

A Strategic Performance Indicator Deriving Framework for Evaluating Organizational Change

Kasei Miura*

The System Design and Management Research Institute of Graduate School of System Design and Management, Keio University, Kanagawa, Japan

Nobuyuki Kobayashi

The System Design and Management Research Institute of Graduate School of System Design and Management, Keio University, Kanagawa, Japan

Seiko Shirasaka

Graduate School of System Design and Management, Keio University, Kanagawa, Japan

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ABSTRACT

The management of performance indicators is critical to the development and deployment of an organization's strategies and to the evaluation of changes in organizational performance as an outcome. To adapt to the changing environment, strategies are often restructured and strategic initiatives are developed. The implementation of such strategic initiatives requires the timely and dynamic management of performance indicators in line with the restructured strategies. In this study, we aim to support strategic decision making in the changing environment and propose a framework for deriving performance indicators for evaluating organizational change. The strategic performance indicator derivation (SPID) framework was applied to strategic initiatives to evaluate validity. Results show the effectiveness of the SPID framework and the derived performance indicators. Using the proposed framework, the achieved performance change can be explained more clearly based on the causal relationship between the transition state of the organization and the strategic initiatives.

Keywords: Performance Indicator; Strategic Initiative; Organizational change; Decision Making.

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1. INTRODUCTION

The management of performance indicators plays a key role in the organization's decision making as it builds strategies, deploys within the organization, and evaluates their impact on its performance (Dixon et al., 1990). The strategy of an organization is dynamically managed in response to the degree of variability, uncertainty, complexity, and ambiguity (hereinafter referred to as VUCA) of the environment surrounding the organization (Bourne et al., 2018). In order to develop this dynamic strategy into the organization, the organization plans and implements strategic initiatives. However, in adapting to changes in the external environment, there is often a disconnect between the

organization's strategy and the management of performance indicators (Bititci et al., 2012; Taticchi et al., 2012). The time lag between a strategy and its ultimate outcome makes it difficult to timely assess changes in an organization's performance once the strategy is restructured. (Yadav et al., 2013; Melnyk et al., 2014).

The purpose of this study, therefore, is to support strategic decision making in the changing environment and to propose a framework for deriving strategic performance indicators for evaluating organizational change. Specifically, we propose a framework for deriving performance indicators consisting of four steps: (1) inferring the state of the organization in transformation, (2) analyzing the enablers in the organization, (3) extracting the functions of strategic initiatives, and (4) deriving the performance indicators by matching the enablers of the organization with the functions of strategic initiatives.

The four steps of the strategic performance indicator derivation (SPID) framework were developed through the following two considerations in order to align performance indicators with strategies that adapt to the changing environment. The first is to map the performance indicators to the state of the organization (which is the objective of the strategy), and the second consideration is to derive the performance indicators based on the mapping of the enabler of the organization and the strategy. Details are given in Chapter 3.

The evaluation method employed in this study is the application of the SPID framework to the strategic initiatives in the drug discovery sector of a pharmaceutical company. The results suggest the effectiveness of the proposed SPID framework, which features the inference of the organizational state and the functional analysis of the strategy to explain the correspondence between strategies and performance indicators.

Next, the novelty of this study is described. The integration of strategic decision making (Snowden and Boone, 2007) and performance measurement (Melnyk et al., 2014) under a VUCA environment is reported at the concept level (Alexander et al., 2018). This study differs from previous studies in that it proposes a method to derive a concrete performance indicator for decision making. Applied Information Economics (AIE) approaches (Hubbard, 2010) and evidence-based practices (Guyatt et al., 1992) that optimize decision-making through the modeling of organizational knowledge and evidence in highly uncertain environments have been reported. The current study differs from previous studies in that it provides a view of organizational states and function of strategic initiatives for the modeling information. In view of the above, the novelty of the current study is that, unlike conventional performance evaluation approaches that provide a fixed point of view, it provides a flexible point of view by focusing on the correspondence between strategic objectives and initiatives.

This paper consists of six chapters. Chapter 2 describes previous researches on the management of performance indicators. Chapter 3 describes the proposal for this study, and Chapter 4 reports the evaluation results of the proposal. Chapter 5 discusses the results of the evaluation and Chapter 6 summarizes the results of this study.

2. RELATED RESEARCH

The management of performance indicators consists of processes that support the strategy by collecting, selecting, analyzing, and providing relevant information (Neely et al., 2002). The following two points are important for the management of performance indicators.

