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Determinants of strategic management accounting implementation in Higher Education Institutions (HEIs) in Indonesia

Evi Marlina*, Adriyanti Agustina Putri, and Linda Hetri Suriyanti

Abstract

Research aims: This study aims to examine determinants of strategic management accounting implementation, including market orientation, top management characteristics, strategy, and information technology.

Design/Methodology/Approach: This research was conducted in higher education institutions (HEIs) in some areas, covering Sumatra, Java, Bali, Nusa Tenggara, Kalimantan, Sulawesi, and Papua. The research respondents were 368 HEIs leaders. Data were obtained by distributing questionnaires, and the hypotheses were tested using the partial least squares method.

Research findings: The results revealed that market orientation, top management characteristics, HEIs strategy, and information technology positively affected strategic management accounting implementation.

Theoretical contribution/ Originality: This research contributes to determining contingency variables in implementing strategic management accounting in HEIs.

Keywords: Strategic Management Accounting; Market Orientation; Top Management Characteristics; Heis Strategy; Information Technology

Introduction

The sustainability of higher education institutions (HEIs), especially private ones, is one of the government's concerns today. In 2019, there were closures of 130 private HEIs throughout Indonesia (Nasir, 2019). One of the factors that caused the closure was the difficulty of getting students (Marlina & Tjahjadi, 2021). In addition, regulatory changes related to accreditation were previously carried out by the Higher Education Accreditation Agency (BAN-PT) to become an Independent Accreditation Institution (LAMEMBA) which requires considerable funding, undeniably adding to the financial burden of HEIs. Consequently, the organization's financial management system in the form of incoming and outgoing money budgets (traditional budgeting) is no longer relevant. HEIs need a more comprehensive accounting information system model, i.e., strategic management accounting (SMA). SMA is an accounting information technique that can monitor the organization in achieving the organization's vision and mission (Hutaibat, 2019). SMA is also considered relevant to environmental changes since the information presented is more comprehensive so that higher education management is more precise in making decisions (Marlina, et al. 2020).

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Nevertheless, the implementation of strategic management accounting is primarily done in business companies, while in HEIs, it has not been carried out much (Hutaibat, 2019). Therefore, this study aims to examine the determinants of the implementation of SMA in HEIs, including market orientation, top management characteristics, HEIs strategy, and information technology. First, market orientation is a principal factor influencing SMA's implementation in HEIs. Market-oriented HEIs provide more comprehensive information about situations and conditions, both internally and externally, so that management can use it in strategic decision-making (Sriyono, 2020). Thus, market orientation forces the HEIs to present information related to external parties, namely market conditions to encourage the implementation of SMA.

Furthermore, top management characteristics include education, experience, and creativity (Pavlatos & Kostakis, 2018; Kalkhouran et al., 2015; Hamori & Koyuncu, 2015). Of course, top management as a policy maker in HEIs possesses characteristics of education, experience, and creativity, which will influence every policy to be implemented, one of which is SMA (Pavlatos & Kostakis, 2018). Then, the higher education strategy contained in the form of a strategic plan, which serves as a guide in determining the operational activities of higher education institutions, is undoubtedly a determining factor in the organizational financial management in the form of SMA (Rahimnia & Kargozar, 2016). Moreover, information technology is a medium for obtaining and conveying information more efficiently, encouraging the availability of big data so that SMA implementation becomes more effective and efficient (Azudin & Mansor, 2017).

Some of the previous research results examining this topic, among others, were carried out by Yuliansyah et al. (2019), Lay and Jusoh (2017), and Turner et al. (2017), researching the effect of market orientation on SMA implementation in business companies. Furthermore, Pavlatos and Kostakis (2017) and Hamori and Koyuncu (2015) investigated the influence of top management characteristics on the implementation of SMA in the hospitality industry. Kalkhouran et al. (2015), Alamri (2018), and Tuanmat and Smith (2011) studied information technology having a positive effect on SMA implementation. Meanwhile, research on the implementation of SMA in HEIs, among others by Sriyono (2020) and Marlina and Tjahjadi (2021), inspected the influence of higher education strategies on SMA implementation. Furthermore, Hutaibat et al. (2011) scrutinized the effect of SMA implementation on HEI performance. This study, therefore, raises the topic of determinants of strategic management accounting implementation in HEIs, which is also a novelty of this research. Determining factors include market orientation, top management characteristics, HEI strategy, and information technology. Considering these determinants is a crucial factor influencing the implementation of strategic management accounting in HEIs.

Based on the high level of HEI competition, a higher education funding management strategy is needed in the form of strategic management accounting. However, more important things must be considered, i.e., the determinants in implementing strategic management accounting in HEIs that differ from business companies. Therefore, this study aims to examine the effect of market orientation, top management

characteristics, HEI strategy, and information technology on implementing strategic management accounting in HEIs. Further, this research provides a practical contribution to HEIs, especially in implementing strategic management accounting in HEIs, so that it runs effectively and efficiently; it is necessary to consider other factors, such as market orientation, top management characteristics, HEI strategy, and information technology. Furthermore, the theoretical contribution of this research is that the development of contingency theory and upper echelon theory in HEIs as non-profit organizations is still rarely conducted. In this regard, the contingency theory proposes no universally applicable way of managing an organization, depending on the situation and conditions of the organization, while the upper echelon theory puts forwards that the organization reflects management from top management.

