

# THE PIVOT PALETTE

A quarterly publication of PIVOT Management Consultants



Quarter 4 2006

## MISSION

*Be a premier provider of management consulting services to industry in the high technology, manufacturing / design, services, healthcare, education and government fields.*

*Be the best partner a business leader can have to help accelerate the move along the path of continuous quality improvement and quality system enhancement, rethinking and changing the way our client's business is done internally and for the marketplace and industry our client serves.*

*Implement operational improvements across all functions and levels of our client's organization to achieve improved strategic and marketplace position, delivering value added measurable results.*

*Provide a positive, rewarding, collaborative work environment within PIVOT that fosters personal growth, fulfillment and success for our associates, suppliers and clients.*

## VISION

*Together we will. . .*

*Work to fully understand the requirements of our jobs, the requirements of our clients and the systems that support us.*

*Provide error free services, analysis information, education and skills training on time to our clients.*

*Practice ethical, honest and fair behavior in our interactions with clients, associates and suppliers. We will not promise anything we cannot honestly deliver.*

*Inspire trust and respect by our clients, associates and suppliers, through PIVOT's proven commitment to our mutual success.*

*Have fun!*

## CASE STUDY

### Downtime Reduction

Paper mills use various types of raw materials. One of the most common is wood which is received in log or chip form. One of the first processes involves taking logs, 4 feet in length, and grinding them to a pulp before sending them to the next production step. Logs were fed into this process through a holding area, called a block tank, which was filled with water. Logs floated on the surface and were fed into the wood grinders through a water channel. The block tank itself was filled multiple times a day with logs from trucks that dumped them directly into the tank.

The issue was that the tank collected debris from the wood (e.g., chips, sunken logs) reducing the amount of logs that it could hold and impacting the flow of logs to the flume. Once a month, the tank was drained and cleaned out, causing full production to be stopped for approximately 24 hours!

To reduce this excessive downtime, a kaizen event was scheduled. Team members, including employees directly and indirectly involved in the grinding or block tank cleaning process, clarified the problem statement, determined metrics, and set goals. Initial training on lean concepts, a tour of the paper mill, and value stream mapping generated ideas to reduce downtime. These included better planning/coordination of equipment warm-up time, separating the cleaning from the maintenance activity, as maintenance itself was a bottleneck, and continue feeding the grinders from the opposite end.

Suggestions continued and the team not only gained confidence that it would be able to achieve its goals,

but started thinking in terms of avoiding a shutdown altogether. The 'aha' moment occurred when the need for the tank itself was questioned; it, after all, was holding WIP (work-in-process inventory) which is one of the eight wastes of lean. The team regrouped into sub teams to identify issues (e.g. how to get the wood to the opposite end, how to feed it, what circulating lines would have to be welded, how to clean the water channel, how to ensure channel integrity, availability of staff, construction of a ramp for feeding wood, communication, vehicle staging), plan pre-trial events, and prepare for the actual day of cleaning (e.g. stop production, empty the tank, unblock passages, and start feed from the opposite end). It was an intense, exciting, informative, and passionate experience.

Finally the day of the Kaizen Event arrived. A reduction of downtime from 24 hours to 14 hours had been set as the goal. Upon completion of the event, the team reviewed the actual results and benefited from full production resuming in 9 hours! They then noted lessons learned, started planning for the next event, identified issues that needed to be addressed, and determined action items.

To ensure 'sustaining the gains' operations developed a new schedule and operation procedures for the holding tank cleaning. The 5 S's were incorporated into the planning and execution of the holding tank clean out events. The goal for next cleaning: 1 hour!

Would you like to consider kaizen events? Contact us, toll-free, at 877-pivotmc (877-748-6862)

**SIX SIGMA, LEAN & ISO**

**NEW BALDRIGE CRITERIA PUBLISHED**

The 2007 Malcolm Baldrige National Quality Award criteria for performance excellence were recently published on the Baldrige National Quality Program Web site, along with the 2007 Baldrige award application forms. These criteria address best practices in education, health care, business, and a new government/nonprofit category.

The Baldrige criteria help companies understand performance management from a systems perspective. They use validated, leading-edge management practices against which an organization can measure itself.

The Baldrige criteria speak a common language for communication among organizations for sharing best practices and are accepted internationally as the model for performance excellence.

In addition, the Baldrige National Quality Program offers a worksheet for self-analysis that can be used to identify an organization's strengths and opportunities for improvement, as well as to establish action plans and goals.