- i. To have viewpoints to measure the organization's performance from a bird's-eye view
- ii. To be able to explain the causal relationship between the viewpoints

The Balanced Scorecard offers four viewpoints to measure from a bird's-eye perspective: finance, customer, process, and learning and growth. In addition, there exists a relationship between two perspectives, namely, the financial perspective as a lagging indicator and the non-financial perspectives (customer, process, and learning and growth) as a leading indicator (Kaplan and Norton, 1996). In a VUCA environment, an organization must restructure its strategy to adapt to change and provide performance indicators that align with the restructured strategy in a dynamic and timely manner (Bitcici et al., 2000).

In the following chapters, we discuss the process of deriving performance indicators for strategic initiatives in order to realize an organization's strategy.

3. PROPOSED MODEL AND FRAMEWORK

In this study, we propose a method for deriving performance indicators to achieve the objective of supporting strategic decision making. In order to support the strategy, the performance indicators must be aligned to it. To this end, the following two requirements were considered.

1. Align the performance indicators with the state of the organization for which the strategy was intended.
2. Derive the performance indicators based on the correspondence between the state of the organization and the strategies.

We explain the reasons for deriving the four steps of the SPID framework below. The organization must assess the external environment and internal structure from which a strategy is developed to achieve the desired state. There exists a gap between the target state and the current state, and the organizations plan and implement the strategic initiatives for the transformation towards the target state. If the strategy has a medium- to long-term timeframe, the transformation will take time to achieve the target, so the intermediate state must be analyzed to timely assess the effectiveness of the strategy. Therefore, in deriving the performance indicator, the step of inferring the state of the organization, including the intermediate state, should be taken (Step 1).

There are enablers which support the states intended by the organization (Shirasaka, 2009). The enablers are often organizational functions, processes, and management resources. During the development of strategies, an organization designs strategic initiatives, which strengthen the identified enablers. When planning strategic initiatives, the organization considers key functions of strategic initiatives to transform the organization into its intended state. Therefore, in deriving the performance indicator, the step of analyzing the enablers for achieving the state of the organization (Step 2) and extracting the functions of the strategic initiatives must be taken (Step 3).

The final step in deriving a performance indicator is to consider indicators for measuring performance changes based on the correspondence between the organization's enablers and the function of the strategic initiatives (Step 4). In view of

the above, we establish the following four steps as a method for deriving performance indicators that correspond to strategies:

Step 1: Infer the state of the organization in transformation

Step 2: Analyze the organization's enablers

Step 3: Extract the functions of the strategic initiatives

Step 4: Derive the performance indicators

3.1. Strategy and Performance Alignment Model (SPA Model)

We propose an SPA model to explain the four steps required to derive performance indicators for strategic initiatives. The SPA model consists of four perspectives that corresponding to the defined steps: the perspectives of the state of the organization, the enabler of the organization, the strategic initiatives, and the performance indicators (Table 1).

Table 1 Perspectives of Strategy and Performance Alignment

Organization	State	Organization's capability Current state, Goal state, Transition state
	Enabler	Support to achieve the target state Function, Process, Management Resource
Strategic Initiative		Measure to implement strategy Solution, Intervention, Project
Performance Indicator		Items for performance measurement

The relationships among these four perspectives are shown in Figure 1. The state of an organization consists of several states of such an organization and the enablers of those states. The state of the organization consists of the target and the current states as well as the transition state between them. We describe the transition states by a top-down approach from the target state or a bottom-up approach from the current state based on an analysis of the gap between the two states. Each state is supported by the enablers. Organizations plan the strategic initiatives with the aim of achieving the strategic objectives, for which the necessary functions are examined. Such initiatives contribute to achieving the target state through enhancing the enablers of the organization. We describe indicators based on the correspondence between the state of the organization and the strategic initiatives.