Literature Review and Hypotheses Development

Theoretical Framework

This section is a theoretical basis connecting the variables of market orientation, HEI strategy, top management characteristics, information technology, and SMA. This study used contingency and the upper-echelon theories as the theoretical basis for building the research model.

According to Otley (2016), contingency theory suggests that no organizational concept or design can be applied universally anywhere or under any circumstances. An organizational concept or design is only suitable for specific contexts or conditions. Thus, the researchers considered contingency theory to identify suitable conditions for designing certain entities in implementing strategic management accounting. In this case, contingency theory links market orientation, HEI strategy, and information technology variables to implementing strategic management accounting. In addition, contingency theory identifies the forms or conditions that must be owned by an organization so that the implementation of strategic management accounting in HEIs runs effectively and efficiently.

Furthermore, the upper-echelon theory states that the organization reflects top managers (Hambrick & Mason, 1984). This theory links the variable top management characteristics with SMA implementation. Based on this theory, top management's reflection in making decisions is in accordance with its interpretation of reality. This interpretation comes from cognitive processes, beliefs, personality traits, and ethical norms of behavior obtained based on education, experience, and creativity (Pavlatos & Kostakis, 2017).

Hypotheses Development

Market orientation is an actual action that allows organizations to maintain markets and provide appropriate responses to various changes (O'Cass et al., 2015). Organizations that make their organizational culture market orientation will focus on external needs

and demands to formulate strategic business units within the organization (Cadez & Guilding, 2008). Hence, understanding customers requires obtaining and disseminating information about customer needs (Saedi & Othman, 2017). It aligns with contingency theory, which provides an understanding of product/service attributes within an organization needed by customers to determine organizational strategy.

Specifically, market-oriented HEIs are indicated by the provision and adjustment of educational attributes, such as characteristics, features, and benefits of educational services aimed at meeting the needs of stakeholders, including prospective students, industry, and the business world. The development of SMA for HEIs is also believed to be a system adopted from a strategic framework (Hutaibat et al., 2011). Therefore, market orientation is a factor that needs to be considered in developing and implementing SMA in HEIs (Lay & Jusoh, 2017). Some research results from Yuliansyah et al. (2019), Lay and Jusoh (2017), Turner et al. (2017), and Cadez et al. (2017) support market orientation as a factor that needs to be taken into account in the development and implementation of SMA. Hence, the hypothesis proposed is as follows:

H₁: Market orientation has a positive effect on strategic management accounting.

Based on the upper echelon theory, leadership characteristics reflect organizational performance, so the characteristics of organizational leaders influence SMA implementation. Leadership characteristics can be measured and observed, such as education and previous work experience (Reheul & Jorissen, 2014). Education is identified as a good indicator of one's cognitive perceptions, values, and preferences (Hambrick & Mason, 1984; Hambrick, 2007). Education is also one aspect of human capital that plays a role in company strategic decisions (Pavlatos & Kostakis, 2018). Furthermore, leadership experience can provide benefits, such as developing more comprehensive knowledge about the company (Pavlatos & Kostakis, 2018). Based on leaders' experience, they can interpret and feel conditions in conducting operational activities (Pavlatos & Kostakis, 2018). Departing from this, the characteristics of higher education leaders impact actions and behavior in strategic planning, control, and decision-making (Pavlatos & Kostakis, 2018). Further, educated and experienced higher education leaders will have a more remarkable ability to gather and disseminate information, chiefly openness to change existing systems to use SMA better (Kalkhouran et.al., 2017). In line with the research results of Kalkhouran et al. (2017) and Pavlatos and Kostakis (2018), top management characteristics significantly affected SMA implementation. Therefore, the researchers deduced the following hypothesis:

H₂: Top management characteristics have a positive effect on strategic management accounting.

SMA is known as a strategically oriented set of accounting techniques and the accountants' involvement in strategic organizational decision-making processes (Cadez & Guilding, 2008). SMA's strategic costing practice is related to determining, analyzing,

and managing costs oriented toward organizational strategy. In this case, strategy is the primary method and tactics designed systematically (strategic planning) in carrying out management functions directed at organizational goals (Prajogo, 2016). To achieve the vision, mission, goals, and objectives of the organization, management accounting practices are required. Management accounting practices that can support the achievement of the organization's vision, mission, goals, and objectives are management accounting practices that are appropriate and in line with organizational strategy. Therefore, the development and implementation of SMA must consider the choice of organizational strategy. In other words, organizational strategy is a contingency factor in SMA development (Langfield-Smith, 2006). It is also consistent with Sriyono's (2020) study results, stating that the type of strategy influenced the development of design and structure within the organization, including the development of SMA. Also, HEIs that implement a cost leadership strategy tend to have a higher intensity of implementing SMA (Chenhall, 2003; Alsharari et al., 2015; Marlina & Tjahjadi, 2021), so the hypothesis was determined as follows:

H₃: HEI strategy has effects on strategic management accounting.

SMA implementation will be easier if information technology owned by the organization supports it. Tuanmat & Smith (2011) stated that companies face a more competitive environment, and advances in information technology will reinforce the implementation of SMA. It is coherent with the contingency theory that a policy cannot be applied universally but depends on certain situations and conditions. Rosli and Sidek (2013) also emphasized that information technology could support relevant SMA techniques in organizational and operational activities. Besides, Rosli and Sidek (2013) affirmed that using information technology as a source of knowledge makes information management more effective and efficient. Furthermore, information technology can increase the availability of big data about the internal and external conditions of the organization needed in the implementation of strategic management accounting (Azudin & Mansor, 2017). It agrees with the results of studies conducted by Tuanmat and Smith (2011) and Rosli and Sidek (2013), showing that information technology had a positive effect on the implementation of SMA, so the hypothesis was put forward as follows:

H₄: Information technology has effects on strategic management accounting.

