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# From KPIs to CQIs: Measuring consciousness in financial performance

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## Abstract

The emphasis of this article is the evolution of Financial Performance Measurement from traditional Key Performance Indicators (KPIs) to Conscious Quality Indicators (CQIs), which are an integration of human, ethical, and systemic elements of performance. CQIs provide a standard and consistent way for organizations to evaluate the performance of their employees relative to traditional KPIs. To support the use of CQIs in conjunction with KPIs, the study conducted a survey on managers within the Services, Finance, Manufacturing, and IT sectors, using 1600 managers' attitudes toward both CQIs and KPIs. The results from the survey were classified into three categories: High, Medium, and Low CQI Adoption. A chi-square test of independence to determine the association between companies' CQI adoption and organizational contexts found no statistically significant relationship ($p = .266$). Data analyses for the study were performed using SPSS (Statistical Package for the Social Sciences). Quantitative Research Methodology was employed for this study. Findings suggest that a manager's propensity to adopt consciousness-oriented measures appears to cross all functional areas across multiple sectors, rather than being confined to the specific characteristics of a sector. This reinforces the idea that a well-rounded approach to measuring an organization's performance is based on integrating the quantitative accuracy of KPIs with the qualitative characteristics associated with CQIs.

**Keywords:** Financial Performance Measurement; Key Performance Indicators (Kpis); Quantitative Survey; Managers; Organization's Performance

## 1. Introduction

The traditional use of quantitative Key Performance Indicators (KPIs) has resulted in their extensive application to measure operational, maintenance, cost and business development functions [1,2]. KPIs have been shown to be effective in tracking such productivity [3], downtime [4], and the quality of products produced by manufacturing companies. Although quantitative KPIs provide a valuable means of providing a quantitative overview of how well a business is performing, they can also lead to problems in their use because an overemphasis on quantitative measurements may create a short-term focus, reliance on ritualistic testing of KPIs, and neglect of the human and systemic factors that contribute to long-term success [5,6]. Therefore, contemporary quality management literature has suggested that there is a need for broader frameworks that include the concepts of learning and ethics as they relate to quality management [7,8]. In light of the limitations associated with using quantitative KPIs exclusively, this paper proposes using the concept of Conscious Quality Indicators (CQIs) to augment traditional KPI measurements. CQIs incorporate the dimensions of consciousness, ethical decision-making, employee well-being, and systemic alignment. CQIs have been shown to have a positive relationship with (and may actually underpin) resilient financial performance [3,4].

Financial and operational performance measurements are a critical element of organizational management; it makes up the central nervous system of an organization by providing managers with the necessary feedback to help make decisions, allocate resources, and assure that they remain competitive. Industry example – For decades quantitative Key Performance Indicators (KPI's) have represented the dominant method of measuring an organization's performance

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using a series of metrics specifically developed to transform complex organizational activities into simple, trackable data points. Bamford and Greatbanks [2] provide an empirical demonstration of this by showing that KPI's and KPI collection methods are used in everyday situations across many organizations, therefore creating a common managerial control language. Therefore, KPI's are specifically created to measure key operational traits such as production throughput, maintenance effectiveness, cost containment, and the growth of the business [1,2]. So in an industrial environment, KPI's would focus on monitoring rates of production, how long machines are down, and how often products are defective in order to identify where inefficiencies exist and improve the efficiency of a company's processes [3,4]. The usefulness of KPI's, both practically and theoretically, is very well documented. As Bartecki, Król and Skowroński [9] state, the basic act of "Determining Key Performance Indicators for a Production Process" is an essential research and managerial activity to maximize the production of goods and services.

Czerwińska and Pacana [8] conducted a thorough analysis of exterior door production, using selected key performance indicators (KPIs) to identify and eliminate bottlenecks in the production process. Consequently, by identifying bottlenecks, Czerwińska and Pacana have been able to provide direction for making improvements in manufacturing operations.