The documents are available in paper form by request. For more information, visit [www.baldrige.nist.gov/Whats\\_New.htm](http://www.baldrige.nist.gov/Whats_New.htm). If interested in having an unofficial Baldrige type assessment conducted by a Baldrige examiner, please contact us @ 877-748-6862.

**ISO 9001: THE NEXT REVISION**

There will be no 2010 revision. 2009 is now the target date for the amendment to be released. Based on the design specification (already posted), the next Edition of ISO 9001 should only bring MINOR clarifications to the document. No earth-shattering, ground breaking (e.g.

process based QMS), radical changes. TC 176 learned (?) a lesson with the response to the changes in 2000. Worldwide procrastination by certified organizations to make the move from the 1994 to the 2000 Edition. A lot of negative feedback. Could it be simply resistance to change? They really don't want to rock the ISO9000 boat twice in a row....

After the 2009 Edition, 2014 is the likely target for the 5th Edition of ISO 9001.

**LEAN IN ARCHITECTURE, ENGINEERING & CONSTRUCTION (AEC) FIRMS**

Construction project management has traditionally had a project orientation. Reflecting this, project performance measures used by the sector have focused on project level outcomes rather than on processes and generally, there has been a tendency to measure these at the end of projects, well after the events that they record. So, what performance measurements would we need to support lean production systems... 1) at the project level, and 2) at the organizational level. There are questions such as: How are AEC companies using lean practices? What performance indicators do AEC organizations (general and trade contractors) currently use? How are the performance measurements used in decision-making? For more info on Lean in AEC companies, visit [www.iglc.net/](http://www.iglc.net/)

**KAIZEN OFFERING**

Want to experience benefits from Kaizen? Host an event. [We may be able to arrange funding for this training](#) for California based organizations.

**Upcoming Public Courses:**  
(customized for on-site offerings)

Six Sigma Executive Overview .....	6 hours
Lean / Six Sigma Champion .....	24-40 hours
Six Sigma for the Workforce .....	40 hours
Six Sigma Green Belt - one day a week (80 hours) .....	Certification available
Six Sigma Black Belt - one day a week (160 hours) .....	Certification available
Lean Manufacturing - Basic & Advanced available .....	40 hours each
Mistake Proofing .....	24 hours
Setup Reduction .....	32 hours
Business Process Mapping / Responsibility Charting .....	16 hours
Problem Solving Tools (Basic).....	16 hours
Time Management .....	16 hours
Project Management .....	40 hours
Business Continuity Planning .....	8-40 hours

*Call us about offerings in Spanish.*

If you have any comments/suggestions, please contact:  
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 or write to: PIVOT, P.O. Box 536, Upland, CA 91785-0536  
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## PAIRED COMPARISON ANALYSIS

Regardless of the context, measurement is the vital essence of decision-making. One of the great obstacles to what may be called ‘scientific,’ ‘systematic’ or ‘reasoned’ decision-making has been the difficulty of measuring many of a decision’s variables. ‘Paired Comparisons’ is a very simple technique which addresses this problem and enables some quite intractable variables to be adequately assessed. The particular strength of this tool lies in its ability to put a complex set of items in order according to any desired criterion. Paired Comparison Analysis helps ferret out the importance of a number of options relative to each other. It is particularly useful when there is no objective data to base this relevance on.

Paired Comparison Analysis is a practical technique for comparing many items (e.g., ideas, options, criteria) – against each other. It can be used for a number of different scenarios: identifying the most important problem to solve, selecting the solution that will give the greatest advantage, choosing the right candidate, etc. Paired Comparison Analysis helps establish priorities when there are conflicting demands on resources.

There are a number of steps to use this technique:

1. Create a matrix with the number of options (e.g., if there are five options, create a 5 by 5 matrix).
2. List the options you wish to compare, as both row and column heading. Assign a letter to each option.
3. Block the cells on the table where you will be comparing an option with itself. (from 0 meaning no difference, to 3, where there is a major difference). In each cell, identify which option is more important (use a shortcut by using the first letter of the best option followed by the numerical value in importance).
4. Block the cells on the table where you will be duplicating a comparison.
5. Within the remaining cells compare the option in the row with the one in the column. For each cell, decide two things; which of the two options is more important and the degree of importance
6. Finally, consolidate the results by adding up the total of all the values for each of the options. You may want to convert these values into a percentage of the total score.