Based on the theoretical framework and existing literature, the conceptual framework of this research was formulated as depicted in Figure 1.

Research Method

This study used a quantitative approach. The population of this study was all HEIs in Indonesia, totaling 4,504 HEIs. The number of research samples was then determined using the Slovin formula to collect a minimum of 368. For the dispersion of this research

data acquisition, stratified random sampling was employed, obtaining 85 HEIs in Sumatra, 166 HEIs in Java, 29 HEIs in Kalimantan, 48 HEIs in Sulawesi, 24 HEIs in Bali and Nusa Tenggara, as well as 16 HEIs in Maluku and Papua. In addition, the respondents of this research came from the leaders of higher education institutions throughout Indonesia. Specifically, the research respondents were the chancellor or a representative for the chancellor, considering that the chancellor is the top leader of the HEI who is responsible for carrying out the operational activities of higher education, particularly in making strategic organizational decisions. The research data was then collected by distributing online questionnaires via Google Forms.
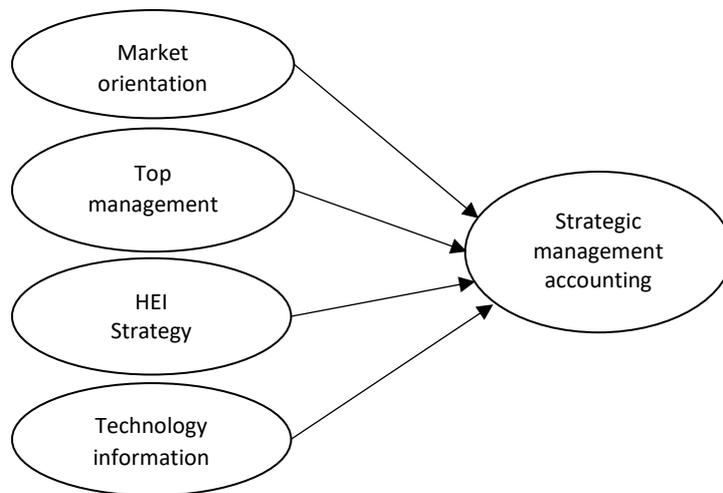

Figure 1 The conceptual framework

Moreover, the measurement of each variable used a 5-point Likert scale: (1) "Strongly Disagree," (2) "Disagree," (3) "Neutral," (4) "Agree," and (5) "Strongly agree." The operational definitions and indicators for each variable can be seen in Table 1.

The data analysis technique in this study used SEM-PLS with the following justifications: (1) the measurement of this research instrument used the Likert scale. According to Suliyanto (2011), this Linkert scale includes ordinal data since it cannot describe the same characteristics or distances between objects. Based on this, this study employed nonparametric assumptions (predictor specifications). (2) This study aimed to confirm existing theories and concepts by using data and explaining the relationship between latent variables. Hence, SEM-PLS was more appropriate for this study as it could perform confirmatory multivariate analysis (Hair et al., 2014) and avoid serious problems, i.e., inadmissible solutions and factor indeterminacy (Fornell & Bookstains, 1982). In addition, this research data analysis examined the direct effects of each of the proposed hypotheses: the influence of market orientation, top management characteristics, HEI strategy, and information technology on the implementation of SMA.

Table 1 Operational definitions and variable indicators

Variable	Operational definition	Indicator
Market orientation	Market orientation is defined as the most effective and efficient organizational culture to create behavior that can produce the best for customers and produce superior performance for the organization (Sriyono, 2020).	Customer understanding to create superior value (MO1) Customer understanding in a sustainable manner (MO2) Organization's understanding of the strengths (MO3) Organization's understanding of the weaknesses (MO4) Organization's understanding of the capabilities (MO5) Organization's understanding of strategies of competitors (MO6) Current competitors and potential competitors (MO7) Creating superior value for target customers (MO8) coordination between functions (MO9)
Top management characteristics	Top management characteristics are the value of leadership status (Pavlatos, 2015).	Education (TMT1) Tenure (TMT2)
HEI strategy	The HEI strategy attempts to become an institution providing the best educational services by setting affordable costs for everyone (Marlina & Tjahjadi, 2021).	Low educational costs (HS1) Very tight cost control (HS2) Producing standard services (HS3) Outsourced functions to control costs (HS4) Technology to lower costs (HS5) Analysis of costs related to activities (HS6) Rewards for employees (HS7)
Technology information	Information technology is a facility that uses hardware, software, and user as a medium so that information becomes effective and efficient (Georgina & Olson, 2008).	Literation technology (TI1) Training technology (TI2) Technology learning (TI3) Administration online (TI4) Digital library (TI5) Technology integration (TI6) Service online system (TI7)
Strategic management accounting	SMA is an accounting information technique that can monitor the organization in achieving the organization's vision and mission (Hutaibat, 2019).	Comparing the process and standards of research and service (SMA1) Comparing teaching processes and standards (SMA2) Performance evaluation refers to the vision and mission (SMA3). Performance evaluation transparency (SMA4) Strategic price (SMA5) Strategic costing (SMA6) Volatile income (SMA7) Static cost (SMA8) Commitment to budget (SMA9) Accountable (SMA10) Deliberate position (SMA11) Positioning (SMA12) Aware of the image of the institution (SMA13) Service quality evaluation (SMA14)

Results and Discussion

Questionnaires were distributed to 500 HEIs spread across Sumatra, Java, Bali, Nusa Tenggara, Kalimantan, Sulawesi, and Papua. The return rate for the questionnaire was relatively high, namely 76% or 380 questionnaires. However, only 368, or 73.6%, met the qualifications. Consequently, the data processed in this study were 368 questionnaires. The demographic data of respondents can be seen in Table 2.