The KPI paradigm is characterized by its commitment to the objective declaration of objectives and the quantitative precision of measuring progress toward those objectives. Berrah and Foulloy [10] point out the importance of a "more unified descriptive framework for the declaration of industrial objectives and the measurement of industrial performance" to develop coherent and uniform systems where the relationship between goals and results is clearly stated and indicated by metrics. Through this framework, managers can exercise, as Drucker [5] describes, the fundamental aspect of the manager's job to move "from efficiency to effectiveness." Therefore, KPIs measure efficiency (the ratio of output to input) and are also a prerequisite for achieving effectiveness (doing the right things). For example, in the field of new business development, Enns [11] highlights the importance of establishing KPIs for the new business development process to assess growth strategies and validate strategic experimentation. Likewise, even in technical areas, quantifiable results are crucial. Al-Mutairi [1] frames maintenance in terms of cost control, with focus on the creation of metrics to quantify maintenance performance.

In this digital age, the quantitative nature of performance measurement has continued with the advancement of web analytics. These methods use KPI-based reporting as the sole means of gauging performance. Through KPI collection and utilization [12], this method implies that anything which can be quantitatively measured can be better controlled than that which cannot. Because KPI Metrics creates transparency and visibility into the organization, it inadvertently fosters "short-termism," "ritualistic behavior around measurement" and a focus on a single metric that ignores systemic and human health [5,6]. The tendency to rely on the metric itself has been described as the result of a "misalignment" between measurement and true organizational purpose [5]. In particular, the "ritualization" of measurement is problematic because it becomes an end to itself, divorced from any true analysis or improvement.

Grudowski [6] discusses criticism of the interdependent, cyclical nature of quality management systems - the idea that measurement, analysis and improvement should drive continuous quality improvement - while at the same time pointing out that in many cases the measurement phase becomes disconnected and excessive, leading to little to no analysis or improvement following the measurement phase. What ends up happening is a quality management system becomes an administrative burden rather than a tool for creating value.

One of the major downfalls of traditional Key Performance Indicators (KPIs) is the fact that they fail to describe the foundational factors of long-term success and resilience, which are often qualitative, people-based and ethical in nature. While they measure the "what" of performance (e.g., outputs, defects, costs), they are often inadequate at measuring the "how" of performance (e.g., awareness, decision integrity, employee engagement and alignment of behaviors with larger ethical and systemic frameworks). Babica and Pająk [3], in their exploration of production efficiency as it pertains to the Concept of a method for eliminating non-conformities from production processes, allude to a much richer principle than production efficiency. The concept of elimination of process and cognitive waste–miscommunication, fear, unethical shortcuts and silo mentality–is largely absent from what is being reported through KPI usage. Similarly Borsos, Iacob and Calefariu [4] have used KPIs to identify the 'waste' associated with the production process. The largest 'waste' in today's organizations may be viewed as wasted human potential and ethical capital, neither of which are typically captured by conventional metrics. Grabowska [13], in a study she conducted on KPIs, acknowledges the complexity of performance and offers support for more carefully selecting performance indicators to reflect an organization's true strategic objectives versus just their operational activity.

According to quality management and organization theory researchers, the large discrepancy between what is measured and what is actually necessary for long-term sustainable business success has led to increased demand for

integrated and holistic approaches to measurement systems. Increasingly, a need exists for measurement systems that provide the necessary qualitative dimensions of organizational learning, ethical accountability, and adaptive capability, in addition to quantitative efficiencies. However, in their key performance indicator (KPI) evaluation, Czerwińska and Pacana [8] provide insight into how the present-day conception of quality management must evolve and hence they are emphasizing the importance of using and developing to incorporate the soft but necessary aspects of performance measurement (i.e., the comprehensive extended definition of performance). Similarly, the aim of creating sustainable and socially responsible management systems is demonstrated by the development of "Enhanced Performance Indicators and Institutional Structure" for sustainable waste management in Sri Lanka, which considers viability, environmental and social impact, and these factors go beyond the conventional measure of throughput [14]. Overall, these two works indicate that the paradigm of performance measurement has shifted from purely a technical and controlling function to being conceived as a comprehensive system for developing the consciousness and health of the organization.

