

Planning and total quality management

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Introduction

A plan, in its very basic form, means a scheme for accomplishing a purpose by a proposed method or a scheme drawn before hand. Universities in Australia, and overseas, have been involved in some form of planning for a considerable period of time. Much of the recent thrust in this area has been in response to the need to establish educational profiles, as instituted in Dawkin's White Paper of 1988. Successful planning requires measures of parameters of interest and clear objectives. Principles of Total Quality Management (TQM) and Quality Function Deployment (QFD) can assist in developing objectives and measures. Furthermore, resource and strategic planning areas which require focusing can also be identified.

Purpose of a university

It is proposed that the main function and, hence, the mission of a university today can be broadly sub-divided into three main categories:

- As custodians of knowledge, which has been accumulated by people over the centuries. Knowledge by its very nature is cumulative. The university staff add to this knowledge by research (pure and applied) and scholarship;
- Training people to become technicians, practitioners, scholars, researchers and worthy citizens;
- Transfer technology and knowledge through staff and students to industry, business and community for the benefit of the individuals, companies and society at large.

Having established a mission for the universities, the senior staff need a vision of what they want their organizations to look like in 10 to 20 years. Furthermore, there is a need for a means to achieve this mission.

Total quality management and quality function deployment

More and more companies in Japan, United States and Europe are working towards transforming themselves into more efficient and competitive organizations. This is being achieved through the fourteen points of TQM (Deming, 1982) which can be summarised as follows:

- Create constancy of purpose towards improvement of product and, service
- Management must awaken to the challenge of change and accept leadership
- Build quality into the product at the design stage
- End the practice of awarding business on the basis of price tag alone
- Improve constantly and forever the system of production and service
- Institute training on the job
- Institute leadership and supervision practices
- Drive out fear, so that everyone may work effectively for the company
- Break down barriers between departments/sections/units
- The bulk of the causes of low productivity belongs to the system and, thus, lies beyond the power of the work force

- Eliminate management by objectives
- Remove barriers that rob people's pride of workmanship
- Institute a vigorous program of education and self-improvement
- The transformation to the new philosophy is everybody's job

QFD was first introduced by Akao in Japan in 1965 (Mizuno and Akao, 1978), and is basically a methodology for translating a vision into measurable objectives and strategies. More recently King has adapted this approach to western work practices (King, 1989). Fundamentally, QFD consists of a number of techniques which can be easily applied in manufacturing, service and other industries. These techniques can be summarised as follows:

- Affinity Charts
- Inter-relation Digraph
- Tree Diagrams
- Arrow Diagrams
- Matrix Charts
- Matrix Data Analysis
- Fault Tree Analysis
- Process Decision Program Chart
- Matrix of Matrices

QFD approaches planning in a phased fashion:

- Organisation
- Description
- Breakthrough
- Implementation
- Analysis

What is the present situation of universities today?

One of the major difficulties faced by universities today is that our total operation has become more complex. Some of these complexities arise because of market forces, many are self-generated while others are unnecessarily enforced upon us by State and Federal Governments. Some would argue that many of these complexities do not 'add value' to the final 'goods and services' when you examine these from the client's perspective.

Some of these complexities can be summarised as follows:

- Higher Education Contribution Scheme (HECS)
- Issues of Equity
- Education Profiles
- Over-Enrolments
- Overcrowding
- Lack of Resources
- Full-Fee Paying Overseas Students
- Safety Issues
- Industrial Issues
- Shortage of Well Qualified Staff in Some Areas
- Salary Parities with Industry
- Student Issues
- Lack of Training of Staff at Various Levels

Other complexities arise because of flaws in the system. Many of these complexities are major features of today's operating environment which needs attention. These complexities could be interpreted as demands for more services. Some of these complexities are:

- Errors leading to Rework
- Variability

- More Process Steps than Necessary
- Overkill on Accountability
- Lack of Delegation

Traditionally, however, we are not very good at reducing complexities. We tackle problems by introducing additional layers of management. We try and *manage* complexity. This is fundamentally different from Deming's philosophy (Deming, 1982). Our approach is to classify jobs on the amount of complexity managed. Performance on the job is rated on how well an individual is perceived to manage complexity. As a result of all this, we end up rewarding wrong behaviours.