Table 2 Demographic of respondents

Characters	Frequency (People/HEI)	Percentage (%)
Gender		
Man	231	63
Woman	137	31
Education level		
Bachelor		
Master	244	66
Doctoral	124	34
Age		
20-30 years old	66	24
31-40 years old	34	40
41-50 years old	66	27
>50 years old	34	9
Location		
Sumatera	153	42
Java	118	32
Bali and Nusa Tenggara	21	6
Kalimantan	17	5
Sulawesi	54	14
Maluku and Papua	5	1
HEI Type		
University	75	20
Academy	102	28
Institute	20	5
Higher school	23	6
Polytechnic	148	40

Descriptive Statistics

Table 3 reveals the descriptive statistical analysis results for this study's variables. The mean and standard deviation values of market orientation variables were 3.40 and 1.194. Furthermore, for the characteristics of top management variables, the mean and standard deviation values were 3.73 and 1.251. The mean values for HEI strategy and information technology variables were 3.68 and 3.28, and the standard deviations were 1.134 and 1.221, respectively. Finally, the SMA variable obtained the mean and standard deviation of 3.60 and 1.101. From these data, the variable with the highest mean value was top management characteristics, whereas information technology had the lowest mean value. All variables had a higher average than the standard deviation, indicating that the data variation was low or relatively homogeneous.

Table 3 Descriptive statistics of research variables

Indicator variables	Minimum	Maximum	Mean	Deviation Standard
Market Orientation				
Customer understanding to create superior value (MO1)	1	5	3.83	0.949
Customer understanding in a sustainable manner (MO2)	1	5	3.55	1.274
Organization's understanding of the strengths (MO3)	1	5	3.35	1.367
Organization's understanding of the weaknesses (MO4)	1	5	3.30	1.210
Organization's understanding of the capabilities (MO5)	1	5	3.22	1.162
Organization's understanding of strategies of competitors (MO6)	1	5	3.36	1.223
Current competitors and potential competitors (MO7)	1	5	3.36	1.188
Creating superior value for target customers (MO8)	1	5	3.31	1.196
Coordination between functions (MO9)	1	5	3.31	1.185
Total	*1*	*5*	*3.40*	*1.194*
Top Management Characteristics				
Education (TMT1)	4	5	4.33	1.268
Tenure (TMT2)	1	5	3.14	1.235
Total	1	5	*3,73*	1.251
HEI Strategy				
Low educational costs (HS1)	1	5	3.68	1.200
Very tight cost control (HS2)	1	5	3.51	1.189
Producing standard services (HS3)	1	5	3.66	1.149
Outsourced functions to control costs (HS4)	1	5	3.81	1.046
Technology to lower costs (HS5)	1	5	3.60	1.161
Analysis of costs related to activities (HS6)	1	5	3.58	1.190
Rewards for employees (HS7)	1	5	3.92	1.003
Total	*1*	*5*	*3,68*	*1,134*
Technology Information				
Literation technology (TI1)	1	5	3.12	1.218
Training technology (TI2)	1	5	3.31	1.167
Technology learning (TI3)	1	5	3.47	1.383
Administration online (TI4)	1	5	3.43	1.304
Digital library (TI5)	1	5	3.23	1.205
Technology integration (TI6)	1	5	3.26	1.141
Service online system (TI7)	1	5	3.19	1.150
Total	*1*	*5*	*3.28*	*1.224*
Strategic management accounting				
Comparing the process and standards of research and service (SMA1)	1	5	3.62	1.020
Comparing teaching processes and standards (SMA2)	1	5	3.64	1.051
Performance evaluation refers to the vision and mission (SMA3).	1	5	3.59	1.129
Performance evaluation transparency (SMA4)	1	5	3.61	1.117
Strategic price (SMA5)	1	5	3.59	1.221
Strategic costing (SMA6)	1	5	3.59	1.028
Volatile income (SMA7)	1	5	3.55	1.117
Static cost (SMA8)	1	5	3.60	1.089
Commitment to budget (SMA9)	1	5	3.60	1.178
Accountable (SMA10)	1	5	3.54	1.169
Deliberate position (SMA11)	1	5	3.60	1.032
Positioning (SMA12)	1	5	3.65	1.045
Aware of the image of the institution (SMA13)	1	5	3.60	1.098
Service quality evaluation (SMA14)	1	5	3.61	1.122
Total	1	5	3,60	*1,101*

Assessing the outer model, composite reliability, and Average Variance Extracted (AVE) in Table 4, the value of convergent validity could be seen from the outer loading value of each variable. According to Ghozali (2013), an indicator of each construct is declared valid if it has an outer loading value above 0.6. Next, the reliability value is high if each construct's reliability and AVE values are above 0.6 and 0.5 (Hair et al., 2014).

