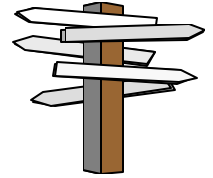


# THE MINNESOTA LOGGER



Minneapolis/St. Paul Chapter 6 District 6 of the  
International Society of Logistics (SOLE)

Minneapolis/St. Paul

Issue No. 260

Date – March 2004

## March Meeting is a Tour!!

SuperValu Distribution Center Tour, (Hopkins, MN), **Thursday, March 18<sup>th</sup>**. The tour is starting at 5:00 p.m. See directions below.

Guests are welcome and encouraged to attend.

***We Hope to See You There!!***

## Chairman's Corner

We have a tour scheduled this month to examine a SuperValu Distribution Center. As always, but with even more emphasis this month, we encourage you to attend. As always we encourage you to please bring a guest!

We are continuing our review of the Navy's spares reports one of which was released by GAO in August 2003 (see the October, November, January and February issues of this newsletter).

As we continue the analysis we are referring to the metric, "Supply Support Metric for Maintenance Tasks Completed," which is fashioned after the concept of the "perfectly executed work order" model (see diagram shown elsewhere in this newsletter). This model is based on the SCOR model discussed in prior newsletters.

We ended last month's discussion with analysis of the first six of the nine factors in "the last 500 feet of the supply chain".

Our formula last month had evolved into the following:

$$R(s=9) = (0.5247) * R_7 * R_8 * R_9$$

This month we will look at the last factors  $R_7$ ,  $R_8$ , and  $R_9$ , and compute the result.

The  $R_7$  factor is "Stock & Maintain Accurate Inventory Levels on board Ship". The study we are referencing does not indicate what the performance factor should be for this item because the study did not examine underway shipboard procedures. We know from commercial practices that, until on-line real-time RF systems were put into warehouses, the accuracy of

inventory was 99.0% with "best manual practices", with dedicated personnel but using manual procedures.

We will use a factor of 99.0% for this factor and assume manual system performance in the shipboard warehouse.

The  $R_8$  factor is "Pull the Anticipated Item(s) from Shipboard Stock for the Maintenance Task When it Occurs during Deployment". The study did not indicate a performance measure for this factor. In the commercial world we label the quality of this factor as "false pulls". In other words the supply personnel responding to the maintenance personnel pull an item but for a number of reasons it is not the part that actually failed. The packaging will normally have been opened; if not, it can be returned to stock. It may have been used in troubleshooting to isolate the failure; if so, it was swapped in and out of the system end item. But it did not replace a failed part and the item pulled did not fail (i.e. it was good – not DOA – but was used in the completion of the work order). Normal procedures for a part with this kind of use (troubleshooting part) would indicate it would be returned into the repair cycle.

This factor is called by various names: No fault found, no trouble found, no problem found, could not duplicate, or could not determine.

Commercial practice indicates this factor did range from 2% to 20% with an average of 17% during the decade of the 1990's for primarily electronic assemblies. The Navy has many items on the ASL that are primarily mechanical in nature and the no trouble found rate on mechanical assemblies is very low. We will assume 2/3 of the items do not have this NTF factor but 1/3 do at a 17% rate. So,  $R_8 = 2/3 (100\%) + 1/3 (100\% - 17\%) = 94.33\%$

>>>

## Advance Notice - April Meeting

**Tuesday, April 13<sup>th</sup>**. The dinner meeting is a joint meeting with ASQ. The pre-dinner presentation starts at 6:00 p.m. Topic is QS9000/TS16949/DOE and related topics.

Guests are welcome and encouraged.

***We Hope to See You There!!***

For R8 we will use a value of 94% as a success value meaning that there is a 6% no-trouble-found rate present, on average, across all service parts used.

The R9 factor is “*Complete Maintenance Task Using Items as Necessary. Return Un-used items to Stock. Forward Repairable items to Repair Cycle. Complete Work Order with Accurate Data*”

The study hinted at a problem with reporting. To complete this all maintenance actions and reporting must be complete.

We had already penalized the planning model for incomplete data reporting, “... use a 0.95 point estimate success rate for the forecast for R3.” That relates to completing the order with accurate data.