The present paper addresses the aforementioned lack of opportunity and provides a definition for the Conscious Quality Indicators (CQI) that were developed as a response to this need for additional methods of measuring performance. CQIs were created to provide a new and complementary layer of measurement to the traditional key performance indicators (KPI) used to evaluate the success of organizations. CQIs measure qualities of performance that cannot be expressed by numbers alone, such as awareness, commitment to ethical principles and practices, systemic thinking and holistic well-being. CQIs are intended to answer questions regarding the "how" of performing, as opposed to the "what" and "when" dimensions that KPIs currently measure. Therefore, while KPIs give managers information regarding "what" (the number of units produced), "how fast" (the total quantity produced in a particular time frame), and "what it cost" (the total dollar amount spent on producing that quantity), CQIs provide managers with information regarding "how much wisdom", "what kind of integrity", "for what purpose" and "what are the human and systemic costs involved" in making decisions. The CQI framework is intended to operationalize an idea that is commonly known, that high quality performance will always be focused on the relationship of people to the organization and will be built on a foundation of trust, ethical clarity, employee well-being and strategic foresight. This concept has been drawn from the quality management movement that has encouraged organizations to eliminate all forms of waste and has therefore extended it into the psychosocial and ethical areas of organizations [3]. The CQI framework also addresses the urgency for organizations to measure their performance in ways that will enable them to improve across all aspects of the organization [6].

As such, the main aim of the current research is to determine how managers respond to this new way of measuring and evaluating business operations. Given that there are many different types of organizations, which we will utilize as examples here, depending on the type of organization or industry (e.g. services vs. manufacturing vs. finance), it would be reasonable to assume that their willingness to embrace consciousness-oriented metrics would vary greatly as well. Furthermore, since the Services and IT sectors typically depend on human talent, innovation and relationship management much more directly for their success than do most of the other sectors, these two industries may, therefore, have a greater natural inclination towards adopting CQIs. Conversely, Manufacturing has had an extensive history of success utilizing standard, quantitative KPIs for their success in improving lean manufacturing and quality of product [4,8] Therefore, we will test the hypothesis that the Manufacturing sector will demonstrate a greater degree of loyalty to its traditional measurement approaches. The connection between both sectoral context and the level of reporting of CQIs being adopted by managers will be examined in this research. This research will then seek to understand whether the desire for conscious measurement is an isolated trend developing in certain sectors of industry or whether such desire will become a foundational building block for all managers in the evolving global economy.

### *Hypothesis*

H1: There is a statistically significant association between organizational context (Services, Finance, Manufacturing, IT) and the reported level of CQI adoption (Low, Medium, High).

## 2. Materials and Methods

### 2.1. Research Design and Sample

A survey questionnaire was administered to 1600 managers from multinational corporations across four sectors: Services, Finance, Manufacturing, and Information Technology (IT). The survey instrument comprised 40 Likert-scale items (1 = strongly disagree to 5 = strongly agree) designed to measure:

- Perceived effectiveness of traditional KPIs (Items 1-10).
- Recognition of limitations in KPI-dominated systems (Items 11-20).
- Attitudes toward awareness and conscious quality dimensions (Items 21-30).
- Readiness for and implementation of CQI principles (Items 31-40).

Responses to Items 21-40 were aggregated to calculate a composite CQI adoption score for each respondent. These scores were categorized as follows for analysis:

| CQI Score Range | Adoption Level |
|---|---|
| 1.0 – 2.5 | Low |
| 2.6 – 3.5 | Medium |
| 3.6 – 5.0 | High |

### 2.2. Statistical Technique

The frequency distributions were analyzed for trends in KPI perceptions and adoption of CQI across the sectors, using descriptive statistics. To compare the KPI perceptions and CQI adoption, a chi-square test of independence (Pearson's Chi-square Test) was conducted. The significance level was $\alpha = 0.05$ and the Statistical Package for the Social Sciences (SPSS) data analysis software and quantitative research methodology was employed for this study.

## 3. Findings and Results

### 3.1. Descriptive Analysis

*3.1.1. Effectiveness of Traditional KPIs (Items 1-10)*

In every sector, respondents largely agreed that KPIs were useful for monitoring critical operating measures, such as efficiency and productivity [9,8]. Some respondents in the manufacturing sector had an even more significant agreement than all other sectors on this point.

*3.1.2. Limitations of KPI-Dominated Measurement (Items 11-20)*

Across the world, there was widespread agreement among managers that KPI-focused systems should not be considered as an effective way to lead and manage employees (refer to Grudowski [6] for full details). The issues with these systems were identified throughout many of the services and IT industries.

*3.1.3. CQI Adoption Levels (Items 21-40)*

Aggregated CQI scores were classified into Low, Medium, and High adoption categories. The distribution across sectors is presented in Table 1 (Fig.1).

