



Logistics Association of Australia Ltd

AT&T NETWORK SYSTEMS GROUP Transmission System Business Unit

In the fifth of his reports, 1993 International Study Award winner Terry Brookshaw follows up his report on AT&T Universal Card Services, with a review of the activities of AT&T Network Systems Group – Transmission Systems Business Unit.

Morristown New Jersey, where AT&T Network Systems Group is headquartered, is a leafy, picturesque town about an hour and a half by road, west of New York city via Newark, a heavily industrialised area. However, some people in Morristown, although in close proximity to New York, have never been there. Most seem to have no desire to visit their famous city.

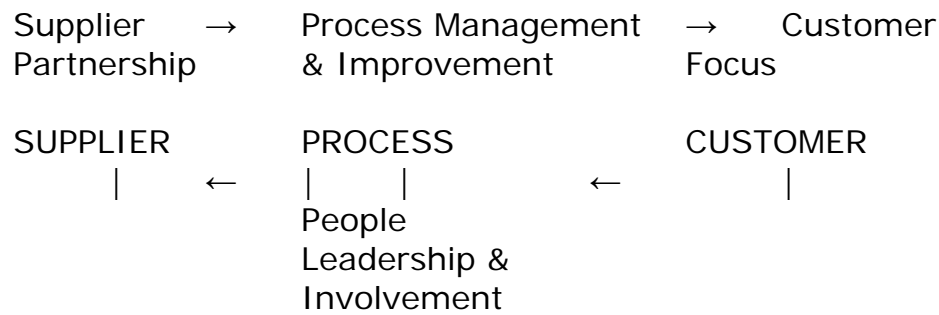
AT&T has five manufacturing groups, the largest of which is AT&T Network Systems Group. The Transmission Systems Business Unit (TBSU), a division of AT&T since 1955 has its roots in the Western Electric Company.

Quality began at the Western Electric Company in the early 1920s. Walter Shewhart, considered the father of statistical quality control, demonstrated that statistical methods could be used to increase the number of "good" products produced. Today the highest honour bestowed by the American Society of Quality Control is the Shewhart Prize. Joseph M Juran, a one-time worker at Western Electric's famous Hawthorne works, who later embarked on a renowned consulting career, emphasised continuous quality improvement.

TSBU was reorganised in April 1989 as one of six strategic business units within AT&T Network Systems Group. This reorganisation was a result of AT&T turning itself upside down in 1988, putting customers at the top of the traditional structural pyramid (see figure 1), and redefining its management structure.

TSBU is guided by eleven types of customer related information gleaned from customer report cards, on various measures of quality and responsiveness of customer support services.

The reliability of TSBU products exceeds customer expectations in all of the company's markets. TSBU was the first to offer a 5-year warranty, based on its reliability record.



Since 1989, TSBU has cut new product development time in half and realised cost savings totalling \$300 million. The company has pursued high growth export markets, picking up 37 new international customers since 1985.

TSBU has, in six years, achieved a ten-fold improvement in product quality and, in the last four years, has cut the time taken to get product to market in half, reduced inventory by 40% and had more than \$375 million in cost savings. In the last two years TSBU reduced the number of product returns by 50%.

Since turning itself upside down in 1988, AT&T has pursued a devotion to excellence in products and services, which is reflected in its **Total Quality Approach** based on six critical principles.

- The customer comes first.
- Quality happens through people.
- All work is part of a process.
- Suppliers are an integral part of its business.
- Prevention is achieved through planning.
- Quality improvement never ends.

Phillip Scanlon, the corporate quality office Vice President stated, "AT&T is going to be the finest company in the world in the eyes of its customers."

This is the battle cry for the entire organisation.

TSBU's integrated strategic planning process ensures increases in customer satisfaction and gains in market share are accomplished as a direct result of contribution from their performance improvement goals.¹

TSBU designs, manufactures, sells and supports equipment and systems used for transporting voice, data and images over public and private telecommunications networks.

The TSBU division competes in a \$15 billion international market and is the world's second largest manufacturer of transmission systems. The business unit employs 7,500 people at nine sites in the United States.