We will assume that 1 in a 100 cases there is some other task with the physical item of those listed that should have been completed: either the repairable, replaced item was damaged beyond repair due to accident or misuse or the item was discarded when it should have been returned for repair.

We will assume a value of 99.0 % here.

Our formula for the nine factors has now evolved into the following:

$$R(s=9) = (0.5247)*R_7*R_8*R_9$$

$$R(s=9) = (0.5247)*(0.990)*(0.940)*(0.990)$$

$$R(s=9) = 0.4834 = 48.34\%$$

This result would indicate that, given the nine factors of performance as input, the output is less than 50% success. This is supported by the results of the GAO Study

We know that we used *point estimates* in all of our calculations. We did not factor in variation in the values for each factor (range of values about the mean). We also know from elementary statistics that for each point estimate there is an expected variation about the reported point estimate mean value of approximately +/- 3\*standard deviations (for normal distributions). Each factor will have its own standard deviation, in this case, shown by the report's sample results.

This is the classical “stack up of tolerances” problem that, where even though the mean values may all pass specification there still can be “interference fit” when a series of tolerances stack up and many happen to

assume high or low values within the range of measurement.

For example, using the data in the report for range of spaces stocked from five ships (page 17) in the Lincoln battle group ships we know that the average configuration accuracy was 93.1% but the range of the two samples was from a low of 83.4% to a high of 98.1. The standard deviation was 0.0602 so the expected range can vary from  $0.931-3*0.0602 = 0.749 = 74.9\%$  to the high value of  $0.931+3*0.0602 = 100\%$ .

We notice also that the end result of our equation, R9, is the “Supply Support Metric for Maintenance Tasks Completed”. That metric was reported as the work order completion rate varied about an average. We know that the average supply rate reported was 58.3% for the Lincoln battle group ships but that the result did vary considerably from 37.2% to 78.7% from ship to ship. This wide variation in output shows that at least some of the input factors must also vary widely to produce this wide a variation in output.

So the nine factors will vary with their own standard deviation. That will produce a mean value for R9 but simulation will show the distribution about that mean value and will show the extreme low value for R9 and the extreme high value for R9 based on the variation of the simulation. That should account for the output variation in the supply rate.

Ranking the causes in Pareto fashion, we see in this study there were two primary factors that have wide tolerances: the ship's equipment/system configuration accuracy and the accuracy of the allowance parts lists. Each is estimated to be quite low. There is a comparatively wide range of accuracy of both factors. We saw that the combination of  $R1*R2=(0.6379)$  so that is the crux of the problem. However, there is an additional degradation to success of the supply chain by another 15% due to the remaining factors  $R3*...*R9$ .

Next month we will run a simulation of the variables using a distribution around each point estimate value to see the effect on the output. All this will provide information to better understand the Navy's spare parts availability problems.

Larry DeVries, CPL  
Chapter Chairman

## 20<sup>th</sup> Anniversary of 1984 SOLE Symposium & Exhibition

This year we note the 20<sup>th</sup> anniversary of the 1984 SOLE event sponsored by the Minneapolis – St. Paul Chapter. The theme was “Innovative Support – The Continuing Challenge”. This event was held in August 1984 at the Hilton Hotel, Minneapolis. We were led by members Jim Sindt, CPL and Cal Gehan, CPL. The listing of all of the names of those Chapter members who headed the various symposium committees are shown on our web page under “C6D6 History”. Over 550 attendees made the event a professional, technical and financial success.

## February 2004 Chapter Meeting Recap

**February 10, 2004.** This was a Tuesday evening Meeting with the Minnesota Chapter of the American Society for Quality ([www.mnasq.org](http://www.mnasq.org)). The topic was “**Supplier Qualification**” with speakers from Medtronic. The meeting was held at Hennepin County Technical College, Brooklyn Park.

There were two speakers for the two-part program (Pre-dinner Tutorial and Dinner Presentation) sandwiched around a dinner meal. Both speakers were from Medtronic and had at least 10 years of experience in the quality field.