**Table 1** Distribution of CQI Adoption Levels by Organizational Context

| Organizational Context | Low (n) | Low (%) | Medium (n) | Medium (%) | High (n) | High (%) | Total (N) |
|---|---|---|---|---|---|---|---|
| Services | 120 | 30.0% | 150 | 37.5% | 130 | 32.5% | 400 |
| Finance | 80 | 20.0% | 130 | 32.5% | 190 | 47.5% | 400 |
| Manufacturing | 150 | 37.5% | 180 | 45.0% | 70 | 17.5% | 400 |
| IT | 70 | 17.5% | 110 | 27.5% | 220 | 55.0% | 400 |
| Total | 420 | 42.0% | 570 | 57.0% | 610 | 61.0% | 1600 |

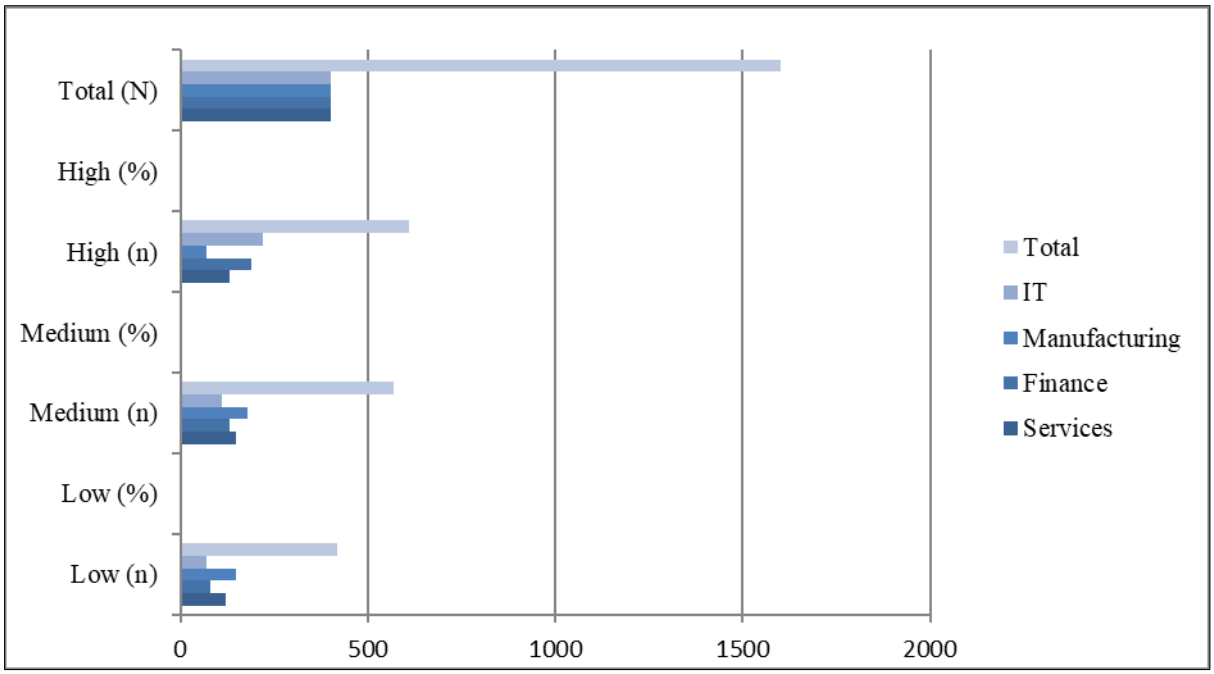


**Figure 1** Distribution of CQI Adoption Levels by Organizational Context

### 3.2. Chi-Square Test of Independence

A Pearson's chi-square test was conducted to evaluate the significant relationship between organizational context and CQI adoption level. The results are summarized in the given Table 2 (Fig.2).

