TL 9000
a telecom industry success story

by Robert Clancy,
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When Bell Atlantic, Southwestern Bell, Nortel, Alcatel and other major telecommunications firms first began discussing an industry sector quality standard in 1996, the global cost of poor telecommunications quality was estimated to be about fifty million US dollars. Added to that, the deregulation of AT&T in North America had led to two major issues affecting telecommunications network quality, namely:

- a plethora of new suppliers introducing products into the network ; and

- the lack of a global standard for telecommunications product and service quality.

The industry was further stressed by rapid changes in technology, consumer demand for highly mobile voice and data services, and the massive outsourcing of the global telecommunications supply chain.

A bold vision forward

Because of the chaotic state of the telecommunications industry, the founders of QuEST (Quality Excellence of Supplies of Telecommunications) Forum clearly needed a bold vision to help build consensus and cooperation among industry leaders that were also fierce competitors. The vision developed was "to become the key global force in the telecommunications industry to improve quality of products and services to customers". Today, this vision has largely been realized, with over 150 members working together to foster telecommunications quality not only in North America but throughout the globe.

The result of these efforts was TL 9000, a quality management system which provides the industry with a single quality language. Based on ISO 9001:2000, *Quality management systems – Requirements*, it contains all of the ISO standard's requirements plus 90 additional requirements specific to the telecommunications sector. TL 9000 also provides a series of quality measurements unique among industry sector standards, allowing benchmarking within many segments of the telecommunications supply chain.

Adding industry-specific value to ISO 9001

TL 9000 is, and will continue to be, tightly linked to ISO 9001:2000. In fact, QuEST Forum members recognize that the ISO 9001 standard brings intrinsic value by establishing a solid framework for quality management based on leadership, management commitment, fact-based decision-making and other basic principles.

In order to address issues specific to the telecommunications supply chain, QuEST Forum work groups have over time added to TL 9000 a further 90 requirements called "adders". Adders are designed to add value by addressing historically-critical industry issues not included in the more generic ISO 9001. For instance, to ensure that organizations can continue to meet customer needs dur-

ing a network interruption or facilities damage, a requirement for a documented disaster recovery was added.

Work teams also felt the need to add specific training requirements to help prevent problems during the introduction of new products and services. One such requirement is to train employees to properly handle electrostatic sensitive devices (ESD). The idea is that this will help prevent latent damage to ESD as they are introduced into the field.

The result of these adders is a very stable and mature quality standard that is currently in release version 4.0. Though solid and stable, TL 9000 continues to evolve. QuEST Forum member research recently produced an exhaustive list of cross references between TL 9000 and the software quality approach CMMI (Capability Maturity Module Integration), and between TL 9000 and the automotive quality standard ISO/TS 16949:2002

Improvements in the industry

The TL 9000 quality management standard has been most widely deployed in the "landline" or traditional service provider supply chain. Improvement in critical key performance indicators for participating organizations has been real. For instance, one problem that plagued the industry for many years was nonconforming installations (those with sufficient installation defects for them to fail a standardized quality audit). This issue, together with others such as on time delivery, became a focus for QuEST Forum.

Certifying installation companies are required to report measurements in these categories. **Figure 3**, *overleaf,* shows the improvement made in nonconforming installations as measured by the percent of nonconforming jobs to total jobs audited. Companies improved from over 50 % nonconforming job audits to less than 1 %.

Cumulative certified TL 9000 registrations

Figure 1 – *Cumulative certified locations*

Finally, TL 9000 places huge emphasis on a formal product life cycle. The life cycle model ensures that organizations establish and maintain the methods, processes and procedures necessary to make sure that products are designed, developed, tested, released and maintained according to specific customer and regulatory requirements.

About the author

Robert Clancy graduated with a BA Degree from Kansas University and began his career in 1972 with Communications Corporation of America, a leading telecommunications distributor. He later joined DSC Communications as Senior Director Customer Information Services. Having managed a large part of DSC's implementation of ISO 9001:2000 and upgrade to TL 9000, Mr. Clancy became Vice President of Installation and Engineering and a key member of Alcatel's Quality Leadership Council. In 2001, he co-founded BIZPHYX Inc. to provide implementation, support, and training services relating to TL 9000. BIZPHYX is a member of the QuEST Forum, the TL 9000 governing body, and is a QuEST Forum-recognized trainer. Mr. Clancy serves on the Forum's Global and IGQ work groups providing critical input to the TL 9000 standard and measurements.

Quality management systems – Particular requirements for the application of ISO 9001:2000 for automotive production and relevant service part organizations. QuEST Forum members will comment and vote on adding comparable elements of CMMI and ISO/TS 16949 to TL 9000 wherever they consider there to be value for the standard and QuEST Forum members.

Growth and globalization of certifications

The success of QuEST Forum's fostering of the TL 9000 quality management standard is clear. TL 9000 certifications have grown consistently from 15 in the year 2000 to nearly 1 000 registered locations worldwide by mid 2007 (see **Figure 1**), as service providers and suppliers accept and adopt the standard.