Local officers spoke first of their organizational announcements for the month. The ASQ Minnesota organization has over 4,200 members. It was announced that ASQ is sponsoring several half-day and full-day events during the year. Coming soon are (1) *Quality Basics*, and (2) *Software Quality Engineering*. During the course of the evening the officer slate for the upcoming year, proposed by the Nominations Committee, was discussed and then approved by the meeting’s member attendees. In addition, the ASQ elected Regional Director, who sits on the ASQ Board of Directors, stood to discuss the National initiatives: (a) *advertising the ASQ organization more widely*, and, (2) *better defining and building the case for the economic advantage of quality*. Also, ASQ, after an extensive study, will shortly be announcing 4 new types of membership types and annual dues rates to more closely reflect the kinds of members they have.

The first speaker, Michelle Reinhart, discussed, “New Supplier Evaluation and Selection”, the challenge of identifying a new supplier. This covered a firm’s process of researching new suppliers (technical, quality &

business needs), contacting the candidate suppliers for a new component or service about to be procured, narrowing the search, and conducting on-site auditing of 1-3 “final” candidates to be the new supplier. A 6-8 hour on-site supplier audit of technical, quality and business experts of the firm was recommended. The firm’s supplier audit team’s final act is to make a recommendation based on the on-site audit’s after-audit reports called “working papers”.

The second speaker, Mike Fedock, discussed, “Supplier Relationships and Performance”, the ongoing process of supplier management. This covered the management of a firm’s entire supplier base. His talk included Principles, Performance Measures, Corrective Actions, and Supplier Disqualification. He contrasted the old way (1980’s) and the new way of dealing with suppliers based on the W. Edwards Deming Point 11. He recommended using the W-O-R-T-H Model with the supplier base which is **W**in-Win Situations, an **O**pen Process, **R**espect, **T**rust, and **H**onest Relationships. The end result of a firm’s ongoing supplier base management program is to expect and achieve:

- I. Improved overall supplier performance;
- II. Reduced risks to the customer;
- III. Better internal controls;
- IV. Fewer recurring non-conformances; and,
- V. Better relationships with suppliers.

As logisticians we would be adding the idea of managing the supplier base for providers of services under contract to the firm. Service contracts are often overlooked in a firm and yet contribute significantly to the success of the firm.

The meeting was well attended. The topic was very timely considering the challenges faced in the global economy where a firm’s supplier base may include suppliers located locally, regionally, nationally or internationally.

SOLE Chapter members in attendance appreciated the topics and discussions.



**Larry DeVries (L), George Rumpel, and George Mazoko at ASQ meeting/dinner (February 2004)**

## 2004 SOLE Conference & Exhibition

### Arrangements Set

The annual Conference & Exhibition will be held at Norfolk, VA, at the Norfolk Waterside Marriott on 31 August—2 September. The theme is “Future Logistics: The Integrated Enterprise.” To learn more about the year-long path to SOLE 2004, and nominate best practice or Six Sigma candidates, view the SOLE website or contact SOLE HQ at [solehq@erols.com](mailto:solehq@erols.com).

### From the District 06 Director:

“The state of the district regarding chapter involvement is two active chapters: Minneapolis -St. Paul and St. Louis. It doesn’t sound like a great number of chapters, but it isn’t the entire picture. There are many more SOLE members living within our district who are not affiliated with either chapter. We need to make the effort to invite them to our local chapter meetings. Even if they cannot physically attend the dinner meetings, they can contribute in other ways, such as newsletter articles and e-mail discussions. And, almost half of the district’s membership lives outside of the district.

“We may be few, but we are mighty in the desire to share our logistics knowledge with others. These early spring months provide a good opportunity to visit schools and civic organizations to share our profession with others. Thanks for taking time out of your busy schedule to participate in SOLE.”

Phil Frohne, CPL  
District 06 Director  
February 2004

### Chapter Web Page

News of our Chapter is on our SOLE web page <http://www.sole.org> then Member Services > SOLE Web Sites > Dist 6 Cha 6 Minneapolis – St. Paul (Twin Cities).

Check this out when you need an update or make a referral of a potential new member to SOLE.

## Definitions from the Dictionary

### Commercial Terms (from Council of Logistics Management Dictionary of Terms, <http://www.clml.org>)

**After-Sale Service:** Services provided to the customer after products have been delivered. This can include repairs, maintenance and/or telephone support. Synonym: Field Service.

