Scientific Research Publishing

Open Journal of Business and Management, 2025, 13(5), 3484-3490
https://www.scirp.org/journal/ojbm
ISSN Online: 2329-3292
ISSN Print: 2329-3284

Decision Myopia: The Problem with KPIs—A Management Decision Making Perspective

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How to cite this paper: Levasseur, R. E. (2025). Decision Myopia: The Problem with KPIs—A Management Decision Making Perspective. *Open Journal of Business and Management, 13,* 3484-3490.
https://doi.org/10.4236/ojbm.2025.135186

Received: August 14, 2025
Accepted: September 9, 2025
Published: September 12, 2025

Abstract

The use of Key Performance Indicators (KPIs) is arguably a universal practice in the era of Big Data. While KPIs that measure what they appear to measure provide valuable information for management decision making, some do not. In these instances, relying on a KPI can lead to bad decisions and undesirable consequences. In this article, we answer four key questions from a management decision making perspective: What are KPIs? What are the weaknesses of KPIs? How can these weaknesses, if not understood, distort the meaning of KPIs and result in bad short, medium, and long term decisions? What can managers do to avoid the decision myopia that these weaknesses of KPIs cause?

Keywords

Decision Myopia, Key Performance Indicator, Weaknesses of KPIs, Decision Sciences, Big Data, Management Decision Making, Guidelines for Managers Using KPIs

1. Introduction

This paper is about decision making in the modern era of Big Data and ultrafast computers, in which massive amounts of data are mined instantaneously to provide seemingly accurate information to managers. Seems too simple, doesn't it? In fact, it is! Managers, whose success depends on making good decisions, need to understand how the computer—the black box—actually generates metrics, like KPIs, to avoid making bad decisions. To understand the nature of this problem and what to do about it, we will examine four aspects of KPIs: (a) what they are; (b) what their inherent weaknesses are; (c) why these weaknesses can distort the meaning of KPIs, resulting in bad short, medium, and long term decisions; and (d) what managers can do to avoid the decision myopia that these weaknesses of KPIs cause.

2. What Are KPIs?

Day (2025) provided a useful definition of a KPI: "A key performance indicator (KPI) is a measurement used to define whether an organization, team, or employee is meeting a predefined goal." In essence, KPIs are measurements of performance generated by computers and used by managers to make decisions. Given the widespread use of KPIs for this purpose, it is imperative that managers understand not only their strengths but also their weaknesses.

While the name is relatively new, the concept of KPIs is not. Many of the best managers in a Fortune 15 company I worked for in the 1970s used them to improve their decision making for the same reasons managers use them today. By keeping track of a set of KPIs that fit their business model and managerial focus, these managers were able to determine how well they were performing in each area measured by a KPI and how that performance was trending over time. Thus, the KPIs served both as measures of current performance and leading indicators of changes in performance. Armed with this type of data-supported intelligence, they were among the most successful managers in the company. It is important to note that as members of the internal consulting group that generated the KPIs, we ensured that they measured what they were supposed to measure and that managers interpreted and used them correctly to make good decisions. As we will discover in the next section, this oversight role was essential to counteract the inherent weaknesses of KPIs.

3. What Are the Weaknesses of KPIs?

The weaknesses of KPIs stem primarily from three factors: spurious significance, measuring efficiency but not effectiveness, and the exclusion of intangibles. If not understood, these issues can distort the meaning of KPIs and result in bad short, medium, and long term decisions. In this section, we examine each of these weaknesses of KPIs. In the next section, we examine the short, medium, and long term effects of these inherent weaknesses on management decision making.

Spurious significance is a potentially serious problem with KPIs generated from large amounts of data, the norm in the Big Data era. Spurious significance is a statistical term for apparently valid findings that are, in fact, not genuine characteristics of the data analyzed. When it occurs, spurious significance creates the false impression that two variables are related. This is because a significant statistical measure of correlation (suggesting a relationship between two variables) is not proof of a causal relationship (i.e., a direct cause-and-effect link) between them. The latter can only be determined by conducting a controlled experiment. The problem that arises is that when the data set used to calculate the significance of a correlation between the two variables in a KPI is very large, even very small correlations can be statistically significant. In short, even if there is a statistically significant correlation between the value of a KPI and the variable it purports to measure, it may have a very small effect on that variable. Assuming that a strong correlation is a sign of a strong effect, and acting on that assumption, is the prob-

lem that arises from spurious significance. We will see how to deal with the problem of spurious significance, and the other weaknesses of KPIs later in the section of the paper about using KPIs correctly.

