good. The question from the leadership team was, "Why can't we turn out as many new products as we would like?" One challenge expressed by the Engineering Manager was, "It's very difficult to schedule creativity when solving challenging technical problems."

Solution — Join the engineering team, and lead changes from inside

STI-CO had successful results from several operations and quality improvement projects led by Insyte Consulting. This led company management to contact Insyte for assistance in improving their Product Development

Our experience improves your business

Avoiding Pitfalls in New Product Development by Benjamin Rand

New products can help companies capture new customers, retain existing customers, grow revenue and/or profit, even establish or maintain a reputation as an innovator (think 3M). Despite these benefits, many companies struggle to develop and launch new products. Generally speaking their difficulties fall into four categories:

- **Creativity** — Not enough good ideas for new products;
- **Priority** — Plenty of ideas, but no progress on actual development;
- **Efficiency** — The development cycle is too long and cumbersome;
- **Launch** — Manufacturing, marketing and sales preparations are not coordinated.

Here are some ideas to overcome these pitfalls.

Creativity

Creativity favors a prepared company. If new product development (NPD) matters to your business, you must keep it in front of your people so that ideas and opportunities, when they arise, are recognized and captured as grist for NPD. Set quotas for number of new ideas with your team for each quarter or year. These ideas don't have to be full blown: just jot them down on paper or in an e-mail. When a customer says, "you know, it'd be great if…" your people need to recognize and capture that opportunity. Next, you need a repository for these ideas as you collect them. This can be an e-mailbox or a spreadsheet on your system, a manager in marketing or even a senior manager. Then, at least annually, assemble a team with representation from all departments and go through these ideas to refine, combine, reject, prioritize and, finally, add to your NPD pipeline.

Prioritization

A NPD pipeline has four stages: Definition, Discovery, Development and Delivery. Once you have ideas defined, the real work begins. Many companies have lots of exciting possibilities and look forward to discussing them at their monthly NPD meeting...again…and again…and again. Break this cycle by selecting only one or two ideas to move to the next stage. This can be done based on group consensus, gut feel or even random selection. The important thing is to move some idea (any idea) to the Discovery Stage. Now you can begin to research, quantify and test that idea by quickly gathering enough information to determine whether to move forward with Development or drop it. Once an idea moves out of Discovery, pick another defined idea from your list and move it into Discovery. Now your NPD pipeline is flowing. At any given point, you want at least one NPD idea in each stage of the pipeline.

Efficiency

Efficiency is always an issue with any process. You have already taken an important step by prioritizing projects rather than working on them all at once. But research shows that even companies that are very successful with NPD are frustrated with the time, paperwork, meetings, approvals and other delays involved. The answer for NPD processes is the same as for any process. Look systematically at each step (mapping them out can help), challenge its importance and necessity. If you need that step, consider how to do it faster by removing waste like waiting time, mistakes and incompleteness. Or look to completely redesign that step. I know it is not exciting, but it is necessary and there is no other way to do it.

Launch

Much has been written about the benefits of involving manufacturing, purchasing, engineering, marketing, sales and others early in NPD (by the Development stage, at the latest). The idea is to ensure that each of these areas not only provides input during NPD, but that their activities are coordinated to avoid delays in product launch. Manufacturing may need tooling or a new production cell. Purchasing might have to order long lead-time items or find new suppliers. Marketing should help define the market needs that the product will meet and must then prepare the collateral materials, ad campaigns, etc. In reality, once you are committed to involving all functions, the launch becomes a project management exercise. Identify the project manager, identify the steps and timing, then execute, execute, execute.

These suggestions will not solve every NPD problem, but they will go a long way to helping you avoid some of the typical road blocks.

Byn Rand

Tools to Improve Your Office Continue to Evolve

by Thomas Quinn

My 20+ years of professional experience includes being an operations manager, a technical project manager, and my current role as a lean/ISO/process improvement consultant. A recent seminar focused on the application of Lean and Six Sigma principles in transactional and service (office) environments has really energized me and provided me with some new approaches to office-related problems.

Most of us in WNY have heard examples of how Six Sigma is being applied to office-based environments such as local government (projected over $1M in savings this year), hospitals (focusing on more efficient utilization of staff), and many other large and small companies in the region. Local companies have also adopted and done tremendous things with lean. This is the first article in a 3-part series discussing how the addition and integration of Six Sigma tools has significantly improved the likelihood of making impactful changes in your office.

