Performance Measurement System Design for Integrated Thinking: Evidence from Japanese Electric Utility Providers

ABSTRACT

Asian companies are increasingly practicing integrated reporting to create long-term economic, environmental, and social value for investors and other stakeholders. To accomplish such value creation, far-reaching changes in strategies, management control systems, and governance are required, which is achieved through a management approach called integrated thinking. However, findings from previous studies indicate barriers in designing performance measurement systems, leading to misalignment between strategies and managers' decision-making. Therefore, this research study aims to expand existing knowledge on integrated reporting by (1) developing a conceptual framework for the characteristics of performance measurement systems to support integrated thinking and (2) analyzing the current status of performance measurement systems used by Japanese electric utility providers.

To support integrated thinking, performance measurement systems should contain multidimensional and connected key performance indicators with quantitative target values and action plans that are integrated into the management reward system.By utilizing primary data, the most recent integrated reports of all 11 Japanese electric utility providers were analyzed trough a manual content analysis and percentage analysis.On average, the requirements of performance measurement system design are fulfilled to a degree of 56 %, while the lowest degree being 39 % and the highest degree being 75 %. In most cases, companies use multidimensional key performance indicators with incomplete target values and vaguely defined action plans. Key performance indicators are insufficiently connected and integrated with rewards systems, indicating the outside-in approach of integrated reporting. Larger companies that explicitly refer to the <IR> Framework tend to use more sophisticated performance measurement systems.The findings

suggest several areas for improvement, such as connectivity between KPIs as well as further integrating non-financial KPIs with the rewards system.

Keywords: corporate sustainability; integrated reporting; integrated thinking; management control; performance measurement

1. INTRODUCTION

Companies are increasingly striving for corporate sustainability and pursuing strategies that create economic, environmental, and social value [1]. One approach to corporate sustainability is integrated reporting [2]. Since the formation of the International Integrated Reporting Council (IIRC) in 2010, public interest as well as implementation activities by companies have grown steadily [3]. According to the definition provided by the IIRC, integrated reporting is “a process founded on integrated thinking that results in a periodic integrated report by an organization about value creation, preservation, or erosion over time (…)” [4]. One country with conspicuously strong growth rates in integrated reporting is Japan [5], with more than 800 individual companies in 2022 [6].

The majority of integrated reporting takes place in the internal processes of a company [7], in the form of a management approach called integrated thinking [8]. Although increasing interest in the research of these internal processes can be observed, many open questions remain [9]. Recently, changes to internal processes in Japanese companies that already published multiple integrated reports were investigated [10]. It shows, in accordance with previous studies, that many companies are only making incremental adjustments to their internal processes without making profound changes to strategies, objectives, and Key Performance Indicators (KPIs), which is referred to as the outside-in approach of integrated reporting. This form of integrated reporting is symbolic, as it does not involve any changes in strategies and business models [11].It can be assumed that economic, environmental, and social value creation based on integrated thinking can only be achieved when companies make fundamental changes to their strategies, management control systems, and governance [12-13]. An implementation of integrated reporting that triggers far-reaching changes in strategies and management control systems with the aim of improving financial, environmental and social outcomes is referred to as the inside-out approach [10].

Due to these heterogeneous forms of integrated reporting, additional knowledge on the effective development of internal processes and systems for the execution of integrated thinking is required [3]. Regarding management control systems, Performance Measurement Systems (PMSs) can be used as an

instrument for company-wide strategy execution and sustainable value creation [14]. However, there is little knowledge to date on what characteristics PMSsof companies contain that perform integrated reporting. Therefore, this study intends to provide evidence on the characteristics of PMS in companies that carry out integrated reporting. To do so, manual content analysis of integrated reports was carried out. Information from content analysiscan unveil patterns as to whether companies implement integrated reporting based on the inside-out approach or the outside-in approach. More specifically, this study seeks to address the following research questions:

RQ 1: What are the characteristics of the PMS used by companies that practice integrated reporting?

RQ 2: Is there potential evidence for contextual factors that indicate differences in the characteristics of PMSs?