KPIs work well as measures of efficiency, such as the cost of manufacturing a product or the sales revenue per dollar of advertising. However, KPIs are problematic as measures of effectiveness, such as the productivity of a knowledge worker. The difference between measuring the productivity of a production worker versus a knowledge worker is that the former is largely based on tangible, hard data; whereas, measuring the latter involves much more than hard data. For example, when managers ignore important intangible factors, like the quality of the interaction with the customer and the variability in the work of individual knowledge workers, in favor of KPIs based on hard data only, like the average time spent interacting with each customer (where lower is better), the likelihood that those KPIs are ineffective measures is high. In short, when the effect of intangibles is negligible relative to what the KPIs measure, KPIs work well. Otherwise, their use is problematic. It is important to note that using a multiplicity of KPIs when making decisions, as in a balanced score card approach, while arguably providing a broader perspective, does not address the root problems (identified in this paper) that exist in any of the KPIs in the scorecard.

4. What Problems Do KPIs Create?

Shortsightedness due to unrecognized weaknesses in KPIs can lead manager to make bad short, medium, and long term decisions. As we shall see, in the short term such myopic decisions can negatively affect important organizational outcomes like employee engagement, job satisfaction, morale, productivity, commitment, and turnover. In the medium term, they can lead to higher and higher levels of employee disengagement. In the long term, they can negatively impact organizational effectiveness and, ultimately, sustainability.

4.1. Short Term

Decision Myopia => Bad Decisions => Bad Outcomes

Employee monitoring is an example an application of KPIs that may have a deleterious effect due to shortsightedness (i.e., decision myopia) induced by the hidden weaknesses of KPIs, as the following quotation from an article in the New England Journal of Medicine regarding quality metrics (KPIs) of patient care suggests:

Proliferating measures of health care quality may distract clinicians from what matters to individual patients and from larger public health problems. The perception that practice variation signals quality deficiencies remains foundational to the pursuit of "high value" care. But if value is defined as quality divided by cost, measuring value faces all the same problems as measuring quality—flawed risk adjustment, metric gaming, omission of the many aspects of quality that defy measurement (Rosenbaum, 2022).

The goal, to standardize medical treatment and eliminate unnecessary diagnostic tests and procedures, is laudable, but the effect of relying on KPIs that represent the norm for a population of patients can be problematic in several ways. The suggested course of action based on the KPIs may not be best for individual patients who do not represent the norm, causing the physician to prescribe treatments that he or she would otherwise not choose, which is a potential loss for the patient as well as the physician whose judgment is overridden by a machine, or to ignore the recommendation of the monitoring system and prescribe what they feel is best for the patient, resulting in a an arguably lower performance rating than the physician deserves.

Bad short term decisions like this can have a multitude of bad outcomes, such as lower employee morale, satisfaction, engagement, productivity, and organizational commitment; as well as increased turnover, higher employee replacement costs, and greater loss of organizational knowledge. They can also result in lower project success rates and declining sales.

4.2. Medium Term

Decision Myopia => Bad Decisions => Engagement Crisis

How many people does it take to row a 250 pound row boat? One, if you are using it for fishing. Eight, if it is a super lightweight 8-person rowing shell designed for competitive racing. If your focus was on efficiency, and you used a KPI for crew size, then you would say the row boat was highly efficient, but the rowing shell was highly inefficient. Solution, get rid of 7 of the 8 rowers on the rowing shell. If your focus was on effectiveness, however, you would keep all 8 rowers. Say you eliminated one rower each week, what would happen? Your KPI for crew size would improve, but your effectiveness KPI would decline each time. In parallel, the morale of the remaining crew members and their level of engagement with the process of competing as a team would likely decline each time. An engagement crisis is arguably the medium-term cost for organizations who use KPIs that lead managers to confuse efficiency with effectiveness.

4.3. Long Term

Decision Myopia => Bad Decisions => Organizational Failure

The increasing use of technology to replace people has negative long term consequences. As someone who has worked in jobs on the factory floor to others providing direct access to the executive suite, it is obvious that people, not rules, metrics, or policies and procedures, are the glue that holds organizations together. Hence, it is vital to ensure that the application of technology where needed to improve efficiency does not at the same time decrease the effectiveness of the organization. An example of this occurred in a Fortune 15 corporation I worked in when a shortsighted new senior leader eliminated a small number of employees who worked together to coordinate the work of all departments involved in fulling customer orders for complex computer systems. Not understanding the vital role

they played in the company's success, he decided they were not needed and fired them. Shortly thereafter, the company suffered its first quarterly loss since its founding decades before. Fortunately for the company, his egregious error was reversed by the CEO. Every company has interstitial people like those released by the new leader at this computer company. Eliminating them based on KPIs that do not recognize the importance of their unmeasurable contributions will arguably result in organization failure due to customer dissatisfaction with the organization's lack of responsiveness, flexibility, and performance.

5. What Is the Solution to Decision Myopia?

The solution to decision myopia is to use KPIs in ways that make shortsighted decisions less likely. For managers in the Big Data era, better use of KPIs involves (a) knowing whether a KPI is a weak, moderate, or strong indicator of what it is meant to measure, (b) identifying relevant intangibles and incorporating them in the decision-making process, and (c) engaging relevant stakeholders in the process of using KPIs to make major decisions.

