

## CHAPTER 6

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Summary

In the course of this research, it has been shown that, to survive the intense competition that market conditions and membership of the world economy has brought about, the South African construction company will have to become more competitive both locally and abroad.

To become more competitive the company would need to distinguish itself from its rivals in order to ensure a good name resulting in follow-up work from satisfied customers and new work as a preferred bidder.

It was found that “Quality” is a difficult term to define. To a producer it means “conformance to specifications” while to a customer it means “fitness for use.” Quality has become a process whereby future products are changed to satisfy customer needs and expectations. “Quality in fact” and “Quality in perception” must both be present for a building to be thought of as a quality building.

A definite link between quality and productivity was established. It was established that it was easier to motivate personnel for quality

improvements than for productivity improvements because quality improvements did not appear to endanger their jobs.

It had been stated that quality is usually the first aspect to be sacrificed when time or cost came under pressure. This had a catch 22 effect as the temporary relief gained always turned into more pressure on time and cost, nearer the completion of the project.

Clients in the construction industry have a larger influence on the quality of the product than is the case in pure manufacturing. Client requirements regarding quality is contractually and legally motivated, while that of the construction company is financially driven.

Quality should be measured in quantitative terms as far as possible. Quality in fact is usually measurable in quantitative terms, while quality in perception is measured in qualitative terms. Current methods of result oriented quality control has even become entrenched in the construction contract law.

The cost of quality is the cost that would not have been incurred if the quality of the product had been satisfactory. The difficulty in determining the cost of quality has hampered its use. The cost of quality is a vital management tool. The cost of quality consists of prevention costs,

appraisal costs and internal- and external failure costs. The cost of quality will be minimised when these costs are balanced with each other.

Total Quality Management (TQM) involves managing for total quality, effectiveness and competitiveness and involves every person in the organisation. It is a culture that requires a total commitment to customer satisfaction through continuous improvement and innovation in all aspects of business. TQM supplies a common language for proper communication, which is required for achieving quality.

TQM is a never-ending process that is aimed at continuous improvement and innovation. Management drives the TQM system. It is not only technical changes that are required to institute TQM but also social changes within the organisation. The process of cultural change must offer an alternative to the current culture while not creating a void where a new culture has to be established.

Total Quality Management requires commitment, scientific knowledge and involvement. TQM uses primary, long term strategies and secondary strategies, focussed on operations and profitability, to achieve its goals. There are management focus areas, tool focus areas and employee focus areas that have to be attended to for the company to achieve the goals of TQM.

TQM can enable the South African construction company to increase profitability and improve its image, both of which will ensure its continued competitiveness in the current economic turmoil the world is finding itself in.

The implementation of a Total Quality Management system requires the creation of a quality culture. This process is quite often uncomfortable for people who are afraid of change. The aim of a cultural change must be the creation of a force that drives actions to achieve the vision and goals of TQM.

The necessities for successful implementation of TQM are the creation of commitment, the creation of cultural change and the empowerment of all employees. Commitment must be created towards the company and its survival. Commitment is manifested in a relentless pursuit of goals regardless of obstacles. The biggest threat to successful implementation is uncommitted management. Management must ensure commitment through activities that can be divided into groups called permitting, supporting, managing and leading by example.

The need to fulfil personal commitment must foster the belief that the individual is making a positive contribution to the company. This will manifest in a constructive dissatisfaction with the current situation, an

inspiring vision of the company and a concentration on the business goals of the company.

The corporate culture is influenced by the business environment and the values of the organisation. A strong culture will determine behaviour generally and in crisis situations, specifically. Cultural change requires a good reason for change, a plan indicating changes necessary, measurement of progress, the provision of training and incentives to encourage desirable behaviour.

Only through repeated education and positive reinforcement will people's resistance to change be broken down. Leading by role models and an understanding of the effects of failure to change are also required. Behaviour is dictated by attitude and therefore cultural change must aim at changing attitudes first.