2. LITERATURE REVIEW

2.1. Integrated thinking

The IIRC defines integrated thinking as follows [4]:

"Integrated thinking is the active consideration by an organization of the relationships between its various operating and functional units and the capitals that the organization uses or affects. Integrated thinking leads to integrated decision-making and actions that consider the creation, preservation or erosion of value over the short, medium and long term."

Although the integrated reporting process can be started with the initial publication of an integrated report [15], the full impact is achieved only through a reciprocal cycle with integrated thinking [16]. Executing integrated thinking involves a mindset shift in how an organization intends to achieve profits [17], which requires balancing short-term profit objectives and long-term growth considerations [7]. Therefore, one of the main features of integrated thinking is the concept of value creation [18]. Value creation for integrated thinking relates to two dimensions: First, integrated thinking aims to create long-term financial value for investors [19]. Second, integrated thinking strives to contribute to a sustainable development and the Sustainable Development Goals (SDG) [20]. Similarities with the Shared Value concept are fairly obvious, as it aims to benefit both investors and society [21-22]. The value concept of integrated thinking highlights the need for sustainable development as a precondition for long-term financial success [8]. Consequently,

integrated thinking aims at sustainable value creation, which includes financial outcomes for investors as well as environmental and social outcomes for other stakeholders [23].

To ensure strategy execution for sustainable value creation, there is a need for company-wide alignment between strategies, available financial resources, and decisions on actions made by all managers and employees [24]. Decisions on actions and resource allocation can be aligned with strategies through the internal use of KPIs [12]. However, case studies on the adoption of integrated thinking indicate several barriers regarding the effective use of KPIs. For instance, [14] describe a company that mainly used short-term financial KPIs to align decisions of managers in a business unit with the overall company strategy, resulting in unintended decision-making that harmed the ability of sustainable value creation. Other companies expressed difficulties in selecting KPIs for non-financial objectives [25] and in identifying relationships between multiple KPIs [26-28]. This was also confirmed in a recent case study for the Japanese context, in which companies faced difficulties in the integration of environmental, social, and governance (ESG) KPI in medium-term management plans [10]. These difficulties resulted in companies practicing integrated reporting according to the outside-in approach, which means that no far-reaching changes in strategies and systems take place.

2.2. Performance Measurement Systems

Management control systems support guiding a company toward its strategic objectives and therefore aim at strategy execution [29]. One type of management control systems is the Performance Measurement System (PMS) [30]. PMSs contain financial and non-financial KPIs that are based on the long-term business objectives and strategies of a company [31]. More precisely, KPIs are based on the specific performance model, which describes the underlying assumptions of the management team regarding the relationships between strategic (non-financial) drivers and long-term (financial) results [32]. Much of the research on performance measurement has focused on the translation of competitive strategies into comprehensive sets of KPIs [33]. For instance, KPIs based on a balanced scorecard reflect how intangibles (e.g. skills of employees) and internal processes (e.g. innovation processes) need to be managed to fulfill customer needs (e.g. customer satisfaction) and create financial outcomes for investors (e.g. profit) [34]. Besides a comprehensive set of financial and non-financial KPIs, a PMS contains quantitative targets for every KPI and strategic action plans. A quantitative target indicates the performance level that needs to be achieved in order to execute the intended strategy [35]. Strategic

action plans refer to specific initiatives with sufficient financial resources that contribute to the achievement of targets [36].

Recent case studies on the execution of internal processes for integrated thinking indicate difficulties in the activities for PMS design [10, 14, 25-26, 28]. PMS design includes all activities for developing KPIs, targets, and strategic action plans [37]. Additionally, integrating KPIs and targets with the rewards system is also part of the PMS design [31].It therefore appears necessary to examine the characteristics of the PMS of companies that practice integrated reporting in more detail.