**Life Cycle Cost:** In cost accounting, a product’s life cycle is the period that starts with the initial product conceptualization and ends with the withdrawal of the product from the marketplace and final disposition. A product life cycle is characterized by certain defined stages, including research, development, introduction, maturity, decline, and abandonment. Life cycle cost is the accumulated costs incurred by a product during these stages.

**SCOR:** Supply Chain Operations Reference Model. This is the model developed by the Supply Chain Council (SCC) and is built around six major processes: *plan, source, make, deliver, return and enable*. The aim of the SCOR is to provide a standardized method of measuring supply chain performance and to use a common set of metrics to benchmark against other organizations. See <http://www.supply-chain.org>

### Deliver

6. Field Service/Support - Field service, customer and field support, technical service, service/call management, returns and warranty tracking.

## Navy Spares Challenges

In our analysis of the Navy supply challenges the “last 500 feet in the supply chain” (see SCOR model) appears to be summarized by following:

R1	Obtain Accurate System Configurations for Individual Systems and Sum to the Ship's Total Configuration
	*
R2	Obtain Accurate Allowance Parts Lists (APLs) to match the Ship's Total Systems Configuration) (Range of Items)
	*
R3	Forecast Anticipated Maintenance Events & Item Demand for Period of Deployment (Depth of Items)
	*
R4	Obtain & Maintain Quality Items (Parts)
	*
R5	Stock Range of APL Items on board Ship
	*
R6	Stock Depth of APL Items on board Ship
	*
R7	Stock & Maintain Accurate Inventory Levels on board Ship
	*
R8	Pull the Anticipated Item(s) from Shipboard Stock for the Maintenance Task As it Occurs during Deployment
	*
R9	Complete Maintenance Task Using Items as Necessary. Return Unused items to Stock. Forward Repairable items to Repair Cycle. Complete Work Order with Accurate Data.
	=
	Supply Support Metric for Maintenance Tasks Completed

The serial events above must be completed with the required high percentage for the numerical product of all tasks to be a sufficiently high percentage. The concept of describing the execution of “the perfect work order” applies here. In order for “Supply Support for Maintenance Tasks Completed” to be a sufficient percentage all dependent processes shown must be a high percentage as discussed in prior newsletters.

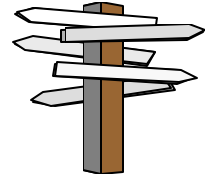
## FUTURE CHAPTER MEETINGS

### 2003-2004 CHAPTER SCHEDULE & TOPICS

Date	Event	Remarks
Thursday March 18	“Tour of SuperValu, Distribution Center”	Hopkins Plant. Tour begins at 5:00 p.m.
Tuesday, April 13	“QS9000/TS1 6949/DOE maybe FMEA”	Joint meeting with ASQ
Thursday May 20, 2004	“Railroad Logistics”	Meet at Jack Povlock's and review his RR progress
TBD June 2004	Tour TBD	

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## MINNEAPOLIS/St. PAUL CHAPTER MEETING

MEETING DATE: **Thursday, 18 March, 2004**

LOCATION: SuperValu Distribution Center, Hopkins, MN

TIME: Tour Starts at 5:00 PM

COST: No Cost

MEETING TOPIC: Distribution Center Operations

### Directions to SuperValu Distribution Center, Hopkins:

- Coming from the north or south on 169, exit at Lincoln Ave/ 7<sup>th</sup> Street. Go west to 2<sup>nd</sup> Avenue. Turn right (north) on 2<sup>nd</sup> Avenue to 5<sup>th</sup> Street. Again turn right (east) on 5<sup>th</sup> Street and then turn north on to 2<sup>nd</sup> Avenue.
- The address of the SuperValu Distribution Center is 300 S. 2<sup>nd</sup> Avenue, Hopkins, MN 55343. Our Tour Guide is Bill Moore at 952-238-3426.
- The tour starts at 5:00pm.
- **We hope to see you there!!**

**RESERVATIONS: Call for reservations not later than 16 March 2004 to:**

**Honeywell**

Jack Povlock, CPL

(763) 954-6263

**Lockheed Martin**

**United Defense**

**Other**

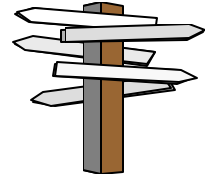
Ken Dacas

(952) 887-3855

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