

**Date: November 28, 2003**

**Topic: QMS Implementation**

**How did you accomplish this topic during your implementation?**

The Wireless Core Network R&D division of Nortel Networks, located mainly at Richardson, TX. Implemented ISO in 1994. This provides information for the QMS upgrade to TL 9000 in 2002.V3.0 / ISO 9001:1994 from ISO 9001:1994.

The initial challenges were typical of other implementations:

- Clumsy document system
- Minimal awareness of TL 9000
- Minimal buy-in of ISO
- Resistance to the TL 9000 upgrade
- No resource commitment

First we defined the factors necessary for a success:

- ❖ Executive Sponsorship
- ❖ Management buy-in and support
- ❖ Core team formation and collaboration
- ❖ Streamlined documentation (ISO-Lite)
- ❖ Extensive training
- ❖ Expanded internal audit coverage
- ❖ Good project management practices
- ❖ Regular communication
- ❖ Awareness campaign to build momentum

To be successful, Nortel found it necessary to treat this as a major project and plan well at the beginning. Nortel:

- Developed a Project Plan to manage deliverables and issues
- Defined the project into multiple phases with clear deliverables, responsibilities and goals
- Defined metrics with targets for all major activities, such as documentation upgrades, training coverage, internal audit coverage, non-conformance closures, etc.
- Managed with a Core Team of 5 Quality Engineers (QE) in the Quality Group and 30 Quality Primes from all functional groups (covering the total population of over 2000)
- Assigned one Quality Engineer as prime to support each VP group, with assistance from the other QE staff
- Ensured QE conducted QMS basic training to their assigned groups
- Conducted Internal Audits by QE staff
- Held monthly Quality Council meetings with the Core Team to track progress
- Continually communicated with the team via Weekly Reports, Quality Council meeting minutes, News Alerts, Website posting, awareness campaign, etc.
- Provided monthly reports to senior management team
- Published progress measurements vs. targets
- Conducted on-going recognitions and shared best practices

The rest involved implementation of our plan with team/management commitment, close monitoring and diligence to achieve the goal.

**What resources/tools/vendors were used to accomplish this task?**

Initially, Nortel obtained some TL 9000 standard and implementation training from colleagues who previously implemented TL 9000. There were numerous workshops within QE to work out the standard interpretation, compliance exceptions, and auditor training. Nortel did not use an outside consultant. The gap analysis was based on an externally posted publication by a training consultant.

**Was there any benchmarking activity?**

Nortel did not conduct any industry or internal benchmarking. This particular unit was the first group in Nortel to upgrade directly from ISO 9001:1994 to TL 9000 V3.0.

**What lead you to use this method?**

Nortel relied on their internal Quality Management System (QMS) implementation experience (or shortfall) and project management supplemented with lessons learned. Budget constraints precluded spending of dollars for external help.

**What worked and what didn't work?**

**Worked well:**

- Used the commitment from our Executive Sponsors as a strong leverage, not just for lip service.
- Had a small core team of full time staff to lead the effort.
- Formed an extended core team of Quality Primes in all functional groups to lead the actual implementation and procedure training within the groups.
- Had an intensive publicity campaign and individual / team recognition to keep up the momentum.
- Had significant levels of training, including the popular final audit readiness training.
- Took the opportunity to streamline the process documents as well, achieving a 72% reduction.)

**Didn't work well:**

- Some middle level managers were still reluctant to commit resources.
- Resource estimates were done at the beginning, but never got approved by management. Nortel had to force the registration efforts on top of our normal duties.
- It took a lot of pressure and effort to close the internal findings. Most were closed prior to the external audit.

**What recommendations do you have for others attempting to use your method?**

Recommendations are included in the "Worked Well" list above. In addition, real commitment from your Executive Sponsor is half way to success. The Executive Sponsor, however, must also to fully perform his/her role.

**How did you measure the effectiveness of this method?**

Nortel defined the metrics and tracked the targets weekly until completion. We monitored the progress closely and took timely actions to recover if falling behind. Nortel's final outcome was zero non-conformances.

#### **Other comments on the Implementation Guide TOC:**

##### **Common vs. local processes:**

Groups with the same or similar functions should put effort into developing common procedures for consistency in approach and quality. This will also eliminate or minimize the need for retraining when we move people around. These common procedures will have to be high level, separating the "How's" from the "What's", but they should still be valuable to users. Details can be captured in the individual Work Instructions.

##### **Life Cycle Model:**

Nortel did not have a corporate-wide Life Cycle Model at the time of this initial registration, but have since implemented one... The Life Cycle Model has been valuable for managing product development in the same manner as common processes, e.g., speaking the same terms and measuring the same performance metrics, etc.

##### **Quality Plan:**

Nortel eliminated the original ISO Quality Plan (a layer below the Quality Manual). It was really just another layer of documentation for standard compliance within each functional group. Now, They have a Quality Plan for each product release capturing the committed requirements, major milestones and quality metrics with targets.

##### **Continuous Improvement Model examples:**

Nortel identified opportunities for QMS process improvement at the beginning of each year's QMS cycle. This included: defining metrics, setting targets, tracking the trends and measuring effectiveness. It may take more than one cycle to realize the effectiveness.

For the 4 major steps in QMS management,

**Documentation:** Set targets for consolidation opportunities and updates (as required by the standard). Track the progress to avoid the "hockey-stick syndrome" (not sure how to describe this so as to be understandable in all regions) when approaching the external audit.

**Training:** Set training coverage targets and encourage attendance. For the initial implementation of TL 9000, Nortel's target for training attendance was 80%, many groups achieved almost 100%.

**Internal audit:** Set an audit coverage target. For initial implementation, 20% is recommended.

**Internal audit finding closure:** Set closure targets for 3 kinds of findings – Non-conformance to standard, Area for Improvement (raised by internal auditors) and Process Improvement (raised by anyone in the team). Nortel also set a target for finding closure for each category. Track the progress to avoid the "hockey-stick syndrome" (See above) when approaching the external audit.

**QMS overall performance measurements:** Within the QE group, Nortel performed an analysis of QMS implementation (document the system, follow the process and keep the records) based on their observation in service to the team and internal audit. Nortel tabulated the scores and tracked the year over year trends. They also conducted QMS Surveys each year to solicit the team's feedback on the usefulness of the QMS at different levels (Quality Primes, managers and workers). Results were compared with the QE's analysis. Recommendations were then be made for future improvement.