To summarize, empirical studies on integrated thinking indicate that companies face significant barriers in designing PMSs to facilitate organizational change required for integrated thinking. Hence, it appears necessary to derive a conceptual framework for guiding the design of PMSs to support integrated thinking execution. Additionally, the conceptual framework can be utilized to analyze PMSs currently used by companies to enhance our knowledge on integrated thinking practice.

3. CONCEPTUAL FRAMEWORK

A conceptual framework is required to analyze the PMS of companies that publish an integrated report in order to address the first research question. The framework is grounded in the <IR> Framework, which specifies guiding principles and content elements for creating an integrated report based on integrated thinking [4]. The <IR> Framework describes several characteristics for KPIs used in an integrated report. Accordingly, KPIs need to be relevant to the circumstances of an organization [4]. In the context of integrated thinking, KPIs are therefore required to be multidimensional and highlight the strategy-related performance that needs to be generated to create sustainable value in the short, medium, and long term [19]. For the execution of integrated thinking, three requirements for the selection of KPI can be derived from this: (1) **Financial KPIs** (e.g., ordinary income) highlight financial results that are aimed atfinancial value creation. (2) In order to create environmental and/or social value for the contribution to the SDGs, **environmental and/or social KPIs** (e.g., amount of greenhouse gas emissions or number of accidents affecting the society) describe the intended sustainability outcomes. (3) **Non-financial KPIs** (e.g., net promoter score for customer satisfaction) are based on non-financial resources (e.g. social- and relationship capital). They operationalize aspects of performance that need to be achieved through strategy execution for sustainable value creation [38].

Integrated thinking requires the management team to actively consider relationships between the financial and non-financial resources that a company uses or affects [28]. According to the <IR> Framework, KPIs are therefore required to be connected (e.g., KPIs display relationships between financial and non-financial performance information) [4]. The consideration of relationships between KPIs is a long-standing feature of PMS frameworks like the balanced scorecard [39]. For instance, strategy maps of a balanced scorecard visualize cause-and-effect relationships between non-financial and financial performance objectives [34]. Hence, an integrated report needs to highlight **relationships** between non-financial KPIs and financial, environmental and social KPIs [23]. Additionally, the report should also explain **underlying assumptions** for displaying the respective relationships [4].

Furthermore, the <IR> Framework demands that KPIs are displayed with corresponding target values for two or more future periods [4]. According to the PMS literature, KPIs need to have (at least) both a **long-term target value**, which describes the desired performance level at the end of the strategic planning period, and a **short-term target value** as an intermediate performance level for the upcoming period [35]. Moreover, an integrated report needs to communicate how target values are intended to be achieved [4]. This can be accomplished with **strategic action plans**. Strategic action plans refer to specific initiatives (e.g., digitalization of sales processes) with sufficient financial resources that contribute to the achievement of target values [36].

Finally, integrated thinking aims for company-wide alignment of decisions, resources and actions with the strategically intended performance [24]. Hence, an integrated report needs to explain how the organization´s governance structure supports value creation. This includes the integration of PMSs with the rewards system [4]. More specifically, financial KPIs, environmental and social KPIs as well as non-financial KPIs with its respective target values should be integrated into the **management rewards system**.

Differences in the characteristics of the PMS used by companies can be explained by contextual factors [40]. However, there is limited knowledge about such factors that can explain differences in the characteristics of the PMS used by integrated reporting companies. Regarding the second research question, this study aims to identify potential contextual factors, which might explain the characteristics of PMS. More specifically, it can be assumed that companies more likely fulfill the aforementioned requirements (e.g., multidimensional KPIs) when companies are (1) larger in terms of size, (2) using the

<IR> Framework when creating an integrated report and (3) already have several years of experience with integrated reporting [41-42].

4. METHODOLOGY

4.1. Content analysis

Content analysis was chosen as a research method to investigate PMSs used by companies that publish integrated reports. Content analysis is a research technique for making replicable and valid inferences from text by coding text into categories based on specific criteria [43]. The technique has been used several times to gain insights into certain aspects of integrated thinking [11, 41-42]. According to [44], critical studies of the language used in integrated reports can help to enhance knowledge of integrated thinking in practice. Integrated reports are required to include KPIs that are consistent with indicators used internally by the management team [4]. Therefore, a systematic analysis of integrated reports appears to be insightful.Forthe content analysis, the legitimacy theory is applied, according to which information in integrated reports provides indications of either symbolic or substantive integrated reporting [11].