Table 4 Values of outer loading

Indicator	Outer loading	Reliability	AVE
Market Orientation		0.954	0.806
Customer understanding to create superior value (MO1)	0.903		
Customer understanding in a sustainable manner (MO2)	0.911		
Organization's understanding of the strengths (MO3)	0.915		
Organization's understanding of the weaknesses (MO4)	0.895		
Organization's understanding of the capabilities (MO5)	0.864		
Top Management Characteristics		0.965	0.933
Education (TMT1)	0.965		
Tenure (TMT2)	0.967		
HEI Strategy		0.959	0.770
Low educational costs (HS1)	0.816		
Very tight cost control (HS2)	0.896		
Producing standard services (HS3)	0.879		
Outsourced functions to control costs (HS4)	0.898		
Technology to lower costs (HS5)	0.901		
Analysis of costs related to activities (HS6)	0.888		
Rewards for employees (HS7)	0.864		
Information Technology		0.958	0.819
Technology learning (TI3)	0.921		
Administration online (TI4)	0.923		
Digital library (TI5)	0.913		
Technology integration (TI6)	0.898		
Service online system (TI7)	0.869		
Strategic Management Accounting		0.973	0.722
Comparing teaching processes and standards (SMA2)	0.865		
Performance evaluation refers to the vision and mission (SMA3).	0.873		
Performance evaluation transparency (SMA4)	0.874		
Strategic price (SMA5)	0.875		
Strategic costing (SMA6)	0.883		
Volatile income (SMA7)	0.783		
Static cost (SMA8)	0.759		
Commitment to budget (SMA9)	0.871		
Deliberate position (SMA11)	0.820		
Positioning (SMA12)	0.797		
Aware of the image of the institution (SMA13)	0.858		
Service quality evaluation (SMA14)	0.847		

Table 4 displays that only five indicators met the convergent validity test of nine indicators for the market orientation variable, while the top management characteristics, HEI strategy, and information technology variables were all declared valid. Furthermore, for the strategic management accounting variable, from 14

indicators, 13 indicators fulfilled the convergent validity test. Based on Table 4, it can be concluded that all constructs met the reliable criteria. It was indicated by the composite reliability value of 0.70 and AVE 0.50 as the recommended criteria.

Discriminant Validity

The discriminant validity of a model is said to be good if each loading value of each latent variable indicator has the most significant loading value with other loading values on other latent variables. The results of the discriminant validity test are presented in Table 5.

Table 5 Cross-loading value

Indicator	OM	TMT	SPT	TI	SMA
OM1	**0.788**	0.115	0.456	0.244	0.448
OM2	**0.852**	0.143	0.517	0.205	0.466
OM3	**0.835**	0.164	0.495	0.185	0.476
OM4	**0.848**	0.151	0.502	0.163	0.461
OM5	**0.840**	0.057	0.468	0.218	0.457
TMT1	0.261	**0.965**	0.464	0.225	0.450
TMT2	0.252	**0.967**	0.477	0.225	0.459
HS1	0.678	0.467	**0.922**	0.602	0.844
HS2	0.599	0.453	**0.896**	0.585	0.817
HS3	0.647	0.458	**0.897**	0.527	0.797
HS4	0.659	0.399	**0.896**	0.543	0.803
HS5	0.649	0.451	**0.892**	0.526	0.816
HS6	0.623	0.440	**0.890**	0.603	0.840
HS7	0.645	0.350	**0.819**	0.476	0.742
TI3	0.379	0.236	0.627	**0.921**	0.621
TI4	0.359	0.210	0.575	**0.923**	0.583
TI5	0.320	0.189	0.565	**0.914**	0.567
TI6	0.257	0.177	0.492	**0.898**	0.496
TI7	0.306	0.236	0.546	**0.869**	0.548
SMA2	0.627	0.451	0.797	0.534	**0.906**
SMA3	0.654	0.459	0.839	0.595	**0.920**
SMA4	0.607	0.418	0.786	0.532	**0.878**
SMA5	0.624	0.394	0.845	0.579	**0.879**
SMA6	0.614	0.374	0.789	0.498	**0.862**
SMA7	0.577	0.374	0.789	0.528	**0.867**
SMA8	0.617	0.403	0.817	0.561	**0.883**
SMA9	0.669	0.370	0.847	0.619	**0.880**
SMA10	0.650	0.441	0.847	0.593	**0.886**
SMA11	0.631	0.428	0.793	0.549	**0.902**
SMA12	0.618	0.456	0.796	0.531	**0.906**
SMA13	0.649	0.450	0.829	0.583	**0.914**
SMA14	0.616	0.418	0.786	0.531	**0.878**

Table 5 presents that the loading factor value for the latent variable indicator had a loading factor value more significant than the loading factor value for other latent variables. It demonstrates that the latent variable had good discriminant validity.

Hypothesis Testing Using Structural Model Analysis

The structural or inner model was evaluated by looking at the percentage of variance explained, looking at R^2 for the dependent latent construct using the Stone-Geisser Q-Square test size, and looking at the structural path coefficients. The results of testing the hypothesis and R-Square of this study are illustrated in Table 6.