The strength of a KPI depends on two factors, the statistical significance of the KPI (a measure of correlation) and the coefficient of determination of the KPI (the amount of the variation in the data, from zero to 100%, explained by the KPI). If there are lots of data, which is typically the case, even KPIs that explain little of the variation in the data (i.e., are weak indicators) can be highly significant. In the words of Shakespeare, "There's the rub." It is incumbent of decision makers who use KPIs to ensure that they are at least moderate indicators of what the try to measure. In practice, this means requiring that KPI providers also provide the coefficient of determination (i.e., the percent of variation explained by the KPI), or a scatter plot of the actual data and a line indicating the relationship between the KPI and the actual data, as we used to provide to decision makers at the Fortune 15 computer company I worked for in the 1970s.

In a classic article, John D. C. Little proposed six criteria for building decision support system (DSS) models that managers would actually use. These were that the model must be (a) simple, (b) robust, (c) easy to control, (d) adaptive, (e) complete on important issues, and (f) easy to communicate (i.e., interface) with (Little, 1970). For example, for a full-scale product marketing model used by a major consumer marketing company to forecast product sales based on the marketing mix (the decision variables), this entailed incorporating the four P's of marketing (product, price, place, and promotion) into the DSS model. Due to the existence of hard data, the first three were relatively easy to incorporate. However, promotion consisted of a measurable variable (sales from end-of-aisle displays featuring a discount on the product) and an intangible variable (the effect of different levels of advertising on product sales). With respect to the six criteria defined in Little (1970), this model was complete, and met the other five criteria. The challenge was to figure how to include advertising, the intangible. The answer was to determine the shape of a sales response to advertising curve indicating sales for

low, medium, and high levels of advertising expenditures. To do this, a group of senior individuals made up of the brand manager, experts from the advertising firm, and senior marketing executives were asked to calibrate key inflection points of an S-shaped curve assumed to represent the response of sales to advertising. Basically, money must be spent with minimal sales to create product awareness. At higher levels of expenditure on advertising, the maximum return per dollar invested occurs. In the final stage of the curve, further advertising expenditures result in little or no additional sales or, if too high, negative sales. Little summarized his views on the current viability of this approach to DSS model building as follows, "Guidelines like simplicity, robustness, completeness, and ease of use, as perceived by the user, should not be surrendered easily" (Little, 2004: p. 1858). Although Little's models were much more complicated that the typical KPI, his views on completeness argue strongly for the inclusion of relevant intangible decision making factors in KPIs, or at the very least considering them along with the KPI when making decisions.

Kurt Lewin, one of the original proponents of using collaborative processes for organization development, conceived a classic three-stage change model—unfreeze, move, refreeze (Lewin, 1958; Levasseur, 2001). In the first stage, the manager works collaboratively with those affected by the change to involve and engage them in the need for change. In the second stage, the manager facilitates (as necessary) their work as they independently analyze, create, and implement the steps in the change process necessary for its success. In the final stage, the manager monitors progress, facilitates any needed modification to the implemented changes, and ensures that the new processes become the standard operating procedures. Examining Little's criteria for building effective DSS models in light of Lewin's change model suggests why engaging users in the model-building process works so well. Little, like Lewin, knew that engaging stakeholders in the change process would help to reduce resistance to change and was thus justified when making major decisions, as it would enhance the likelihood that the stakeholders would accept and implement the change (Levasseur, 2015). It is likely that engaging key stakeholders in the active enhancement and use of the relevant KPIs for major change initiatives would similarly reduce resistance to their use and result in better decisions.

6. Conclusion

KPIs that measure what they appear to measure provide valuable information for management decision making, but not all do. In these instances, relying on a KPI can lead to bad decisions and undesirable consequences. In this article, we answered four key questions from a management decision making perspective: What are KPIs? Measures of performance (Day, 2025) typically generated by a computer. What are the weaknesses of KPIs? The weaknesses of KPIs stem primarily from three factors: spurious significance, measuring efficiency but not effectiveness, and the exclusion of intangibles. How can these weaknesses, if not

understood, distort the meaning of KPIs and result in bad short, medium, and long term decisions? Shortsightedness due to unrecognized weaknesses in KPIs can lead manager to make bad short, medium, and long term decisions. In the short term such myopic decisions can negatively affect important organizational outcomes like employee engagement, job satisfaction, morale, productivity, commitment, and turnover. In the medium term, they can lead to higher and higher levels of employee disengagement. In the long term, they can negatively impact organizational effectiveness and, ultimately, sustainability. What can managers do to avoid the decision myopia that these weaknesses of KPIs cause? The solution to decision myopia is to use KPIs in ways that make shortsighted decisions less likely. For managers in the Big Data era, better use of KPIs involves (a) knowing whether a KPI is a weak, moderate, or strong indicator of what it is meant to measure, (b) identifying relevant intangibles and incorporating them in the decision-making process, and (c) engaging relevant stakeholders in the process of using KPIs to make major decisions. The best practice managers should adopt to ensure their effective use of KPIs is to understand the weakness of KPIs and focus on the decision (multifaceted), not the KPI (one of many indicators).

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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