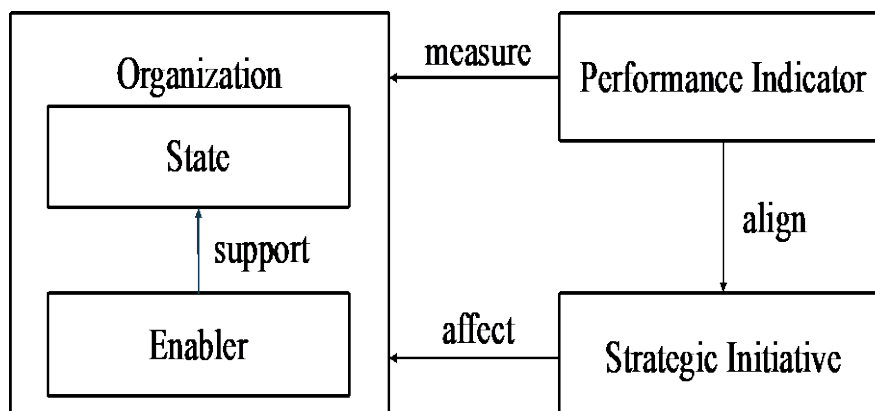


Figure 1 SPA Model

3.2. Strategic Performance Indicator Derivation (SPID) Framework

A SPID framework was designed based on the SPA model (Figure 2). Each step has its purpose, output, and method. Each step is performed in sequence, but is intended to be repeated as necessary.

Step 1: Infer the state of the organization

Step 1 aims to infer the state of the organization. The outputs are the target state and the possible intermediate states in the transition process. If it takes time to achieve the desired state, consider multiple transition states to timely assess the transition situation. The gap analysis is one of the useful methods to infer the transition state (Langford et al., 2007). And the forward-casting or the back-casting approach is practical depending on the degree of uncertainty in the state of the organization (Kazemi et al., 2017).

Step 2: Analyze the organization's enablers

Step 2 aims to describe the enablers that are necessary to realize each state of the organization. The output is a list of enablers in each state. The enabler framework is available as a way to analyze the enabler (Shirasaka, 2009).

Step 3: Extract the functions of the strategic initiatives

Step 3 aims to grasp the functions of the strategic initiatives, with its output being a list of the extracted functions. The methods of extracting functions include FFBD (Long, 2002) and WBS (Tausworthe, 1979), among others.

Step 4: Derive the performance indicators

Step 4 aims to derive the performance indicator and the output is a set of such indicators. Performance indicators are derived by creating a matrix based on the organization's enablers and the functions of the strategic initiatives. In addition, the validity of the strategic initiatives is evaluated by confirming the correspondence between the enablers and the functions of the initiatives (Kobayashi et al., 2018).

