



The SAGE Encyclopedia of Quality and the Service Economy

Quality Indicators

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Quality indicators are central to quality management practices. They are a key part of the process management and scorecards that managers use. After providing definitions for quality indicators and clarifying their role and goal, this entry sums up leading good practices conveyed through academic literature and international standards; then it provides a general review of the main risks in using quality indicators. After analyzing the major causes of drift in the use of quality indicators, it offers recommendations aimed at achieving a more reasoned approach of these tools.

Definitions of Quality Indicators

Quality indicators are a type of data commonly used to measure and improve the efficiency and effectiveness of quality management systems or programs. Quality management stipulates that quality measurement is one of the key concepts involved in the orientation and control of an organization. It corresponds to the “Check” aspect of the Deming Wheel or Plan, Do, Check, Act (PDCA) Cycle and underpins an ongoing search for improvement (“Action”). Quality indicators are also alarms warning against threats that might undermine the proper functioning of an activity, a process, or a system. Organizations from different sectors (e.g., private, public, health), whether or not involved in quality management, increasingly complement purely financial indicators with quality indicators at different levels: strategic, process management, and activities monitoring.

Quality Indicators Role and Goal: From Quality Control to Balanced Scorecards

The role of quality indicators has evolved. In the quality control period, which occurred roughly between 1930 and 1970, depending on the maturity level in quality management reached by each national industry, quality indicators were associated with statistical control, which aimed at verifying that a product met specific requirements. Now associated with quality management, quality indicators cover compliance to requirements and internal and external customers’ satisfaction. Quality indicators also concern activity conformity, process effectiveness, and efficiency measurement.

Quality indicators’ development corresponds to the awareness that product compliance to requirements is not enough. The quality management system as a whole must be compliant so that the customer may be satisfied and retained.

In the larger vision defined in the quality awards (e.g., EFQM Award) or in international standards (e.g., ISO 9004:2009 [International Organization for Standardization’s quality management standard]), the goal of quality management systems is to reach a sustainable performance, which requires a fair balance between customers’ satisfaction and other interested parties’ satisfaction (share owners, personnel, suppliers, society—the latter being equivalent to corporate social responsibility). In these standards, the expressions *key performance indicators* (at the strategic level) and *performance indicators* (as far as process and activities are concerned) have been used as synonyms for *quality indicators*. Leonard Fortuin defines a performance indicator as a variable indicating the effectiveness and/or efficiency of a part or a whole of the process or system against a given norm or plan.

Specifications Concerning Quality Indicators Conception and Use

A set of good practices must be adhered to in order that quality indicators may become useful tools. ISO 9004:2009 states that the key performance indicators should identify those factors that a company can control and are critical for providing sustainable performances. They should be selected through a risks or opportunities analysis to ease strategic and tactical decision making as well as preventive and corrective improvement actions.

According to academic and professional good practices, a reliable quality indicator should be based on data produced by accurate unambiguous information systems. The information delivered by the quality indicator must also be simple, easy to understand, clearly defined, meaningful, available on time, and with agreed-on frequency.

Management involvement and definition of priorities concentrated on a limited number of quality indicators at each level are seen as a condition of success. Also recommended is a healthy balance between short- and long-term goals associated with quality indicators.

The adequacy of a quality indicators system depends on its relevance and coherency. Each indicator must intrinsically make it possible to monitor key performances and measure whether a performance objective has been reached (relevance). It must also be possible to aggregate local measurements supplied by each indicator at the level of a particular activity via different mechanisms in order to provide a more global measurement at the level of the function or process producing this global effect (coherency).

Scorecards provide an interactive process whereby strategy is viewed as a range of hypotheses about causal relationships that allows for the testing of the relationship between strategic objectives, performance indicators, and means of action.