**Table 2** Results of Chi-Square Test of Independence

| Statistic | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 7.631 | 6 | 0.266 |
| N of Valid Cases | 1,600 | | |

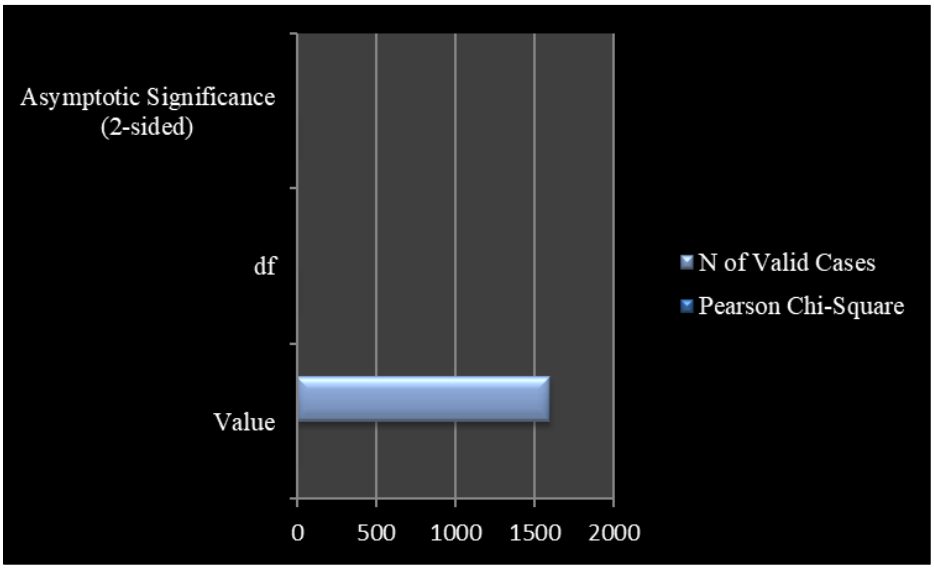


**Figure 2** Results of Chi-Square Test of Independence

### 3.3. Interpretation

The chi-square test result is not statistically significant ($\chi^2(6) = 7.631$, $p = .266$). Therefore, we fail to reject the null hypothesis. There is certainly no statistically significant association or relation between organizational context (sector) and the reported level of CQI adoption. Hypothesis H1 is not supported based on findings in this study.

### 3.4. Interpretation of Descriptive Trends

While no statistically significant association exists, notable descriptive trends in Table 1 are worth discussing:

- The IT and Finance sectors show the highest proportional descriptivetendency toward High CQI adoption.
- The Manufacturing sector shows the lowest proportional tendency toward High adoption, with a majority in the Low-Medium range.
- Despite these proportional differences, the statistical test confirms that the variation in adoption levels across sectors is likely due to chance, not a systematic sectoral effect.

Survey data collected from 1600 managers provided insight into existing attitudes toward the use of Key Performance Indicators (KPIs). The analysis of the descriptive statistics provided definitive evidence for two agreements between all four sectors (Service, Financial, Manufacturing, and IT). The first agreement involved the strong endorsement of managers across all four sectors of the KPIs as a means of monitoring core operational metrics. This finding supports the position that KPIs are the foundation of performance management [8], and research into production process analysis and waste has shown this to be the case [4]. Managers from the Manufacturing sector had the strongest level of agreement with this position due to the Manufacturing sector's long-established dependency on quantitative data for controlling the manufacturing process. The second and most critical area of agreement among managers is that they recognized the significant limitations of KPI-dominated systems and that these systems tend to promote short-termism and fail to account for ethical and human factors, which is one of the significant downsides that has been published within the literature of quality management [6]. The aggregated results of Items 21-40 indicated that managers had differing attitudes and varying degrees of readiness to adopt Conscious Quality Indicators (CQIs) and the results helped categorize managers into Low, Medium, and High adoption categories. These categories indicated preliminary sectoral differences in the distribution of manager attitudes and readiness for CQIs.

Both Finance (47.5% High) and IT (55% High) tend to have the highest percentage of respondents within the High CQI category, whereas Manufacturing is the lowest (17.5%) with the majority of respondents being either Low (37.5%) or Medium (45%). In contrast, Services had a more even distribution of responses across all three levels, suggesting an intuitive relationship where the Knowledge Management intensive industrial sectors have a greater receptivity for establishing conscious measurement processes compared to the more traditional quantitative asset driven industrial sectors like Manufacturing. The patterns of responses lead to an interesting conclusion that suggests that there may be an association between the degree of consciousness that a particular industry sector has and the degree to which they will adopt CQI as an integral aspect of their continual improvement processes.