For the content analysis, sentences in the narrative disclosures of integrated reports (e.g., management reports about value creation, strategies, or governance) were selected as the unit of analysis. On this methodological basis, integrated reports were manually evaluated for indications of the characteristics of PMSs. For the purpose of coding, eleven ordinal variables within four categories based on the conceptual framework were developed:

1. Usage of multidimensional KPIs that are based on the individual circumstances and strategies is measured through three variables: The existence of financial KPIs for long-term financial objectives (A_1), environmental or social KPIs for long-term sustainability objectives and SDGs (A_2) and non-financial KPIs for strategic objectives (A_3).
2. Active consideration of the relationships between KPIs is quantified with two variables: Explicit description or visualization of cause-and-effect relationships between KPIs (B_1) and explanations of its underlying assumptions (B_2).
3. Extension of KPIs with target values and strategic action plans is captured with three variables: Articulation of short-term targets (C_1) and long-term targets (C_2) as well as action plans for achieving these targets (C_3).

4. The extent of integrating PMSs with management systems is measured with three variables: Explicit communication about the integration of the management rewards system with financial KPIs (D_1), environmental or social KPIs (D_2) and non-financial KPIs (D_3).

For each variable, a score of 0 (= no indication of the requirement), 0.5 (= partial fulfillment of requirement) or 1 (= sufficient fulfillment of requirement) was assigned based on disclosures in the integrated report. For example, a company that explicitly links environmental and social KPIs and its respective target values with the management rewards system was assigned a score of D_2=1. On the contrary, a company that only briefly mentions consideration of ESG performance in the rewards system without specific KPIs and target values was assigned a score of D_2=0.5. No indication of environmental and social performance criteria within the rewards system resulted in the score D_2=0.

By aggregating individual scores, an integrated thinking index can be calculated for every company [42]. This was accomplished by taking each of the four categories into account equally. The integrated thinking index measures the percentage extent to which a company fulfills the characteristics highlighted by the conceptual framework. For example, the index of a company that sufficiently fulfills every characteristic is 100 %.

4.2. Sample

To answer both research questions, integrated reports of every Japanese electric utility provider were systematically analyzed by hand. Analyzing integrated reports of Japanese companies appears to be insightful because there is an increasing focus on integrated reporting in Japan [41] and Japanese companies traditionally tend to aim at long-term business objectives [6].The electric utility industry was chosen as a sample for three reasons. First, it is widely considered as an environmentally sensitive industry [45]. Second,business models of Japanese electricity utility providers are currently challenged by several impacts. After the March 2011 Great East Japan Earthquake, electricity generation by nuclear power plants had to be paused abruptly, which led to an increase in power generation based on fossil fuels, resulting in a historic peak in greenhouse gas emissions (GHG) in Japan. Recently, the Japanese government declared the objective of Japan becoming a carbon-neutral society by 2050. Therefore, the business models of Japanese electricity utility providers have to transform towards a sustainable, carbon-free energy system, which should be reflected in an inside-out approach of integrated reporting aiming at sustainable value creation. At the same time, due to the shrinking population size, financial growth

opportunities within the Japanese market are limited, leading to the need to seek for expanding or internationalizing business models [46].Third, there are several studies on integrated thinking execution in electric utility companies [47-48]. However, the execution of integrated thinking in Japanese electric utility companies has not yet been investigated.

Every Japanese electricity utility provider that published an integrated report was included in the sample of this study. In total, eleven Japanese electricity utility providers were analyzed about the characteristics of their PMSs based on the content of integrated reports. For each company, the most recent integrated report was evaluated (either 2022 or 2023). With one exception, every company made an explicit reference to the <IR> Framework in their report, providing a solid foundation for cross-company comparisons based on the conceptual framework. Furthermore, all companies have been practicing integrated reporting for several years, which means that companies already have experience with the concept. Table 1 summarizesthe sample.