Quality Indicators as the Source of Mistakes

The risks associated with quality indicators' defective construction or use are important: Monitored badly, performance can be very costly and not merely ineffective but harmful. First of all, errors can be tied to the use of statistical methods, such as a lack of rigor in the compilation and treatment of data associated with the frequent use of tacit knowledge and insufficiently formalized approaches. Another problem is that quality indicators may not evolve at the same rate as strategies and organizations, something that can generate significant variances. In these situations, different performance measurement systems can coexist, even if they are not correlated, resulting in varying levels of formality and a lack of overall coherency.

Generally, quality indicators systems suffer from what has been called "street lamp syndrome." The risk is that what is not measured will be ignored. When an indicator is unreliable, employees and managers face the dilemma of having to choose between serving their customers or using unsuitable indicators on the basis of which they themselves will be judged. Another consequence of poorly designed indicators is that reporting becomes no more than a "paper exercise." The ultimate risk is that time and resources will be lost and that a certain cynicism will develop around measurements and resistance to other types of evaluation. All of these factors explain why the choice of an indicator is crucial.

Since the 1980s, organizations' growing use of quality indicators has also led to

inflation in available data. Thus, if the availability of indicators at different levels within a performance management system framework is necessary, these indicators are useful only if the measurement systems are reliable and coherent and there are forums for dialogue at different levels putting the results being measured into context.

Main Causes of Deviation and Existing Solutions

Deviations in the design or use of quality indicators can be caused by various factors related to managerial, organizational, and/or information technologies issues. The following subsections discuss several of the main causes.

Lack of Training and Participation of Staff Members

At an initial level of explanation, the managers who use certain quality indicators may not always be operating under suitable conditions. They might suffer from poor conceptual understanding (confusion between data, criteria, indicators, or evaluations); lack the time needed for this process of compiling, analyzing, and establishing corrective actions; or have insufficient information technology capabilities. Also, the choice of performance indicators and the rules governing their use are rarely discussed with operational managers and operatives or accompanied by clear user guidelines. This increases the risk of the indicators being inappropriate. Furthermore, operatives and managers are the people who will potentially be “judged” based on the outcomes of the indicators (or fear that this might happen). Therefore, there is a risk that performance reports might be falsified to please the assessor.

In addition, organizational cultures do not necessarily encourage a free and constructive discussion on indicator outcomes but rather require justifying what went wrong. This mind-set contradicts the continuous improvement culture, which is based on the assumption that people, in a spirit of openness, will focus on reducing defects and not on allocating blame. Last, the objectivist culture that is common to many senior managers does not encourage discussions about outcomes. Ultimately, though, what counts is not who decides, even if the decision seems right, but the quality of the decision (i.e., how it is made and shared).

To prevent these deviations, explicit protocols covering design considerations, goods practices, the information to be collected, the likely negative behaviors or side effects that might be induced as a reaction to the monitoring process, and the practicalities of implementation should be defined. Such protocols, included in a charter, should also take into account a cost–benefit analysis of the time spent collecting data in light of the expected outcomes (the purpose being to limit indicator inflation); an independent evaluation of performance indicator procedures; reporting that accounts for uncertainties; increased performance indicator training at all levels; and covering ethical considerations in performance indicator procedures.

Lack of Connection Between Management Control and Quality

Although the management control function focuses on developing and monitoring performance indicators, there are often cultural gaps between management control and quality management. Whereas management control tends to emphasize costs, real book value, control, and financial indicators above all, quality management emphasizes nonquality costs, potential value, piloting over time, and the iterative adjustment of global and operational indicators. The dominant model of traditional management

control may not correspond to quality management needs. Last, management control's measurement philosophy has convinced *some senior managers to adopt a mechanistic vision of quality indicators' role in their organizations that contradicts participative approach and management dialogue characteristic of the quality management philosophy.*

The need to reconcile quality and management control has been supported in management literature, yet organizations' implementation of this principle has been slow to develop. The management control function might find a new role as a quality measurement coach-consultant, or even as the process pilot in charge of measuring and analyzing performance. Its job would then be more to enhance understanding and improvement than to control things. In particular, it could help make the performance indicators system as simple as possible so that everyone can understand how he or she can support organizational performance and continuous improvement.