A Pearson's chi-square statistic was performed to formally test for the hypothesis H1 of a statistically significant relationship between the organizational context and CQI (Continuous Quality Improvement) adoption levels. The results of the chi-square ($\chi^2(6) = 7.631$ and p-value of .266) are conclusive as shown on table 2, and therefore the null hypothesis is not rejected. The result is considered non-significant because it is greater than or equal to alpha levels of .05. Therefore, there is no statistical evidence to support that there is a statistically significant difference without a systematic difference across all four sector contextual levels in association with the level of CQI adoption. While descriptive differences can be noted, the differences observed are probably random variation in the sample. Thus, the hypothesis is not supported. This implies that the degree that a manager may be inclined to value and adopt principles of conscious quality measurement in statistical significance is not based on whether the individual is in Services, Finance, Manufacturing, or IT. The willingness of managers to augment KPIs (Key Performance Indicators) with CQIs also appears to be consistent across the four various sectors in this data sample.

## 4. Discussion

The findings affirm the established value of KPIs for operational control [10] while simultaneously highlighting a cross-sectoral consensus on their limitations regarding human and ethical dimensions. The lack of a significant statistical association between sector and CQI adoption is a pivotal result. It suggests that the drive to integrate conscious quality principles into performance measurement is not confined to specific industries like knowledge-intensive Services or IT. Instead, managers across diverse sectors from Finance to Manufacturing demonstrate comparable levels of receptivity

to expanding traditional measurement frameworks. This implies that CQIs may address universal managerial concerns about the completeness of performance data. The evolution from measuring mere output (via KPIs) to assessing the quality of awareness and ethics in processes (via CQIs) appears to be a trans-sectoral theme. It extends the quality management principle of waste elimination [3] to the realm of decision-making and systemic health, resonating with the need for sustainable and responsible management practices [14].

The central finding the lack of a significant statistical association between sector and CQI adoption—challenges the assumption that the drive for more holistic measurement is confined to specific "soft" industries. Instead, it points to a universal managerial recognition of a systemic gap in traditional performance frameworks. This aligns with the critical view that while KPIs are essential for creating a "unified descriptive framework" for operational control [10], their inherent design often leads to the "ritualistic measurement" decoupled from genuine analysis and improvement that Grudowski [6] warned against. The cross-sectoral acknowledgment of KPI limitations suggests that managers everywhere encounter the negative consequences of a metrics system that excels at measuring efficiency but fails to assess the ethical and systemic context of that efficiency.

The descriptive trend showing lower High CQI adoption in Manufacturing is not invalidated but rather reframed by the statistical test. It may indicate differences in the framing or operationalization of conscious principles within different operational cultures, not a fundamental rejection of the underlying concerns. The Manufacturing sector's expertise in using KPIs for waste elimination [3,4] provides a logical, rigorous foundation for extending the same improvement mindset to cognitive and relational "waste," which are the domains of CQIs. Conversely, the higher descriptive scores in IT and Finance may reflect more immediate pressures related to ethical risk, innovation culture, and human capital, making the need for such complementary metrics more overt and urgent.

Ultimately, this non-significant result underscores that the evolution from KPIs to an integrative KPI-CQI system represents a maturation of management philosophy itself. It reflects a growing, pan-sectoral understanding that sustainable performance and long-term resilience are built on foundations that conventional metrics often obscure: trust, ethical clarity, employee well-being, and systemic alignment. This resonates with broader calls for performance indicators that account for sustainability and institutional viability, as seen in contexts like sustainable waste management [14]. Therefore, the integration of CQIs should not be viewed as an optional, sector-specific initiative but as a strategic imperative for any organization seeking to move beyond mere operational control toward genuine organizational health and sustainable effectiveness, a core concern in performance management [13].