Table 6 Hypothesis testing result and r-square

Hypothesis	Symbol	Original Sample (O)	T Statistic	P-Value	Decision
OM → SMA	H_1	0.132	3.141	0.002*	Supported
TMT → SMA	H_2	0.061	2.368	0.018*	Supported
SPT → SMA	H_3	0.711	12.429	0.000*	Supported
TI → SMA	H_4	0.120	3.885	0.000*	Supported
R Square	SMA	0.672			

* Significant at alpha 0.01; Adjusted R-Squared = 0.167

Discussion

The results of testing hypothesis 1 (H1) indicate that market orientation positively and significantly affected SMA. The study's results support the contingency theory, suggesting that the situation and conditions will affect the implementation of a policy in an organization (Otley, 2016). HEIs with a strategic view are, of course, market orientation; in this case, prospective students are one of the defining factors in determining the Tri Dharma policy of higher education, including education and teaching, research, and service (Marlina et al., 2018).

According to Sriyono (2020), HEIs with market orientation encompassing customer understanding, organizational understanding of strengths, weaknesses, capabilities, and competitor strategies, as well as coordination between functions in the use of resources, are essential things that need to be considered in making strategic organizational policies to excel in organizational competition. In this regard, SMA is a strategically oriented accounting information technique that considers internal and external aspects in achieving the organization's vision and mission. Undoubtedly, market orientation is one of the determining factors for effective and efficient implementation (Hutaibat et al., 2011).

The results of this study reinforce the findings of Turner et al. (2017), Bouzourine (2017), Cadez et al. (2017), Yuliansyah et al. (2019), and Lay and Jusoh (2017), revealing that market orientation had a positive effect on the implementation of strategic management accounting in business companies. In line with the results of Sriyono's (2020) research, market orientation is a determining factor in implementing strategic management accounting in higher education institutions. Therefore, market orientation is a crucial factor in implementing strategic management accounting since it can present more comprehensive information, primarily the conditions of users and competitors, so that the information presented is more relevant to be used by management in making decisions.

Next, the results of testing hypothesis 2 (H2) show that top management characteristics positively and significantly affected SMA. It indicates that the characteristics of top management would affect the accuracy of the formal planning system, the complexity of the unit structure and coordination, the detail and accuracy of budgeting, and the complexity of the incentive compensation scheme. The study results also agree with the upper-echelon theory, proposing that the status of the leader influences the implementation of a policy in an organization (Hambrick & Mason, 1984). As such, higher education leaders have a vital role in determining organizational strategic policies in both academic and non-academic fields. Therefore, leadership status, translated as the level of education and experience, becomes one of the defining factors in determining the Tri Dharma policy of higher education, including education and teaching, research, and service (Kalkhouran et.al., 2017).

As Pavlatos and Kostakis (2018) stated, top management characteristics comprise education and experience gained that can influence their mindset and tips in managing the organization. It is proven by the leadership of higher education institutions with a doctoral level of education having a different mindset from those with master's degrees. Furthermore, higher education leaders with experience as structural officials previously have different abilities from leaders not experienced in interacting with individuals involved in the organization's operational activities. Moreover, SMA is an accounting information technique that can monitor the achievement of the organization's vision and mission. Of course, top management characteristics are one of the determining factors in its implementation in HEIs (Hutaibat et al., 2011). This study's results align with the findings of Kalkhouran et al. (2017) and Pavlatos and Kostakis (2018), showing that top management characteristics significantly affected the implementation of SMA.

The results of testing hypothesis 3 (H3) demonstrate that the HEI's strategy positively and significantly affected SMA. The study's results reinforce the contingency theory that the situation and conditions will affect the implementation of a policy in an organization (Otley, 2016). HEIs with a strategic view set are one of the defining factors in determining the Tri Dharma policy of higher education, including education and teaching, research, and service (Marlina et al., 2018).

Based on the HEI's strategy research results, including the lowest educational costs from competitors, very tight cost control, standardized services, outsourced functions to control costs, technology to reduce costs, analysis of costs related to activities, and rewards for employees for cost reduction, suggestions are made for meaningful activities to strategic planning (Marlina & Tjahjadi, 2021). Strategic planning contains short-term and long-term organizational goals so that the control and management of information become more focused, especially from the financial aspect; it certainly encourages the effective implementation of SMA (Sriyono, 2020).

The results of this study corroborate with the research findings of Chenhall, 2003 and Alsharari et al. (2015), stating that strategy is a factor that needs attention in the development and application of strategic management accounting (SMA) in business firms. Consistent with the research results of Sriyono (2020) and Marlina and Tjahjadi

(2021), higher education strategy is one of the determining factors in implementing strategic management accounting in higher education institutions. Hence, HEIs strategy is critical in implementing strategic management accounting so that determining financial management policies aligns with achieving the organizational vision and mission.

The results of testing hypothesis 4 (H4) uncover that information technology positively and significantly affected SMA. The study's results align with the contingency theory, putting forward that the situation and conditions will affect the implementation of a policy in an organization (Otley, 2016). In this case, media information technology facilitates the acquisition of higher-quality information and data (Pavlatos 2015) to encourage the implementation of SMA in HEIs.

Based on the research results, information technology, including technology learning and online administration, technology integration and online service systems, as well as literacy and training, will encourage the implementation of strategic management accounting in the form of benchmarking, integrated performance measurement, strategic decision making, volatile income, fixed cost, accountant line of action, deliberate position and positioning, and identified vital distinction (Hutaibat et al., 2011). Thus, with information technology, the availability of information is much more effective and efficient, so it supports the availability of big data, which plays a crucial role in implementing strategic management accounting. The results of this study are consistent with the research of Rosli and Sidek (2013), Pavlatos (2015), and Abdullah et al., (2020) finding that information technology had a positive effect on the implementation of strategic management accounting.