Table 1.Overview of the sample (created by the author)

Company no.	No. of employees	<IR> Framework	First integrated report
1	28,000	Yes	2020
2	7,000	Yes	2019
3	10,000	No	2019
4	8,000	Yes	2019
5	31,000	Yes	2020
6	21,000	Yes	2021
7	24,000	Yes	2019
8	8,000	Yes	2019
9	8,000	Yes	2021
10	2,000	Yes	2021
11	37,000	Yes	2017

5. RESULTS AND DISCUSSION

5.1. Characteristics of PMSs

5.1.1. Multidimensionality

A total of 613 KPIs were identified in the narrative disclosures of the integrated reports evaluated (mean = 55.72; standard deviation (S.D.) = 15.77). Regarding financial KPIs, 145 KPIs (42 different KPIs) were counted, with an average of 13 per report. Companies consistently demonstrate financial KPIs that are derived from long-term financial objectives (A_1: Mean = 1; S.D. = 0). Each company disclosed ordinary income as a periodic earnings indicator, describing the intended outcome of financial value creation in

future periods. Besides this, KPIs like operating revenue (10 companies), return on equity (9 companies) and shareholder equity ratio (9 companies) were frequently used to describe financial performance objectives.

Furthermore, 131 environmental and social KPIs (58 different KPIs) were identified. In most cases, a clear link between SDGs, long-term sustainability objectives and environmental or social KPIs was recognized (A_2: Mean = 0.909; S.D. = 0.202). As all companies strive for emission-free energy generation by 2050, KPIs related to GHG emission or reduction were identified in each report, such as GHG emissions scope 1-3 (kg) and GHG emissions factor (kg/kWh). In addition, multiple KPIs for inputs or outcomes on natural capital were found, such asthe recycling rate of industrial waste (6 companies), thermal efficiency (6 companies) as well as the consumption of natural resources like coal (5 companies) or water (4 companies).

When it comes to non-financial KPIs for strategic objectives, 337 KPIs were counted, most of them for human capital (169 total and 91 different KPIs) and the least for intellectual capital (25 total and 16 different KPIs). Although in many cases a link between strategies and non-financial KPIs could be identified, the requirements were not met by every company (A_3: Mean = 0.773; S.D. = 0.261). There are two explanations for this observation. First, some companies did not provide KPIs for strategic themes that were raised in their report. For example, one company defined the need to train employees in digitalization based on their strategy, without displaying specific KPIs for such an objective. Second, several companies communicated KPIs that lacked a link to their strategies. For instance, it is not always apparent how KPIs related to the workforce diversity (e.g., ratio of female managers) relate to the achievement of business objectives. Nevertheless, multiple KPIs for strategic objectives were disclosed by every company, such as produced renewable energy (every company), customer satisfaction indicators (3 companies), employee satisfaction indicators (4 companies) and commercialization of innovation projects (2 companies).

5.1.2. Relationships between KPI

Despite the need to actively consider relationships between the resources an organization uses or affects, companies only partially describe cause-and-effect relationships between KPIs (B_1: Mean = 0.5; S.D. = 0.224). A total of 9 companies visually describe some cause-and-effect relationships between selective non-financial KPIs (e.g., number of patents held) and financial, environmental and social KPIs. However,

KPIs do not relate to the critical links between non-financial strategic drivers and long-term business objectives. In that way, disclosed cause-and-effect relationships do not sufficiently fulfil the requirement of connectivity between financial and non-financial KPIs. Only one company (company no. 11) succeeded in visually clarifying strategy-related cause-and-effect relationships between its KPI for intangible capitals, business processes and intended financial and sustainability outcomes by using an arrow chart. Furthermore, companies only explain underlying assumptions for the described relationships to a limited extent (B_2: Mean = 0.364; S.D. = 0.234). While assumptions about the consequences of climate change on long-term financial KPIs have been explained by eight companies, assumptions about relationships between non-financial KPIs and financial KPIs remain uncommented at all.

