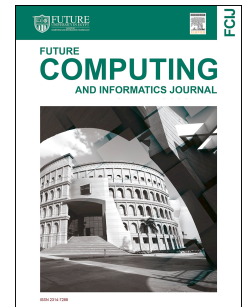


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A Survey on Exploring Key Performance Indicators

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Abstract— Key Performance Indicators (KPIs) allows gathering knowledge and exploring the best way to achieve organization goals. Many researchers have provided different ideas for determining KPI's either manually, and semi-automatic, or automatic which is applied in different fields. This work concentrates on providing a survey of different approaches for exploring and predicting key performance indicators (KPIs).

Keywords—key performance indicator (KPI);prediction; Business Intelligence;

I. INTRODUCTION

Indicators or key performance indicators (KPIs) in business environment are mostly quantitative information; it illustrates structures and processes of a company. Now KPIs are very important for planning and controlling through supporting information, creating transparency and supporting decision makers of the management [1].

Lord Kelvin defined KPIs as "When you can measure what are speaking about and measure it in numbers, you know something about it, when you cannot express it in numbers, your knowledge is of meager and unsatisfactory kind; it may be the beginning of knowledge but you have scarcely, in your thoughts advanced to the stage of science." [2].

Many companies are working with the wrong measures, many of which are incorrectly named key performance indicators (KPIs). Very few organizations really monitor their true KPIs. That is because only few organizations, business leaders, writers, accountants, and consultants have explored and knew what a KPI actually is.

There are four types of performance measures (Exhibit 1.1): [3]

1. Key result indicators (KRIs): it tells you how you have achieved in a perspective or critical success factor.
 2. Result indicators (RIs): tell you what you have done.
 3. Performance indicators (PIs): tell you what you must do.
 4. KPIs: tell you what to do to highly increase performance.
- To describe the relationship between these four performance measures by using an onion analogy.

"The outside skin describes the overall condition of the onion, the amount of sun, water, and nutrients it has received;

and how it has been handled from harvest to the supermarket shelf. The outside skin is a key result indicator. However, as we peel the layers off the onion, we find more information. The layers represent the various performance and result indicators, and the core represents the key performance indicator"

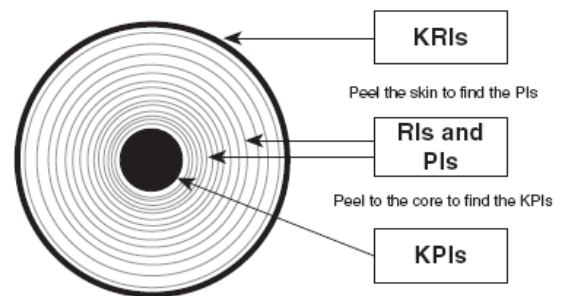


Fig. 1. Four Types of Performance Measures

KPIs act as a set of measures focusing on those sides of organizational performance that are critical for the success of the organization. KPIs are seldom new to the organization. They may have not been recognized or they were gathering dust somewhere unknown to the current management team.

Wei Peng divides the KPI to three Types as follows:: [4]

A. Leading indicator

A KPI that measures activities that have a significant effect on future performance," which are causal roots of the outcome (i.e. lagging indicator) they influence, and actionable for the future performance against one or more lagging indicators.

B. Lagging indicator

A KPI that measures the output of past activities.

C. Diagnostic measure

A KPI that is neither leading nor lagging, but signals the health of processes or activities. For example: Number of clients that sales people meet with each week may be a leading indicator of Sales Revenue. (A weak indicator or outcome); "Complex repairs completed successfully during the first time or visit" be a leading indicator of "Customer relief. Leading indicators are very powerful metrics in that they owns the predictive and insightful causal relationship(s) within the business process(s), and authorize the actionable course to continue the process improvement. Therefore, creating

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