Conclusion

This study aimed to examine the determinants of SMA implementation in HEI, including market orientation, top management characteristics, HEI strategies, and information technology. Based on the findings, market orientation, top management characteristics, HEI strategy, and information technology positively affected the implementation of SMA in HEIs. Based on the research results, theoretical implications can be found in the form of this research being able to expand on contingency and upper-echelon theories, primarily in terms of factors that must be considered in implementing strategic management accounting in HEIs to run more efficiently and effectively. Further, the results of this study are expected to be useful for other studies to add insight and knowledge regarding market orientation, top management characteristics, higher education strategy, information technology, and strategic management accounting in HEIs. Furthermore, for the practical implications, this research is expected to provide information for owners and managers of HEIs in financial management in the form of implementing strategic management accounting by paying attention to resource capabilities in the field of market orientation, top management characteristics, strategies, and utilization of information technology. It is hoped that regulators can help

develop higher education management standards related to the management aspects of their resources

The limitations of this study are related to the depth of the research because research data collection was carried out by distributing questionnaires online. Furthermore, this research ignores the sample based on the type and size of HEIs. For further research, it is recommended to collect data by conducting interviews to explore the data obtained more deeply. Furthermore, it is also suggested to add control variables in the form of the type and size of HEIs so that the research results are not biased. In addition to adding other variables as determinants of implementing strategic management accounting in HEIs, such as environmental changes and regulations.

References

Abdullah, N. H. N., Harjito, D. A., & Said, J. (2020). The Role of Strategic Management Accounting on Heterogeneity of Human Capital. *International Journal of Innovation, Creativity and Change, 10(*11). https://ijicc.net/images/vol10iss11/101144_Abdullah_2020_E_R.pdf

Alamri, A. M. (2018). Association between strategic management accounting facets and organizational performance. *Baltic Journal of Management.*https://doi.org/10.1108/BJM-12-2017-0411

Alsharari, N. M., Dixon, R., & Youssef, M. A. E. A. (2015). Management accounting change: critical review and a new contextual framework. *Journal of Accounting & Organizational Change, 11*(4), 476–502. https://doi.org/10.1108/JAOC-05-2014-0030

Azudin, A., & Mansor, N. (2017). Management accounting practices of SMEs : The impact of organizational DNA, business potential and operational technology. *Asia Pacific Management Review*, *1*(5), 3–8. https://doi.org/10.1016/j.apmrv.2017.07.014

Bouzourine. (2017). Contingency factors and strategic management accounting usage in the Algerian medium-sized enterprises Abdel-Halim bouzouki master of science (international accounting). Thesis *master of science (international accounting) Universiti Utara Malaysia.*

Cadez, S., & Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, Organizations and Society*, *33*(7–8), 836–863. https://doi.org/10.1016/j.aos.2008.01.003

Cadez, S., Dimovski, V., & Zaman Groff, M. (2017). Research, teaching and performance evaluation in academia: the salience of quality. *Studies in Higher Education*, *42*(8), 1455-1473. https://doi.org/10.1080/03075079.2015.1104659

Chenhall, R. H. (2003). Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, organizations and society*, *28*(2-3), 127-168. https://doi.org/10.1016/S0361-3682(01)00027-7

Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing research*, *19*(4), 440-452. https://doi.org/https://doi.org/10.1177/002224378201900406

Georgina, D. A., & Olson, M. R. (2008). Integration of technology in higher education: A review of faculty self-perceptions. *The Internet and Higher Education*, *11*(1), 1-8. https://doi.org/10.1016/j.iheduc.2007.11.002

Ghozali, I. (2013). *Aplikasi analisis multivariate dengan program spss*. Badan Penerbit Universitas Diponegoro.

Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European business review*, *26*(2), 106–121. https://doi.org/10.1108/ebr-10-2013-0128

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of management review*, *32*(2), 334-343. https://doi.org/10.5465/amr.2007.24345254

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, *9*(2), 193-206. https://doi.org/https://doi.org/10.2307/258434

Hamori, M., & Koyuncu, B. (2015). Experience matters? The impact of prior CEO experience on firm performance. *Human Resource Management*, *54*(1), 23-44. https://doi.org/10.1002/hrm.21617

Hutaibat, K. (2019). Accounting for strategic management, strategising and power structures in the Jordanian higher education sector. *Journal of Accounting & Organizational Change*, *15*(3), 430-452. https://doi.org/10.1108/JAOC-06-2018-0054

Hutaibat, K., von Alberti-Alhtaybat, L., & Al-Htaybat, K. (2011). Strategic management accounting and the strategising mindset in an English higher education institutional context. *Journal of Accounting & Organizational Change*. https://doi.org/10.1108/18325911111182312

Kalkhouran, A. A. N., Nedaei, B. H. N., & Rasid, S. Z. A. (2017). The indirect effect of strategic management accounting in the relationship between CEO characteristics and their networking activities, and company performance. *Journal of Accounting & Organizational Change*. *13*(4), 471–491. https://doi.org/10.1108/JAOC-05-2015-0042