Empowerment will give every employee the responsibility and authority to improve quality. It makes effective decision-makers of the people closest to the problem, resulting in quick action. Empowerment enables two-way communication. Obstacles to empowerment are based on a traditional mistrust between management and the workforce. Empowerment requires process management to be successful, as empowerment will go through various phases. These are a denial-, resistance-, exploration- and commitment phase and each will require action from management.

Pitfalls for the implementation of TQM include confusing commitment with interest, subjective assessment by internal personnel, lack of education in the concepts of TQM and failure to conduct strategic business planning prior to starting the implementation process.

There are fourteen steps required for the implementation of TQM. These are:

1. Attaining management commitment
2. Establishing a quality improvement team
3. Measuring
4. Determining the cost of quality
5. Creation of quality awareness
6. Taking corrective actions
7. Planning for quality
8. Employee education and training
9. Launching
10. Setting goals
11. Error-cause removal
12. Recognition and rewarding
13. Establishing quality councils and quality circles
14. Repetition

These steps need not be done consecutively, as some can be done concurrently, but all steps have to be completed to ensure proper implementation of a TQM system.

A TQM system will not sustain its own momentum. It requires leadership and management to ensure that the cost of quality does not start to increase again. Leadership must get employees to act correctly while management must ensure they do their jobs effectively. Leadership provides the basis for company-wide participation.

Leadership motivates through the use of effective communication, a relevant recognition and reward system and the continued empowerment of all employees. Management must use team building and training and education to sustain the TQM system.

There are several types of communication, each of which must be utilised in specific circumstances depending on the level of employee and location where the communication takes place.

Communication in the construction company does not receive the necessary attention. Communication for quality must be formalised, both internally and with the relevant stakeholders. The stakeholders with whom communication is essential are suppliers, subcontractors, the client

and unions. Training in communication skills must be given where required.

Motivation through recognition and rewards works on the basis of influencing future performance with positive reinforcement. Recognition and rewards change quality-value statements into attitudes. The recognition and reward system must be administered to all levels of employees and must take the type of behaviour into account.

Timing the recognition and rewards is important and must allow for regular intervals between awards. There are many forms of recognition and rewarding and the level and status of the employee must be considered when deciding on the most applicable.

Empowerment must be utilised to enable employees to feel, accept and discharge responsibility. This will ensure effective contribution to the process by individuals.

The construction industry already has, through its nature of decentralised activity points, the structure to allow empowerment to take place. Care must be taken not to counteract empowerment through the prescription of standard solutions to unique problems, as is found in this industry.

Empowerment requires trust, and trust can only be achieved through team building.



It is impossible for a single person to control a modern construction project. A team, focussed on producing a quality building, is required to complete a project successfully. There are many benefits from effective teamwork including improved productivity and problem solution, due the availability of more knowledge, skill and experience within a team.

Management must ensure an environment wherein a team is informed, has the authority and autonomy to act and where success is acknowledged, if it wants to reap these benefits.

Strong teamwork is dependent on good communication. The team leader establishes effective communication and management must ensure that team leaders possess the skills and attitude necessary to lead the teams effectively.

There are several pitfalls for good teamwork and management must be quick to react when any of the symptoms of poor teamwork are identified.

Employees must be encouraged towards self-improvement through education and training. This will ensure personal and professional growth with major benefits to the company. A continued, low level barrage of quality communication will keep quality in the forefront of the employee's mind.

All levels of employees must be trained and educated. It must be done to ensure top management stays committed to the quality process, to keep managers anxious to achieve the benefits of improved quality, to give supervisors the necessary people skills and keep the general workforce aware and committed to the TQM system. Training must be aimed at improving the personal conditions of the poor of South Africa that are employed in the construction industry.

People with the knowledge and skills to be effective trainers must conduct training. The trainers must have the respect of the trainees and consideration must be given to the level of the employee within the organisation, when deciding on the identity of the trainer.