What needs to be done?

We need to reduce complexity by finding and eliminating flaws in our systems. It can be correctly argued that TQM in its present form is not applicable to education. It is worth remembering that the number of students attending universities because of extrinsic interest is increasing. With the introduction of Higher Education Contribution Scheme (HECS) and Full-Fee Paying Students (FFPS) education is regrettably becoming more commercialised. Hence, a greater need for more efficient planning and operation of universities.

Another fundamental tenet of TQM is that we all work in a system and when things go wrong it is the system that is at fault for 85 per cent of the time. The worker can be blamed 15 per cent of the time. This is known as the 85/15 rule (Juran, 1988). Therefore, through proper planning and system designs, we can improve the operations of universities. Basically, we have to revise our processes to reduce complexity, errors and variability. Staff training and participation are important ingredients for the long term well-being of an organisation.

Difficulties with some of the present management approaches

We need a university-wide system that gets *everybody* in the university working for the benefit of students, staff and the community. We have difficulty in achieving such an objective, largely due to our emphasis on top/down management styles of governance. Such styles are couched in terms of managers and not 'customers' and 'workers'. This approach has the following difficulties:

- Lack of consensus on mission and vision of the university — which, usually, leads to lack of ownership — by staff at the lower end.
- Focus is often on the production of a plan. Little or no attention is paid to the way of achieving the plan.
- Multiple and, at times, conflicting objectives between upper and lower echelons of management.
- Processes for setting and achieving objectives are not commonly understood in the universities.
- Reviews of Processes, Departments and Branches are often just the listing of accomplishments and not an analysis of causes of deviation between what was planned and what was achieved.
- Lack of horizontal mapping of objectives across Faculties, Departments and Branches.
- No, or little, similarity in prioritizing of university functions relating to services to the students.

Many of the above difficulties arise because of our reward and recognition systems which, for academics anyway, are largely based on research output.

How can QFD help?

QFD can be regarded as a component of TQM which helps an organisation to plan and execute strategic organisational breakthrough. The QFD process can be broken down as follows:

Steps

- Establish university mission and vision. (Keep it simple and brief).
- Develop three to five year objectives (in some cases you may need one to two years to focus on processes which require urgent attention).
- Deployment/Roll Down to Faculties/Departments/Branches to develop plans.
- Implementation.
- Review.

Key elements

- Client Focus
- Environmental Factors (economic, industry, State and Federal)
- Closing the gap between reality and vision
- Achievements in some areas, as against plans for all and achievements in none
- Responsibilities clearly defined
- Co-ordination of plans across Faculties/Departments/Branches
- Reasons for change well explained
- Staff at all levels get right messages
- Emphasis on self-diagnosis of individuals and systems
- Build in recognition and support, not punishment
- Problems viewed as opportunities to be discussed
- Accurate Data (external and internal). No fudging of figures
- Use of appropriate measures
- Reduce variation
- Build in Plan, Do, Check, Act (PDCA) cycle for continuous improvement of processes
- Analyze results even if plans have been successful. Analyze what leads to achievement.
- Review QFD itself

Tools

For successful implementation of planning training of staff is an essential ingredient. Training would include the use of a number of TQM tools including some of the following:

- Market Research
- Performance Reports and Analysis
- The Seven Statistical Tools of TQM
- Data Collection and Analysis
- Brainstorming

Summary

Universities in all their activities are required to handle a vast array of issues. Everything is getting more complex. Principles of TQM and QFD can help simplify processes and produce team spirit. We should look for causes and remedies to reduce variation and waste.

Planning through QFD is a system which can help universities set and achieve major breakthroughs: QFD has been successfully used in manufacturing and service industries and is consistent with the management principles developed by Dr Deming through TQM.

References

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