Kalkhouran, A. A. N., Rasid, S. Z. A., Sofian, S., & Nedaei, B. H. N. (2015). A conceptual framework for assessing the use of strategic management accounting in small and medium enterprises. *Global Business and Organizational Excellence*, *35*(1), 45-54. https://doi.org/10.1002/joe.21644

Langfield-Smith, K. (2006). A review of quantitative research in management control systems and strategy. *Handbooks of management accounting research*, *2*, 753-783. https://doi.org/10.1016/S1751-3243(06)02012-8

Lay, T. A., & Jusoh, R. (2017). Organizational capabilities, strategic management accounting and firm performance. *Jurnal Akuntansi Dan Keuangan Indonesia*, *14*(2), 6. https://doi.org/10.21002/jaki.2017.12

Marlina, E., & Tjahjadi, B. (2021). The Role of Organization Strategy and Management Accounting Innovations on Cost Performance: The Case of Higher Education Institutions. *Journal of Accounting and Investment*, *22*(3), 539-554. https://doi.org/10.18196/jai.v22i3.12012

Marlina, E., Ardi, H. A., & Samsiah, S. (2018). Analysis of strategic costing effect towards university performance with competitive advantage as mediating. *Prosiding CELSciTech*, *3*, 27-33.

Marlina, E., Ardi, H. A., Samsiah, S., Ritonga, K., & Tanjung, A. R. (2020). Strategic Costing Models as Strategic Management Accounting Techniques at Private Universities in Riau, Indonesia. *International Journal of Financial Research*, *11*(1), 274-283. https://doi.org/10.5430/ijfr.v11n1p274

Nasir. (2019). *130 Perguruan Tinggi Swasta Ditutup Sepanjang 2015-2019*. CNN Indonesia. https://www.cnnindonesia.com/nasional/20190802172238-20-417874/130-perguruan-tinggi-swasta-ditutup-sepanjang-2015-2019

O'Cass, A., Ngo, L. V., & Siahtiri, V. (2015). Marketing resource-capability complementarity and firm performance in B2B firms. *Journal of Business & Industrial Marketing*. https://doi.org/10.1108/JBIM-05-2012-0087

Otley, D. (2016). The contingency theory of management accounting and control: 1980-2014. *Management Accounting Research*, *31*, 45–62. https://doi.org/10.1016/j.mar.2016.02.001

Pavlatos, O. (2015). Does management accounting mediate the relationship between cost system design and performance ? International Journal of Contemporary Hospitality Management, 27(5), 756–767. https://doi.org/10.1108/IJCHM-12-2013-0582

Pavlatos, O., & Kostakis, X. (2018). The impact of top management team characteristics and historical financial performance on strategic management accounting. *Journal of Accounting & organizational change*. https://doi.org/10.1108/JAOC-11-2017-0112

Prajogo, D. I. (2016). The strategic fit between innovation strategies and business environment in delivering business performance. *International journal of production Economics*, *171*, 241-249. https://doi.org/10.1016/j.ijpe.2015.07.037

Rahimnia, F., & Kargozar, N. (2016). Objectives priority in university strategy map for resource allocation. *Benchmarking: An International Journal*, *23*(2), 371-387. https://doi.org/10.1108/BIJ-09-2013-0094

Reheul, A. M., & Jorissen, A. (2014). Do management control systems in SMEs reflect CEO demographics?. *Journal of Small Business and Enterprise Development, 21(*3), 470-488. https://doi.org/10.1108/JSBED-04-2014-0059

Rosli, M. M., & Sidek, S. (2013). The Impact of innovation on the performance of small and medium manufacturing enterprises:: Evidence from Malaysia. *Journal of Innovation Management in Small & Medium Enterprises*, *2013*, 1. https://doi.org/10.5171/2013.885666

Saeidi, S. P., & Othman, M. S. H. (2017). The mediating role of process and product innovation in the relationship between environmental management accounting and firm's financial performance. *International Journal of Business Innovation and Research*, *14*(4), 421-438. https://doi.org/10.1504/IJBIR.2017.087839

SRIYONO, S. (2020). A Nexus among Strategy Type, Market Orientation, Strategic Costing and Financial Sector Performance of Private Universities in Indonesia. *Journal of Asian Finance, Economics, and Business*, *7*(10), 1035–1046. https://doi.org/10.13106/jafeb.2020.vol7.n10.1035

Suliyanto, S. (2011, May). Perbedaan Pandangan Skala likert sebagai Skala Ordinal atau skala Interval. In *Prosiding Seminar Nasional Statistika Universitas Diponegoro 2011*, 51-60). Program Studi Statistika FMIPA Undip.

Tuanmat, T. Z., & Smith, M. (2011). The effects of changes in competition, technology and strategy on organizational performance in small and medium manufacturing companies. *Asian Review of Accounting, 9*(3), 208-220. https://doi.org/10.1108/13217341111185137

Turner, M. J., Way, S. A., Hodari, D., & Witteman, W. (2017). International Journal of Hospitality Management Hotel property performance : The role of strategic management accounting. *International Journal of Hospitality Management*, *63*, 33–43. https://doi.org/10.1016/j.ijhm.2017.02.001

Yuliansyah, Y., Khan, A. A., & Fadhilah, A. (2019). Strategic performance measurement system, firm capabilities andcustomer-focused strategy. *Pacific Accounting Review*. https://doi.org/10.1108/PAR-09-2018-0068