As a simple example, an organization is looking at selecting a candidate for hire. You, as the interviewer, find it extremely difficult to choose between Amy (A), Bob (B), Charlie (C), Danielle (D) and Edwin (E) but find it reasonably easy to compare any two. Use the Paired Comparison Analysis to facilitate this selection. First draw up the 5x5 Paired Comparison Analysis matrix as shown below (showing which intersecting cells are blocked):

	Amy	Bob	Charlie	Danielle	Edwin
Amy	Block Step 3	A-2	C-1	A-1	E-2
Bob	Block Step 4	Block Step 3	B-2	D-2	E-3
Charlie	Block Step 4	Block Step 4	Block Step 3	C-3	C-2
Danielle	Block Step 4	Block Step 4	Block Step 4	Block Step 3	D-1
Edwin	Block Step 4	Block Step 4	Block Step 4	Block Step 4	Block Step 3

Now compares available options, identifying the most important choice of row against column (letter A, B, C, D or E), and score their respective differences in rating (0-3) in importance in the intersecting cells. This identification and rating is often done in teams.

Finally, add up the A, B, C, D and E values and convert each into a percentage of the total. This example results in the following totals:

- A = 2+1 = 3 (15.8%)
- B = 2 = 2 (10.5%)
- C = 1+3+2 = 6 (31.6%)
- D = 2+1 = 3 (15.8%)
- E = 2+3 = 5 (26.3%)

In this case, Charlie is the most preferred of the five candidates, with a close follow up Edwin.

Do you see possible applications in your work / personal environment?

- a Selection of alternative office machinery
- b Making a choice between alternative methods
- c Determination of priorities (especially when all jobs are urgent)
- d Promotion and grading of staff
- e Options for policies on competition, recruitment, payment.
- f Site selection

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PIVOT Management Consultants

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### CONSULTING & TRAINING

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Process Excellence / Baldrige Award

Project Management

Theory of Constraints

TRIZ

## RADICAL THINKING?

### SIMPLY AMAZING!

An article in the monthly Toastmasters International magazine entitled 'Simply Amazing!' inspired thoughts of personal experiences of *Simply Amazing* things that have happened in organizations through worker involvement and simple thinking. Enjoy!

A soap manufacturing plant received complaints from disgruntled customers concerning receiving empty boxes. To prevent this from occurring again, the plant manager started doubling inspection as an interim measure. Plant engineers eventually implemented a methodology for detecting empty boxes; it consisted of a finely tuned x-ray machine requiring extensive record keeping. Meanwhile, in another plant with a similar problem, front line employees came up with a creative idea. They placed a fan along the path of the conveyor belt that carried the sealed soapboxes. If a box were empty, it would get blown away by the fan, thus keeping it from being loaded into a carton for shipment. Not only did this prevent empty boxes from being loaded, it gave a clear visual indicator of the extent of the problem. No need for extensive reports either. A visual workplace? *Simply Amazing!*

At an engine machining plant, blocks had to be moved from one work area to another using forklifts. Forklifts had to turn in a tight corner and would often damage not only the walls, but also the block they were moving – leading to rework or scrap. This waste was not acceptable and management assigned resources to design an overhead track and lift system to eliminate the need for a forklift or the need to move to another facility. Recommendations to improve this situation were proving to be quite expensive so management sought ideas from its workforce. Employees made the following suggestion: join the two workbenches with a couple of roller tables with their legs cut to different lengths to accommodate the different heights of the two work stations. This eliminated the need for the forklift and its associated damage. In addition, workers were able to save on the time they spent waiting for forklifts to move the engine block. This change was accomplished in a few hours at a cost of less than \$2000. *Simply Amazing!*

At a shipyard, construction was performed on modules weighing over 20 tons. These modules had to be turned over in order to weld the other

side and put in various pieces of equipment. The “turning over” process involved welding hooks, coordinating two to three cranes, and many workers. During best case scenarios it took about four hours to accomplish, while workers waited around. One of the workers suggested “Why can’t we simply turn the modules on an end – like a door turns on a hinge” The idea was taken seriously and hinge panels were designed and built. The new “turning over” operation now took only two people to attach the hinges and cable to a single overhead crane and could be accomplished in 15 minutes – during break time, with no loss of productivity. *Simply Amazing!*

What we now recognize as Muda (or operations incorporating waste or non-value added activities such as transportation, motion, and waiting) was eliminated or reduced through worker involvement. Although many of the workers may not be highly educated or may think in simple terms, their uncluttered minds can often come up with ideas that are *Simply Amazing!*