Not only has the total number of registrations grown, but the mix of registrations has changed as the standard has become recognized globally. **Figure 2** shows the composition of registrations in 2000 versus the picture today. QuEST Forum currently has active regions with volunteers participating in Asia-Pacific, EMEA and North America. The Asia Pacific region has subregions in Australasia, China, Japan and Korea.
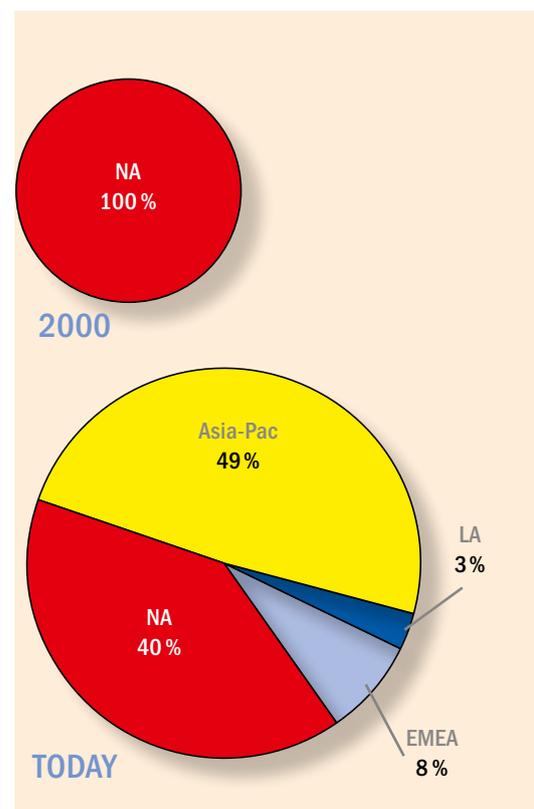

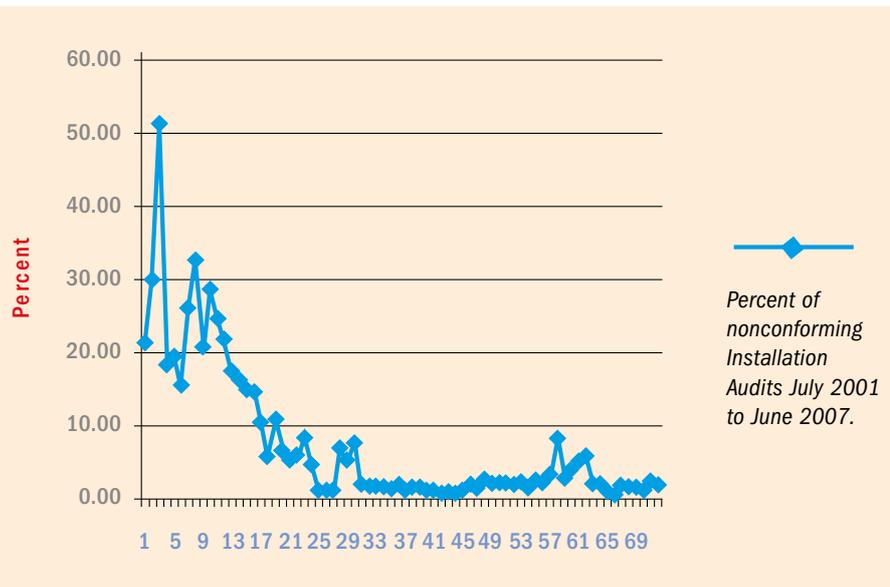Figure 2 – *Globalization of TL 9000 certifications*

Figure 3 – *Nonconforming Installations*

continues to strengthen its capabilities, TL 9000 requirements and measurements will further enable wire line, wireless and cable operators to deliver high quality voice, video, and data reliably when and where consumers want it. Coupled with other tools, TL 9000 will provide real ROI and improved customer satisfaction. ■

Looking ahead

As the deployment and maintenance of TL 9000 continues, what specific issues lie ahead ? The current deployment of TL 9000 is mostly within the traditional wire line segment of the telecommunications industry. This must change because the industry landscape is changing.

Wireless service is replacing standard wire line service with each successive generation. As wireless replaces wire line as the primary means of communication, wireless consumers are increasingly reliant on E911[1] and other critical communications services. Consumers previously satisfied with a lower quality of wireless service now require wireless service providers to deliver video, mobility and emergency services with wire line quality and reliability. Interruptions, long connect times and calls that cannot be completed are no longer acceptable.

Focusing on end users

For telecommunications consumers, ordering services, straightening out a billing error, or calling for repairs work is often a daunting experience in spite of everything that has been done to max-

imize the quality and reliability of the network. QuEST Forum should encourage service providers to certify their customer-facing organizations to TL 9000 and to measure customer experience and satisfaction in meaningful ways to drive continual improvement.

Improving hard currency ROI

Finally, QuEST Forum member survey data indicates that TL 9000 registrants have not seen hard currency ROI (Return on Investment) from the implementation of the standard. QuEST Forum is in a position to provide resources to help organizations solve this problem. The main reason that companies do not realize ROI is that they assume that the journey is done when they have completed the implementation of TL 9000. In fact, implementing TL 9000 provides a great framework for cost reduction, but will not guarantee it. Management must also focus on specific cost reduction projects to drive cost out of the business.

A bright future

The outlook for TL 9000 is bright. TL 9000 is a flexible, robust quality standard with the unique characteristic of requiring certifying companies to report performance measurements to an unbiased third party. As QuEST Forum

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1) E911 or Enhanced 911 is a caller-location enhancement of the 911 emergency-calling system in the USA.