TQM and SCM: shared goals

Total quality management (TQM) and supply chain management (SCM) have both played an increasing role in strengthening organizational competitiveness. In the continually changing global market, quality products alone are no longer enough.

New challenges now include a focus on supply to determine the right time and place for product delivery. International business competition is no longer limited to organizations but now includes the supply chains. Although both TQM and SCM are critical to organizational performance, they are rarely considered together.

Ultimate and primary goal

Conventional quality control (QC) focuses on specification-based performance or “small-q”. It emphasizes inspection to prevent delivering defect products to customers. Accordingly, many agree that TQM focuses more on quality conformance by aiming to deliver error-free products and services. A term that embraces a wider scope for defining quality is the “big Q”, which includes additional customer requirements such as product safety, flexibility, and prompt delivery.

Unlike TQM, SCM basically satisfies customers in terms of delivery or time-based performance. Efficient delivery always leads to cost effectiveness in the supply chain. SCM aims to respond to customers as quickly as possible, at the right time and place at the lowest cost possible. SCM also aims to achieve speed-to-market, agility and the flexibility to respond quickly to customer requirements at minimum cost. Moreover, several SCM researchers have agreed that SCM emphasizes the flow of materials and information throughout the entire supply chain. This might be because traditional SCM focused on physical distribution. Several other methods/tools applied in SCM practice include:

- the quick response (QR) in the textile industry;
- efficient consumer response (ECR) in the grocery industry; and
- the just-in-time (JIT) approach in the automotive industry.

Although TQM and SCM share the same ultimate goal, which is customer satisfaction, their primary goals are different, as implied by the emphasis on “quality and supply.” Better quality and a faster delivery always lead to lower costs. Finally, better QDC enhances customer satisfaction and the competitiveness of the whole supply chain. In some cases, there may be a trade-off if conflict arises between quality and delivery performance, and this is when the difference in primary goals can present potential problems in implementing an integrated TQM and SCM approach. On the other hand, there is synergy in the ultimate goal, since both TQM and SCM aim to achieve customer satisfaction.

Origin and evolution

From quality inspection to TQM

Quality management (QM) first focused only on quality inspection, and then included QC, quality assurance (QA) and finally TQM. The traditional QM approach was reactive and result-oriented, whereas the modern approach to QM is broader and now also emphasizes quality at source or process control, at every stage, to prevent any errors that could cause defects. The latter is a proactive process-oriented approach.
Quality inspection deals with counting, grading and sorting to ensure that customers do not receive defective products. QC, on the other hand, applies various statistical QC techniques such as control charts and sampling plans to monitor processes. QA emphasizes process control to conform to customer requirements.

From logistics to seamless SCM

SCM first appeared in 1982. It originated from the way in which Toyota managed relationships with suppliers and customers and then it shared many common practices with Toyota's JIT. Initially, SCM focused on logistics. After that, its evolution was still along the lines of physical distribution. Thus, several SCM researchers defined SCM as integrated logistics management.

In some organizations, SCM and logistics are still used interchangeably. However, some believe that the current scope of SCM goes beyond logistics. It has evolved to cover not only the operational level but also the strategic level of both internal functions and external business partners. This wider scope encourages synergy and cross-functional collaboration among all partners: customers, suppliers, marketing, purchasing, production, and logistics. Specific industries have also applied SCM methods/tools such as QR, ECR, and JIT to improve efficiency and the effectiveness of operational supply. At present, the scope of SCM also covers marketing, product development and commercialization, product return and recycling.

Supply chain quality management

TQM and SCM are still being developed in terms of scope and applications. However, since TQM was introduced and developed as a concept earlier than SCM, there are more universally accepted TQM frameworks now than there are for SCM. Widely accepted quality standards such as the ISO 9000 have led to a greater diffusion of QM approaches, while there is still no comparable standard framework for SCM.

TQM and SCM have evolved along similar paths, even though they emerged from different starting points. They diverged in terms of the degree of integration. They both emerged in response to the need to develop tactical strategies for operational functions (inspection and logistics). They then were broadened in scope to gain synergy by integrating the concerns of all interrelated parties. These parties included all internal primary and supportive functions as well as the external business partners. Then, there was a shift in focus from operational concerns towards strategic issues. Consequently, supply chain quality management (SCQM) emerged as a new management concept that combined aspects of TQM with SCM.

Integration

Both TQM and SCM offer unique frameworks to integrate participation and partnership, since they require participation from all internal functions and continuous collaboration with all external partners. However, TQM focuses more on internal participation, whereas SCM places more emphasis on external partnerships.

Internal participation

Although TQM requires involvement from customers and suppliers, it places more emphasis on employee participation. The focus is on both internal primary and supportive functions in an organization’s value chain.

In the TQM environment, all employees (including executive management) are treated as internal customers. If the internal customers are not satisfied, external customer satisfaction is difficult. Therefore, TQM emphasizes employee involvement and ownership. Accordingly, the criteria for most TQM frameworks include the human resource component, such as the MBNQA and European quality awards.
External partnership

SCM requires internal and external business process integration across the whole supply chain. SCM effectiveness and efficiency depend significantly on the degree of integration. Therefore, SCM aims to improve not only the performance of the individual organization but also that of the whole supply chain. This external focus may be due to the fact that the organization itself must work with the customer and the supplier within the same SCM framework. SCM focuses on primary functions as opposed to supportive functions in an organization's value chain.

Although SCM emphasizes external integration, the actual implementation must begin by integrating internal functions and then moving on to external integration among business partners. Moreover, practical SCM focuses on only a few strategic suppliers and customers. This is because most supply chains are too complex to achieve full integration of all business partners. This difference in emphasis can be a potential problem when implementing a synthesis of TQM and SCM, and more research is needed to explore these implications.

Future potential

There are many similarities and differences between TQM and SCM. Understanding and comparing them could identify potential areas for the development of a management framework that integrates the two concepts. First, both TQM and SCM could be viewed as management philosophies and from this perspective, there is an unlimited potential for scope and applications. In practical terms, however, implementation is made difficult by the range of unclear definitions. Therefore, a new well-integrated framework should be developed to facilitate implementation, especially since there is still no universally accepted SCM framework.

Although TQM and SCM emerged from different starting points, they evolved in similar ways. Both originated at the tactical level of operational functions, which are the primary activities in an organization's value chain and then widened in scope to cover all interrelated parties at the strategic level in order to gain synergy. When TQM and SCM are integrated, both business processes and the organizational structure will become more complex. Therefore, more research needs to be conducted into the alignment of business processes and organizational structure. Other management issues worth exploring include investigations into the following:

- management's role in TQM in SCM;
- information systems and technologies to support TQM in SCM;
- the organizational structure and its impact on TQM in SCM;
- how education and training can support TQM in SCM; and
- both the cultural and behavioural issues that can influence the application of TQM in SCM.

Although TQM and SCM require both internal and external integration, TQM emphasizes the participation of all in-house employees, whereas SCM focuses on the external partnerships with business partners. Since these different approaches could cause potential conflicts when TQM and SCM are integrated for a simultaneous implementation, there is a need to explore how the strengths of both frameworks could be integrated into a new management concept that would be more effective than either framework on its own.

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