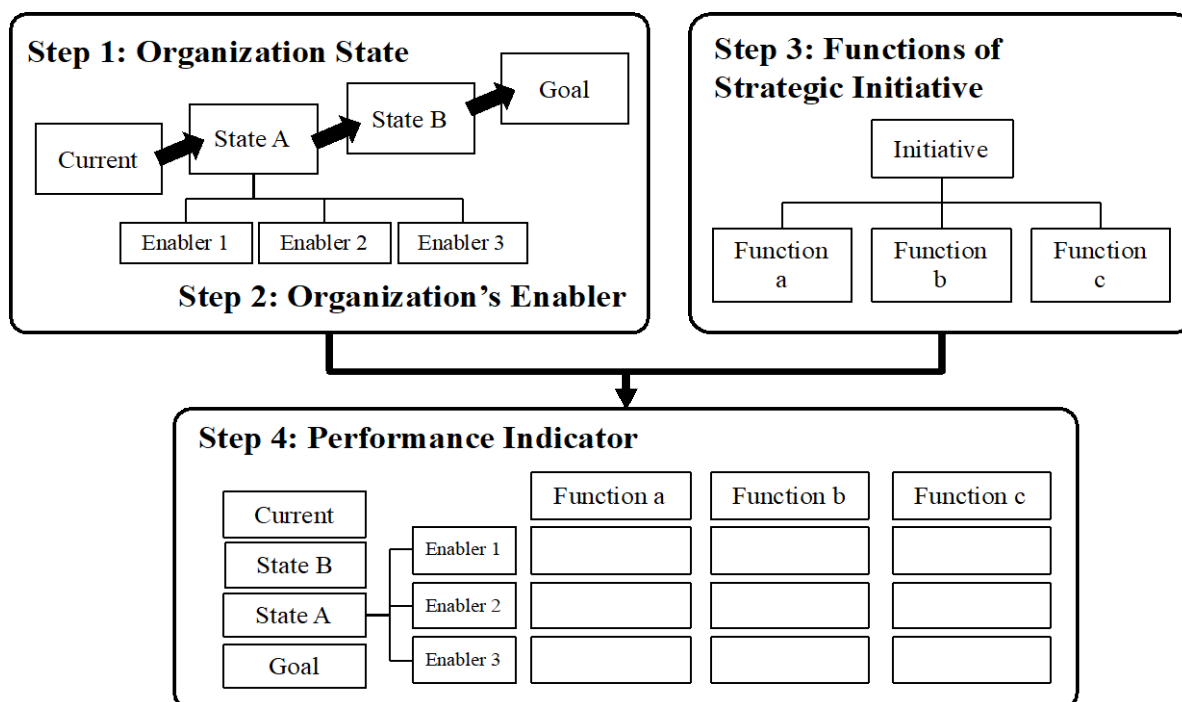


Figure 2 SPID Framework

4. EVALUATION OF THE PERFORMANCE INDICATOR DERIVATION METHOD

4.1. Evaluation Method

The SPID framework was applied to the strategic initiatives being implemented in the research departments of the pharmaceutical company. Four different types of strategic initiatives were selected from those under implementation with the cooperation of managers in charge of planning and implementation. Using the SPID framework, the managers tried to derive the performance indicators of the strategic initiatives. After the trial, we conducted interview to the managers.

4.2. Strategic Initiative

The purpose of this study was to support strategic decision making by evaluating the effectiveness of different types of strategic initiatives. Therefore, we classify the strategic initiatives by the purpose and intended change. In other words, the objectives of strategic initiatives are defined as the results generated and the ability to generate results, whereas the objectives of the strategic initiatives are defined as the financial/tangible and non-financial/interchangeable changes (Table 2).

		Intended change	
		Financial / Tangible	Non-Financial / Intangible
Objective	results generated	e.g., Procurement optimization	e.g., Creation of research themes
	ability to generate results	e.g., Discovery process optimization	e.g., Cultivate innovative culture

Table 2 Type of Strategic Initiative

4.3. EVALUATION RESULTS

The interview results for each step are shown below.

Step 1: Infer the state of the organization

- “More than one transition state could be considered for the organization to achieve the goal, and transition processes could be inferred.”
- “There was a lack of information needed to infer what transition state the organization was going through to reach the desired state.”
- “A short-term strategy did not require a transition state.”
- “Strategies aimed at improving financial performance made it easier to describe the desired state.”

Step 2: Analyze the organization's enablers

- “As it was considered as an enhancement point when planning strategic initiatives, it was easy to analyze the enablers.”
- “Explaining the relationship between organizational status and enablers was difficult.”
- “As the goal was ambiguous, other steps could be repeated to analyze the enablers.”
- “Given that the transition state of the organization was clearly inferred, it was possible to analyzing the necessary enablers and discussing how to deal with strategic initiatives became possible.”

Step 3: Extract the functions of the strategic initiatives

- “The necessary functions for the strategic initiative were considered.”
- “There were missing functions in the strategic initiatives.”
- “By creating a matrix of organizational enablers and strategic initiatives, we were able to validate the notion that strategic initiatives encompassed the required capabilities.”
- “These derivation methods should be applied during the planning of the strategic initiatives to provide a more detailed design.”

Step 4: Derive the performance indicators

- “It was possible to derive not only a performance indicator for the desired state but also a performance indicator for the transition state assumed to have passed through the transition process.”
- “The derived performance indicators were better explained by the relationship between the organizational goals and actions.”
- “The traditional performance indicators were unable to clearly link the status of the objectives to the strategic initiatives, making it difficult to adequately describe the effectiveness of such initiatives. However, the framework has made it easier to describe the derived performance indicators.”
- “The appropriateness of the derived performance indicators should be reviewed based on the results of the measurements.”

5. DISCUSSION

5.1. Organization State

Several comments (e.g., “It was possible to examine the transition states that the organization goes through until the goal was achieved, and to infer the transition process of the transition state”) suggested the effectiveness of the proposed framework in the estimation of intermediate states for timely performance evaluation.

Another comment (“The information necessary to infer through what transition state the organization was in to reach the target state was insufficient”) suggested that the uncertainties in the external environment and the complexity of the internal structure might make it difficult to grasp and infer the situation completely. The purpose of the performance measurement itself includes gaining a full understanding of the situation. Thus, the information obtained must be sorted when deriving the performance indicator and the necessary measurement items must be identified.