Is Senior Management Commited to Change?

All of the presenters in this seminar agreed that the most critical success factor regarding change in the office related to whether the president or senior management team was truly committed to change. Often they are the only individuals with authority to make cross-departmental changes, and more importantly, can demonstrate their support and commitment to the necessary changes. I heard a couple of famous quotes at this conference that I thought applied to leaders struggling with how to address a poorly performing office:

- "If you want things to be different, perhaps the answer is to become different yourself."

- "Today's problems cannot be solved by the same level of thinking that created them."

Leadership and the Right Tools

In my mind, these quotes suggest that a stronger commitment by leadership, coupled with the application of the right tools, can truly bring about change in the office. Six Sigma is increasingly being utilized in office-based projects. This approach emphasizes the definition of the leader's success measures at the earliest stages of a project. Once these success measures are defined, it becomes easier to maintain focus on the appropriate changes needed to support the project. Personally, I have relied too much on the obvious benefits of lean and have focused more on "low hanging" waste reduction initiatives and not spent enough time on the improvements related to the critical success measures of these leaders.

Desired Office-Based Measures

As a leader in your company, what would top your list of desired office-based measures? These certainly vary company to company, but could include:

- All customer orders processed the same day they are received.

- 100% order quality (when they are released to manufacturing).

- Greater throughput from your Engineering department (reduced product development time).
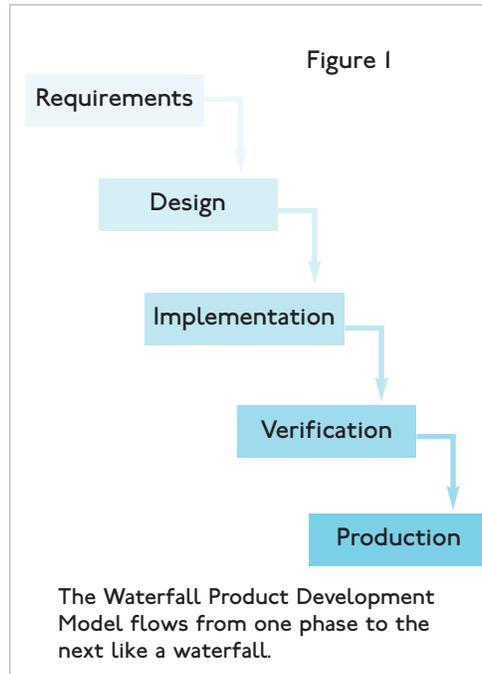

Insyte consulting

Alternative Models Help Manage Product Development Risk by Robert Kosobucki

One Size Does Not Fit All

The product development model used by many companies tends to break down and cause significant completion delays if a project is highly complex, encounters technical risks, or is faced with unknown application requirements. That development model is known as the Waterfall Model (*See Figure 1*). It is a sequential process of flowing through phases of requirements definition, technical design, development, testing and production.

Managing Technical Risks and Unknown Requirements

Success of the Waterfall Model depends on having well-defined product requirements and a known, straight forward design approach.

Figure I

Requirements → Design → Implementation → Verification → Production

The Waterfall Product Development Model flows from one phase to the next like a waterfall.

But, the model freezes up if there are technical design risks or if important requirements cannot be learned without first having the product.

A product development plan can still be defined under these challenging circumstances if the Spiral, Evolutionary or Incremental Development Model is used. The Table on page 5 provides a comparison of when to use these product development methodologies.

Robert Kosobucki, a consultant with Insyte Consulting, has over 20 years experience in product development, marketing, sales and strategic planning with technology and manufacturing companies, in both domestic and international markets. ❖

Reducing Waste Saves Dollars

Since 2006 thirteen companies have reported $1,102,000 in annual reduced waste savings after participating in Insyte Consulting's waste reduction program. This two-year program was co-sponsored by New York State's Empire Development Corporation (ESD). The ROI for participating companies was $25 for each project dollar spent. In July Insyte Consulting and ESD agreed to offer this program again for an additional two years. The federal Green Supplier Network has also agreed to provide cost-share assistance to companies participating in this program. The program involves an assessment phase to document problem areas and a technical project phase to improve those areas and eliminate the excess waste.