¹ Malcolm Baldrige National Quality Award "Profile of inners", 1992

Digital loop carrier systems, digital access and cross-connect systems and network multiplex equipment generate half of total sales. Lightwave systems and an array of other systems and equipment account for the remainder of sales. Sales to seven regional Bell operating companies and the AT&T worldwide network account for a large portion of revenues. Sales to independent telephone companies, private networks, inter-exchange carriers, cable television companies and cellular providers, in particular foreign telephone companies, account for a growing share of the business.²

An example of AT&T's devotion to this customer first philosophy is the problem associated with severing of underground cables. The cause is usually a backhoe operator.

Until 1992, cuts could spell disaster, like the one in November 1988 that knocked out communications between New York and Washington for 16 hours.

AT&T now has an automatic restoration system which the TSBU plays a key role in, that is able to restore more than 67,000 voice lines in five minutes. This system proved effective in two major cable interruptions.

When a bolt of lightning struck a fibre optic cable near Picayune, Mississippi, it knocked out the service between Hattiesburg, Mississippi and New Orleans. Traffic was restored in five minutes. The second one, when a local phone company crew cut a cable between Flagstaff, Arizona and Las Vegas, Nevada. A switch was made to an alternate route in less than three minutes.³

According to TSBU, the key to success is "*empowerment*".

Giving workers the information and access they need to do their jobs with authority and responsibility to take immediate action to meet their quality goals. Seventy nine percent of the workforce participated on teams in 1991.

More than 800 teams carry out specific quality improvement projects that emanate from 13 detailed objectives.

Part of this success in empowerment, it is claimed, is a result of day-to-day partnerships, developed between management and unions representing employees at TSBU factories.

People are considered not as labour or management, but co-workers. AT&T is committing tools and training, delegating increased authority to its people and looking at new ways to reward and recognise their efforts.

TSBU's planning process is designed to create clear cause and effect relationship between priorities, goals and subsequent improvement actions.

² Ibid.

³ Focus "Celebrating Quality" N.J. 1992

This iterative process they call "policy deployment", establishes links with AT&T's quality principles through to TSBU's detailed objectives.

Company trained employees provide skills training and serve as resources throughout all phases of teams' work.

New employees participate in a two-day customer focused quality orientation program. Each employee is expected to receive a minimum of 40 hours of training and education per year.

At TSBU's Merrimack Valley works in Massachusetts, a most ambitious goal is to improve hardware quality and reliability so that, by the end of 1995, only 1 in 10,000 circuit packs are returned.

They have launched an assault on defects to get ahead of problems before they are "built" into a product.

Ed Crane, TSBU's test strategy manager who designed the 1 in 10,000 measurement system in 1990 when the return rate was 120 in 10,000 says, "Any time a customer sends product back, for whatever reason, it's our fault, we accept all responsibility for the problem and look for ways to prevent it happening again."⁴

AT&T supplier quality policy, is a statement of committing to work in partnership with suppliers towards a common goal – **the satisfaction of AT&T customers.**

AT&T believes that working in partnership with suppliers has two significant payoffs. It improves its ability to satisfy customers and it has enormous potential to save money. By treating suppliers as partners, they build relationships that are flexible, more efficient and more effective.

They use the knowledge and experience of their suppliers. In this type of relationship they seek to understand how suppliers manage their businesses. They assess the effectiveness of their quality systems and therefore reduce reliance on incoming product and testing inspection.

The AT&T Transmission System Business Unit won the *Malcolm Baldrige National Quality Award (MBNQA)* in 1992. TSBU entered the competition for the *1992 Baldrige Award* because, it states, the company wanted to accelerate the integration of its total quality management system for its customers, employees and shareholders.

TSBU's journey towards the MBNQA endured setbacks and leadership changes. It believes its journey to understand the value of a total quality management

⁴ Ibid.

philosophy demonstrated that a few key principles and shared values, can unite a large organisation and enable it to achieve its vision.

Information gained in forums, where TSBU shares its future technical directions (under commercial in confidence agreements), and customers explain their long term plans and expectations, helps TSBU strengthen customer relationships and hone its focus. The focus is on the steps it must take to accomplish its 1997 goal – to *be the world's largest supplier of transmission equipment*.