5.1.3. Targets and action plans

Of the 613 identified KPIs, 167 contain some kind of target value. Companies insufficiently extend their KPIs with short-term target values (C_1: Mean = 0.455; S.D. = 0.27). Only one company (company no. 5) consistently discloses short-term target values for its financial (e.g., free cash flow), sustainability (e.g., GHG emissions from power generation) and non-financial KPIs (e.g., questionnaire implementation rate regarding procurement activities of suppliers). In eight cases, companies only disclose short-term targets for selective financial and non-financial KPIs, while missing out on short-term targets for sustainability objectives. In contrast, companies link KPIs to a larger extent with long-term target values (C_2: Mean = 0.864; S.D. = 0.234). The majority (eight companies) consistently discloses challenging targets for the year 2030 in line with their vision, while the remaining three firms publish long-term targets for only a few KPIs.

Companies partially describe strategic action plans that contribute to their target achievement (C_3: Mean = 0.591; S.D. = 0.202). Every company highlights some kind of roadmap for becoming carbon-neutral by 2050, which qualitatively describes major actions planned for the achievement of long-term sustainability KPIs. However, relationships between action plans and financial objectives mostly remain uncommented. In addition, several companies do not precise how initiatives are planned to be funded. Therefore, the majority (nine companies) partially fulfils the requirements for action plans, while only the remaining two firms (no. 1 and no. 6) were able to sufficiently fulfill the criteria. Based on the findings, two best-practice examples are described below. One company describesfinancial outcomes of planned initiatives through

three categories: Short-term profit enhancement, long-term growth opportunities and reduction of capital costs. Another company quantitatively displays how each initiative is expected to contribute to the long-term sustainability objective in terms of the GHG reduction amount. Both examples indicate high alignment between KPIs, targets and strategic initiatives, which is necessary for the inside-out approach for integrated reporting.

5.1.4. Integration with rewards system

Integration of PMSs with rewards systems for the compensation of managers is largely non-existent. In four companies, KPIs are not reflected in the rewards system in any way. Integration of financial KPIs and targets with rewards systems is both limited and with a high degree of variance (D_1: Mean = 0.591; S.D. = 0.491). Six companies combine manager´s performance-based compensation with financial KPIs like ordinary profit, aligning management decision-making with financial objectives. In contrast, the integration of environmental or social KPIs like GHG emissions is rather an exception (D_2: Mean = 0.182; S.D = 0.337), with only three companies linking aimed sustainability outcomes in some form with performance-based compensation. Lastly, there is very little evidence of integrating non-financial KPIs with rewards systems (D_3: Mean = 0.091; S.D. = 0.202). Only two companies imply that the achievement of strategic objectives is being considered in the performance-based compensation scheme, without disclosing specific KPIs and targets.

5.1.5.Integrated thinking index

On average, the requirements of PMS design are fulfilled by electric utility providers at a degree of 56.25 % (S.D. = 11.48 %), while the lowest integrated thinking index is 39.58 % and the highest index is 75 %. This result can be explained by the fact that PMSs of most companies contain multidimensional KPI with mostly long-term target values and some form of strategic action plans.Most companies describe relationships between different KPIs to a limited extent. An integration of KPIs with rewards systems is mostly visible for financial performance objectives.

The findings indicate three areas for improvement: (1) With one exception, companies do not describe cause-and-effect relationships between all of their non-financial strategic performance drivers and objectives for long-term financial and sustainability value creation based on the underlying assumptions in

their strategies. (2) Companies are reluctant to disclose short-term targets for their KPIs, especially for sustainability and non-financial objectives. (3) Companies heavily align management decisions, if at all, with financial objectives. Table 2 summarizes the findings for the first research question.