If you are interested in reduced waste savings, please contact Insyte Consulting at 716.636.3626. ❖

- 95% quote accuracy (measure by estimated versus actual costs).
- 98% inventory accuracy.
- Lower turnover (could also be measured by increased employee satisfaction).

Are You Ready for Change?

Are you looking for a proven approach to make permanent, impactful changes such as these in your office?

The intent of this first article is to get you thinking about defining your own critical success measures and to get you excited about some of the new tools available to help make the necessary changes. If you believe you are ready for change, the next two articles will demonstrate application of some of these tools and how they can be effectively utilized in office-based projects.

If you already have a sense for your critical success measures and are looking to take action now, please email me at tquinn@insyte-consulting.com to set up a meeting to discuss this further. ❖

New Product Development

Product Development Models

Model	Best Use	Comments
Waterfall Model		
Most often used Product Development Model whether appropriate or not. The sequence of development activities proceed from one to the next with no backtracking, like water falling. *(Figure 1)*	Use if there are **not any major unknowns** regarding product requirements and where the design approach is straight forward.	This model runs into problems when projects have technical design risks, or when all product requirements cannot be defined. For more challenging projects this model can be blended with the models below.
Spiral Model		
A product is developed using the lowest technical risk design alternative. A series of iterative follow-on redesigns progressively improve the design with the riskier technology.	Use to **manage technical implementation risk** while still completing a product quickly.	Technical development risks and alternatives are identified upfront. Lower risk alternatives are used in initial product versions. Use this approach to define a product roadmap for product versions.
Evolutionary Model		
This development model assumes that all application requirements and issues cannot be known at the beginning of a project. Successive product designs are used to learn about application requirements and alternative design approaches.	Use for **highly challenging new applications** with an unclear risk of solution or with unknown application requirements.	This model requires cooperation of the customer. The assumption is that a core product can be designed, put into use and the design iterated.
Incremental Model		
A development project is divided into smaller sub-projects which can be developed separately, and then joined back together.	Use for **large complex projects** which can be sub-divided and independently developed.	Requires interfaces between sub-modules be well-defined and fixed. Sub-modules are developed using one of the above development modules.
Hybrid Model		
Elements of each of the above models can be applied to a portion or all of the development project.	Use if a project or design can be divided into separate sub-projects or sub-modules, especially the riskiest portion.	The Spiral or Evolutionary Model can be used for the riskiest parts of a design. The Waterfall Model can be used to manage the sub-sections of a project.

Don Hess — Role Model for Western New York

Donald Hess, a good friend of Insyte Consulting, and his wife Victoria were killed in a plane crash on November 13, 2008. This accident is a loss in many ways. Obviously it is a personal tragedy. Don and Vicky were talented, humble and generous people who left behind many beloved family members and friends. Don's passing is also a huge loss to the Western New York business community. Don personally had significant impact on the economy of our region.

A native of Rochester, Don earned an engineering degree at Massachusetts Institute of Technology, but returned to upstate New York to begin his career at a Buffalo technology company. In 1975, he identified a business opportunity and co-founded Amherst Systems Inc. with his partner Charles Dowdell. Don was the classic entrepreneur and wore many hats while growing the company. Over the years he developed business management and financial skills to supplement his outstanding technical skills. Don and Chuck grew Amherst Systems to more than 300 employees and $40 million in annual sales. After years of personal sacrifice, Don and Chuck sold

Donald Hess
September 17, 1944 — November 13, 2008

the business to Comptek Research Inc. in 1999. The company continues to operate today as Northrop Grumman Amherst Systems, and provides hundreds of high-technology jobs in our community.

After selling Amherst Systems, Don continued to look for new business opportunities. He regularly attended meetings of the Western New York Venture Association to learn about local companies seeking capital and business guidance. Don became an active WNYVA board member and a founder of the

Buffalo Angel Network, a spin-off group of accredited angel investors that have invested in several companies in the Buffalo and Rochester areas.

Don also spent time with Insyte Consulting as an "Entrepreneur in Residence." In this role Don looked for new technology business opportunities, made investments in startup companies and provided mentoring to technology entrepreneurs. Several local, early-stage companies are in business today at least in part because of Don's investment and guidance.

Don was also a community leader, spending significant time as board chairman at the Hauptman-Woodward Medical Research Institute and on the boards of the Buffalo Niagara Medical Campus, the Clarence Conservative party and several private companies.