Performance Indicators Not Taking Full Advantage of Business Intelligence

Performance indicators and scorecards are often updated manually using a single spreadsheet. In reality, it is rare that people take full advantage of business intelligence, which seems reserved for a small circle of managers or analysts. Yet business intelligence can make a great deal of data automatically available to decision makers, at both an operational and a strategic level. Once this tool is implemented and mature, it can provide managers with extremely rapid (sometimes real-time) measurements, alerts, and organizational results, expressed in both financial and quality terms. It is even possible for organizations to use these automated and aggregated items to feed into multilevel management dashboards: from a real-time monitoring (of procedures, production, etc.) used by functional managers to scorecards (e.g., process review) used by senior managers.

This automation progress is not risk free, however, because it accelerates decisions made based on these quantitative indicators despite the fact that the reality, which is complex, may call for more reflection on the meaning that should be given to the results that the indicators have produced. In addition, there is a question with automated systems about who should verify whether the mode of calculation is the right one. The automation of compilation and analysis procedures enabled by means of business intelligence tools can, under certain conditions, significantly reduce a number of errors affecting data compilation and analysis. For example,

- data loss of precision can be mitigated by aggregating without any rounding up or down (direct calculations rooted in the source values or data),
- overly long information feedback can be shortened by real-time data transmissions,
- incomplete information can be addressed by iterating between levels of performance (drill-down and zoom, or vice versa) due to multidimensional browsing, and
- the lack of a standardized or universal presentation of information can be helped by structuring relationships that are standardized as soon as they are designed.

The point is not to systematically automate performance indicators systems but to take advantage of new information technologies (e.g., business intelligence, enterprise resource planning, enterprise information system, workflow, data mining) by integrating

them into performance measurement, analysis, and improvement processes.

Last, business intelligence must be robust and easy to handle when integrating organizational changes (objectives, trends, etc.).

Research shows that performance measurement has been successfully applied where performance measurement systems are explicitly identified and linked to information technology management systems.

Conclusion

Quality indicators have evolved from product conformity monitoring, then to activities, process, and scorecards measurement, and eventually to interested parties' satisfaction measurement. The awareness of the risks associated with quality indicators mismanagement seems low compared with the large-scale use of indicators associated with quality management systems or programs. The causes of deviations are numerous and concern all aspects of the system (men, management, resources, methods, culture, etc.), and good practices proposed by the quality standards or the academic literature seem to have limited effect. New approaches such as quality indicators charters, business intelligence, and management control help tackle this difficulty.

If according to Matthias Elg and Beata Kollberg performance measurement is the process of collecting, computing, and presenting quantified constructs for the managerial purposes of following up, monitoring, and improving organizational performance, it remains that this process is generally not managed as a process, such as is usually practiced in quality management. In turn, this causes a functional dispersion of performance measurement.

Therefore, performance indicators system design, deployment, and maintenance may be improved significantly by becoming a formalized and piloted process. In such a process, quality indicators customers' expectations are identified, responsibilities defined, resources (notably business support computing) managed, methods (charter and protocols) formalized and validated, and "product" evolutions monitored. Similarly, the correction of nonqualities and prevention of risks will be conducted more efficiently if applied to a process that satisfies customer users' needs and expectations.

Gilles Barouch and Stéphane Kleinhans

Author Note: Portions of this entry have been adapted with permission from Barouch, G., & Kleinhans, S. (2013). Performance indicators drift: How quality management can help. *Advanced Quality*, 31(2), 1–9.

See also Balanced Scorecard; Consumer Needs; Customer Satisfaction Management in the Public Sector; EFQM Excellence Model; ISO 9000 Series; Plan, Do, Check, Act (PDCA) Cycle

Further Readings

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