Based on one comment (“It was a strategic initiative that was effective in the short term, and there was no need to consider transition states”), Step 1 could be simplified in the case of improvement as an extension of operation. Another comment (“In the case of the initiatives aimed at improving financial performance, it was easy to describe the target state”) suggested the effectiveness of the strategic initiatives aimed at improving financial performance.

5.2. Organization’s Enabler

One comment (“The analysis of the enabler was easy because it was considered as a strengthening point in the planning of strategic initiatives”) suggested that the enabler analysis may have been done at the time of formulating strategy and the results of formulation can be used. Meanwhile, another comment (“It was difficult to explain the relationship between the state of the organization and the enabler”) implied that the relationship between a state and an enabler can be described as a cause and effect relation, such that when the state transition of an organization is inferred, the state before such a transition is described as a premise. Thus, it may be difficult to distinguish between the enabler and the state during the transformation.

One comment (“Because the target state was ambiguous, the steps could be repeated to analyze the realization”) suggested that it is not always easy to produce outputs step by step. In particular, when the target state is ambiguous, the usefulness of repeating the steps may be suggested. Meanwhile, another comment (“Since the transition state of the organization was clearly inferred, it was possible to analyze the necessary enablers of

each state, and it was possible to examine the correspondence with the strategic initiatives”) suggested the effectiveness of this approach in deriving performance indicators.

5.3. Functions of the Strategic Initiatives

One comment (“The functions necessary for planning strategic initiatives have already been examined”) suggested that the function extraction of the strategic initiatives should be carried out during the planning or after the planning of strategic initiatives. Meanwhile, other comments (“It was found that there were missing functions of strategic initiatives,” “We believe that detailed design can be achieved by applying this derivation method when planning strategic initiatives,” and “The preparation of a matrix of enablers of the state of the organization and the functions of the strategy initiatives enabled us to verify whether the strategy initiatives covered the necessary functions”) suggested that the derived method is also useful for evaluating strategies.

5.4. Performance Indicator

One comment (“It was possible to derive not only a performance indicator for the target state but also a performance indicator for the transition state assumed to go through the transition process”) suggested the effectiveness of this framework in assessing the performance of the intermediate states during the development of strategies that accompany medium- to long-term organizational change.

Meanwhile, two comments (“With conventional performance indicators, it was difficult to explain the effect of strategic initiatives appropriately because the relationship between the state of goals and strategic initiatives was not clear. However, with this framework, it was easy to explain the derived performance indicators. It is easier to explain performance indicators when conditions that organizations should achieve are clearly evaluated” and “The performance indicator was easier to explain in terms of the relationship between organizational goals and initiatives”) suggested that the corresponding of the state of the organization and the function of the strategic initiatives is useful for those in charge of planning and implementing strategic initiatives in explaining decision-making.

Another comment (“The appropriateness of the derived performance indicators should be reviewed based on the results of the measurements”) suggested that the performance indicators derived by this framework must first be adjusted according to the relevant information available.

5.5. Limitation and Future Research Subjects

We focused on the evaluation by applying the SPID framework to the strategic initiatives in the research department of the pharmaceutical company. Due to the scope, the additional studies are required for generalizing the SPID framework. Furthermore, we have not analyzed the SPA model, nor have we investigated the measurement results of the derived performance indicators. Not only the external environment but also the business model and the relationship with the stakeholder are changing. Therefore, in further studies, it will be valuable to analyze how external environment and stakeholder viewpoint can relate to the performance indicator derivation model and framework.

6. SUMMARY

This study aimed to support strategic decision making in the changing environment and proposed a framework for deriving performance indicator for the evaluation of organizational change. The SPID framework was developed by considering the two perspectives to align performance indicators with strategies that adapt to changes in the environment. The first perspective is mapping the performance indicators to the state of the organization that is the strategic objectives, and the second perspective is deriving the performance indicators based on the mapping of the enablers of the organization and the strategy. The developed SPID framework consists of four steps: (1) inferring the state of the organization in transformation, (2) analyzing the enablers in the organization, (3) extracting the functions of strategic initiatives, and (4) deriving performance indicators by matching the enablers of the organization with the functions of strategic initiatives.

We applied the SPID framework to the strategic initiatives in the pharmaceutical company and evaluated its validity. The SPID framework and the derived performance indicators suggested to be effective as demonstrated by the fact that the causal relationships between organizational transition states and strategic initiatives can more clearly explain the status of an organization's achievement.

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