Don's passing leaves a void in the WNY business community. If more people in our region follow Don's example and use their talents, resources, and entrepreneurial drive to help build local businesses our region's economy will improve significantly. ❖

STI-CO continued from page 1

process with the goal of developing more new products faster.

For this project, Insyte's consultant 'joined' the STI-CO Engineering Department, initially consulting with the department manager and then as a project manager. The consultant evaluated each engineer's responsibilities and activities, reviewed the ISO documented product development procedures and reviewed all the projects in development. The goal was to free up more of the engineers' time for value-added technical development. A series of recommendations for more streamlined management of the department and projects were developed.

Once department changes were made to free up more engineering time for technical design, the consultant led the engineering team from start to finish on the development of a new covert antenna product. The development challenges were how to select one of the seven possible design alternatives, how to address technical feasibility issues with all the alternatives, and how to determine if the selected alternatives would be acceptable to end-users.

The consultant led the design team through a series of sessions in which the seven design alternatives were methodically compared with each other, especially in terms of technical feasibility and end user acceptance. The result was a priori-

Case Study

tized list with a clear preference as to which design alternatives might be best in achieving their objectives.

To gauge end-user acceptance upfront, two 'quick and dirty' mockups of the preferred alternative were created in 10 days; one to test performance and the other non-working model to show alpha site end-users. Critical new insights were gathered from the testing and alpha site comments. The consultant then led the group in week to week management of the project, providing tips and techniques for keeping the project on schedule and for overcoming obstacles.

> "With Insyte's help we not only completed the product in one-third the time, but we're already getting orders based on the beta site testing we did during development."
>
> **Kyle Swiat, Vice President**

Results — New Products Faster
The evaluation of the engineering department resulted in implementation of the following:

- Routine orders for 'new' modified standard products were delegated to a manufacturing lead person versus processing them through the engineering department.
- Certain activities previously handled by the Engineering Manager were delegated to the Senior Design Engineer to free up the Manager's time for addressing the most challenging technical problems and for planning new growth products.
- Some non-engineering administrative activities handled by the engineers were transferred to an operations support group and to customer service.
- Drawing standards for modified standard products were simplified and standardized for speedier completion of documentation.
- All engineers were trained in Bill of Materials entry, product costing and

AutoCAD, thereby eliminating a bottleneck in documentation completion.

- Non-value added administrative activities were eliminated or reduced.
- The result of the streamlining was to add an additional 15% to 20% to department time available for product development, as well as opening up opportunities for individuals to pursue further professional development.

As a result of the Insyte consultant leading the new covert antenna design team:

- The new covert antenna design was completed in only four months instead of what normally would have taken over 12 months (67% reduction).
- The targeted prospective customers were enthusiastic about the product because it met their performance needs and did not have installation issues that were often encountered in many competitors' products. Orders started coming in at double the rate previously experienced for similar new products.
- Three new spin-off products were developed in two months; one for military applications, one for dual frequency bands, and one for SUVs.
- The consultant and engineering team had time to begin another high potential new product.

According to Chris Goetz, Director of Engineering, "Using our new methodology we've already completed the design and brought the product to market. Using our previous process, we would still be debating which conceptual design alternative to pursue." ❖

Firm Benefits

- 67% reduction in time to develop challenging new product.
- 15%-20% more time freed up to do new product design.
- 200% increase in new product orders over most historic results.
- Three additional new spin-off products introduced within two months.
- Additional high potential product started and is rapidly moving through development.

STI-CO's Scott Crawford tests Field Portable VHF Antenna used by emergency management base stations.

Affiliates News

Principles of Lean Manufacturing

Join Insyte Consulting for a fast-paced, information-packed session that will show you how to reduce costs, speed up delivery times and improve quality in your manufacturing operations.

Date: Wednesday, March 4, 2009

Time: 8:00 AM - 4:30 PM

Site: LCo Building, 726 Exchange Street, 6th Floor, Barton Room, Buffalo NY 14210

Cost: $250.00
(includes lunch & training materials)

For more information or to register visit www.insyte-consulting.com or call 716.636.3626.
Special pricing available for new clients — call us for details

This interactive workshop introduces the basic concepts of lean manufacturing and demonstrates the tools and methodology necessary to implement "lean" on the shop floor by combining a comprehensive classroom presentation with hands-on simulation of a production facility. ❖

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