The content of training must take the knowledge, skills and attitudes possessed and required from the trainee into consideration. Training and education can focus on concepts, processes or tools and techniques, depending on the level of employee being trained. The venue of training must likewise be determined with the level of employee, time available and availability of trainers in mind.

Training and education has failed when it fails to influence behaviour. Without a change in behaviour, empowerment and quality improvement becomes impossible.

## 6.2 Conclusions

With respect to the question regarding the critical success factors necessary for the successful implementation of a Total Quality Management (TQM) system, the following was found.

Critical success factors for implementation are:

- The creation of commitment from every employee in the organisation to the achievement of the TQM goals.
- A change of the corporate culture to become a quality culture, which will determine employees' behaviour in problem situations, preventing rather than reacting to defects.
- Empowerment managed by educated people, supplying the company with effective decision-makers at all levels of the organisation, thereby reducing reaction times and supporting innovation.
- A methodical implementation process repeated ad infinitum, bringing about a change in culture through a change in attitudes.
- Effective and open communication to promulgate commitment, supply knowledge and allay fear of change amongst employees.
- Measurement to track progress and to supply communication in definite terms for adjustment of the implementation process.
- Training and education that supplies all levels of employees with the knowledge to utilise the TQM system effectively.

- Recognition and rewards that establishes role models on all levels of the organisation.

In testing Hypothesis 1, which was “*The most important factors that should be present for the successful implementation of a TQM system is a systematic approach with training and empowering of employees as a major focus*”, against the preceding factors, it can be accepted as correct although maybe not entirely complete. It would need to make mention of commitment and a change in culture to be truly representative of the factors required for the implementation of a Total Quality Management system.

In maintaining a Total Quality Management system, the following critical success factors were identified:

- Effective leadership focussed on continuous motivation to “Do the right things” is essential.
- Management that inspire employees to “Do things the right way” through team building, training and education.
- Effective communication suited to the level of the employee, motivating the entire workforce to focus on continuous improvement.
- A relevant recognition and reward system based on regular intervals, to reinforce positive behaviour.
- Empowerment that delegates responsibility for achieving TQM goals to every employee.

- Effective, goal oriented teams lead by trained team leaders.
- Continued motivation through training and education.

Hypothesis 2 stated that “*Factors critical for the successful maintenance of a TQM system are persistent senior management involvement, suitable continuous training of employees and effective motivation of employees resulting in a quality-culture*” and can be accepted as correct.

### **6.3 Recommendations**

The following recommendations can be made:

- Invest in the preventative cost of quality i.e. installing a TQM system, as the benefits received in the long run will far outweigh the initial investment.
- Do not attempt to implement a TQM system without the genuine commitment of the entire executive level of management.
- Get a champion who will lead the quality improvement process for an extended period.
- Appoint a specialist to help with planning the installation process and where possible, keep the specialist to help guide the process itself.
- Ensure good communication is maintained throughout the organisation, prior to, during and after the installation process.
- Elicit the help and support of clients, professionals, suppliers, unions and sub-contractors in the quality improvement process.

- Amend contract agreements with clients, suppliers and sub-contractors to ensure it aligns with the TQM goals and procedures.
- Be realistic regarding the time required to implement the TQM system as it is a long process.
- Remember that quality improvement does not have a completion date.
- Celebrate successes and learn from mistakes.

#### **6.4 Recommendations for further research**

The following subjects should be considered for further research:

- A detailed study of the measurements of quality and quality indicators with the aim of producing standard measures and indicators for the construction industry.
- Studies on the reasons for failure of TQM systems implemented in South African companies.
- The effectiveness of affirmative action in empowering the South African construction worker.
- The process of including sub-contractors and suppliers in a TQM system.
- The effect of continuously changing construction teams on the TQM system of a construction company.
- The changes required to improve the effectiveness of the construction contract in ensuring quality buildings.