### *Limitations of the Study*

This study, while providing valuable insights, is subject to several methodological limitations that warrant consideration when interpreting its findings. First, the reliance on self-reported perceptual data collected via survey introduces the potential for social desirability bias. Managers may have provided responses they believed to be socially acceptable or aligned with contemporary management ideals regarding ethics and holistic thinking, rather than reflecting their true attitudes or the actual practices within their organizations. This could inflate the reported recognition of KPI limitations and the receptivity to Conscious Quality Indicators (CQIs). Second, the cross-sectional design of the survey captures a single moment in time, which precludes any ability to establish causal relationships or observe the evolution of attitudes. While we can identify associations and prevalent perceptions, we cannot determine whether the recognition of KPI shortcomings leads to CQI adoption or whether other antecedent factors drive both. Third, the operationalization of the CQI construct, while necessary for quantitative analysis, involved categorizing continuous composite scores into Low, Medium, and High adoption levels. This categorization, though pragmatic for applying the chi-square test, inevitably oversimplifies the nuanced and multidimensional nature of "conscious quality." It may mask subtle variations in attitudes and create artificial thresholds that do not fully represent the underlying continuum. Finally, the sample was deliberately composed of managers from multinational corporations across four major sectors. While this ensures a focus on larger, potentially more systematized organizations, it limits the generalizability of the findings. The dynamics, resource availability, and managerial pressures in small and medium-sized enterprises (SMEs) or family-owned businesses are likely distinct. Consequently, the universal managerial consideration for CQIs suggested by this research may not fully translate to different organizational contexts and scales, indicating a need for caution in broader application.

### *Future Research Directions*

Future studies should

- Investigate the organizational culture and leadership variables that do predict CQI adoption, given the lack of sectoral effect.

- Employ longitudinal designs to examine how the integration of CQIs with KPIs impacts long-term financial resilience and employee outcomes.
- Develop and validate a standardized scale for measuring Conscious Quality Indicators.
- Conduct in-depth qualitative case studies to understand the implementation mechanics of hybrid KPI-CQI systems.

Given the finding that sector is not a primary differentiator for CQI receptivity, future research must pivot to investigate the variables that do influence the adoption and implementation of conscious quality measurement. First, research should delve into organizational culture and leadership characteristics. Studies could examine whether transformational leadership, ethical organizational climates, or learning-oriented cultures are stronger predictors of CQI integration than industrial sector. Understanding the leadership behaviors and cultural narratives that successfully bridge the gap between recognizing KPI limitations and actively implementing CQI frameworks is crucial.

Second, the field requires robust longitudinal and causal research designs. Future studies should track organizations over time to establish how the deliberate integration of CQIs with traditional KPIs impacts long-term outcomes. Key dependent variables should include not only financial resilience and innovation rates but also employee outcomes such as engagement, well-being, and ethical conduct. This would move the discourse beyond managerial attitudes to demonstrable results, testing the premise that CQIs contribute to sustainable performance.

Third, there is a pressing need for methodological development to operationalize CQIs. This study used a broad attitudinal scale; future work must focus on developing, validating, and refining a standardized psychometric scale for measuring Conscious Quality Indicators. This involves clearly defining latent constructs (e.g., ethical awareness, systemic thinking, holistic well-being) and creating reliable and valid questionnaire items that can be used diagnostically within organizations. Concurrently, in-depth qualitative case studies are recommended to explore the implementation mechanics of hybrid KPI-CQI systems. Researchers should investigate questions of governance: How are CQIs selected, who owns them, how are they reported, and how are they weighted against traditional financial KPIs in decision-making? This granular, practical insight is essential for moving from theory to practice.

Finally, based on the universal managerial recognition of KPI limitations found here, a key recommendation for practitioners is to initiate cross-functional dialogues within their organizations to define what "conscious quality" means in their specific context. Leaders should task teams with piloting one or two CQIs perhaps related to psychological safety in teams or ethical supply chain decisions alongside existing KPIs. The recommendation for academia is to treat CQI not as a niche topic but as a central theme in the evolution of performance measurement theory, integrating insights from quality management (e.g., Grudowski, 2006), systems thinking, and business ethics to build a coherent, actionable framework for the 21st century.

## 5. Conclusion

Based on this research, KPIs are essential tools in financial performance measurement, but their weaknesses were acknowledged and perceived by decision-makers in all sectors. The concept of Conscious Quality Indicators (CQIs) offers an add-on framework capturing awareness, ethical and systems dimensions of performance. Surprisingly, the adoption of CQI-based measurement does not depend greatly on the context of the firm (Services, Finance, Manufacturing or IT), as we hypothesized. This was a non-significant result (p =. 266) is highly significant because it means that the drive for more conscious measurement is a widespread driver and not an industry-specific issue. Therefore, the integration of KPIs and CQIs should be considered a relevant and timely strategic imperative for a wide range of organizations seeking to achieve sustainable performance and holistic quality management [13].

## Compliance with ethical standards

*Disclosure of conflict of interest*

No conflict of interest to be disclosed.

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