Table 2.Overview of the findings (created by the author)

	Variable	Mean	S.D.	Minimum	Median	Maximum
KPI	A_1	1	0	1	1	1
	A_2	0.909	0.202	0.5	1	1
	A_3	0.773	0.261	0.5	1	1
Relationships	B_1	0.5	0.224	0	0.5	1
	B_2	0.364	0.234	0	0.5	0.5
Targets and action plans	C_1	0.455	0.270	0	0.5	1
	C_2	0.864	0.234	0.5	1	1
	C_3	0.591	0.202	0.5	0.5	1
Rewards	D_1	0.591	0.491	0.5	1	1
	D_2	0.182	0.337	0	0	1
	D_3	0.091	0.202	0	0	0.5
Maturity degree (%)		56.25	11.478	39.583	54.167	75

5.2. Contextual factors

Regarding the second research question, a more in-depth analysis of the integrated thinking index unveils potential evidence of factors that indicate differences in indices. First, the companies investigated differ in terms of their size (based on the number of employees). When the average integrated thinking indices for larger (< 8,000 employees) and smaller (> 8,000 employees) companies are calculated separately, results indicate that larger electric utility providers use more mature PMSs (Mean: 63.89 %) than smaller electric utility providers (Mean: 47.08 %). Second, the company (no. 3) that does not explicitly refer to the <IR> Framework has a lower maturity degree (47.92 %) than the remaining companies (Mean: 57.08 %). Third, although it might be expected that experienced companies (at least 3 years of experience with integrated reporting) use more mature PMS [42], the results do not support such assumptions. As the sample size is too small for statistical inferences, no conclusions can be made about generalizable correlations. However, the findings support the expectation that larger electric utility providers that explicitly use the <IR> Framework as a template for integrated reporting contain PMSs that are more likely to fulfill the requirements of the conceptual framework. Table 3 summarizes the findings of average integrated thinking indices for different firm characteristics.

Table 3.Average integrated thinking indices for different firm characteristics (created by the author)

Characteristic	Group	n	Mean	S.D.
Company size	Large	6	63.89 %	8.81 %
	Small	5	47.08 %	6.12 %
<IR> Framework	Yes	10	57.08 %	11.6 %
	No	1	47.92 %	-
Company experience	< 2 years	5	60 %	13.6 %
	> 2 years	6	53.13 %	7.86 %

6. CONCLUSIONS AND IMPLICATIONS

This study looked into the characteristics of PMSs to support integrated thinking. While prior research has underlined the importance of designing management control systems for integrated reporting, little evidence existsregarding the characteristics of PMSs utilized in practice. Content analysis shows that Japanese electric utilityproviders use both inside-out and outside-in approaches in their performance measurement practices. For example, KPIs on environmental and social objectives with appropriate target values and strategic initiatives indicate far-reaching changes in strategies, which can be transferred to the inside-out approach. In contrast, insufficient connectivity between KPIs and an excessive focus of the reward system on financial KPIs are indications of the outside-in approach. Finally, larger companies that explicitly referred to the <IR> Framework tend to use PMSs that are more likely related to the inside-out approach.

The findings have several implications for practice and research. Although previous studies point out difficulties in designing PMSs in the context of integrated reporting [10, 14, 28], Japanese companies are making good progress in the use of multidimensional KPIs. To take the next step and further improve PMSs, companies must increasingly identify and manage relationships between financial and non-financial KPIs. Further, companies consequently need to design targets for all KPIs and combine these with rewards systems to align managers' decisions with strategies. Research on performance measurement has proposed several approaches to overcome these issues in the past, including the development of strategy maps for triple bottom line strategies [49] as well as benchmarking for target setting [35].

This study has two research contributions: Firstly, the study systematically describes the characteristics of PMSs used by Japanese electric utility providers based on the <IR> Framework, which had not been done before. Secondly, the differentiated findings regarding the integrated thinking index indicate contextual

factors, that may explain differences in PMS characteristics for companies that practice integrated reporting. This study focused exclusively on Japanese electric utility providers that publish integrated reports. To further investigate PMS design for integrated reporting, researchers can replicate this study with larger samples and empirically test relationships. This can help to increase knowledge about the factors influencing the characteristics of PMSs in practice.

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