

## **A Value Chain Based Strategic Management Accounting Model for Private Higher Education Institutions**

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**Abstract:** This study examines the development of a value chain based strategic management accounting model in private higher education institutions. The issue has become increasingly important in a competitive higher education environment, where institutions are required to manage academic and managerial activities more strategically to create value and sustain competitiveness. Using a qualitative case study approach, the study was conducted across three private higher education institutions. Data were collected through in depth interviews, observations, and document analysis, and were examined using open coding, axial coding, and selective coding procedures. The analysis focused on identifying the interdependencies among primary and support activities within the institutional value chain and assessing their contributions to value creation. The findings show that value creation is achieved through the integration of academic functions and support systems, while strategic management accounting plays an important role in generating relevant cost and performance information for managerial decision making. This integration contributes to stronger institutional reputation, improved accreditation outcomes, and greater financial sustainability. The study concludes that the proposed model can support competitive advantage by aligning value chain activities with strategic information needs, thereby strengthening managerial responsiveness and long term institutional performance.

**Keywords:** Competitive Advantage, Strategic Management Accounting, Value Chain.

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### **INTRODUCTION**

Higher education reform in Indonesia has brought about significant changes in university governance, particularly with the implementation of autonomy for public universities through Law No. 12 of 2012. This policy encourages universities to manage their resources independently, transparently, and accountably, while also enhancing their competitiveness in attracting students and funding sources (Marginson, 2016). These conditions have intensified competition between public and private universities, especially in regional areas such as Kupang City, where institutional capacity and resource availability remain limited (Altbach & de Wit, 2018).

Private higher education institutions face structural challenges, including financial dependency on tuition fees, limited academic resources, and increasing demands for quality assurance and global competitiveness (Agasisti et al., 2008; Hutaibat, 2020; Teixeira, 2017). Empirical evidence shows that reliance on student tuition as the primary income source exposes institutions to financial vulnerability, particularly in the context of fluctuating student enrollment and demographic shifts (Johnstone, 2004; Salmi, 2009). Furthermore, limited research productivity and a shortage of highly qualified academic staff constrain the ability of private universities to improve accreditation and institutional reputation (Hazelkorn, 2015; Shin, 2011).

In response to these challenges, higher education institutions are required not only to improve academic quality but also to adopt strategic and integrated management practices. Strategic management accounting (SMA) emerges as a relevant approach to support decision-making by integrating financial and non-financial information (Cinquini & Tenucci, 2010; Hoque, 2006). Unlike traditional management accounting, SMA emphasizes external orientation, competitor analysis, and long-term value creation (Bromwich, 1990; Langfield-Smith, 2008). This perspective aligns with the growing need for universities to respond adaptively to environmental uncertainty and competitive pressures (Cadez & Guilding, 2008; Guilding, 2000).

One of the key analytical tools within SMA is value chain analysis, which enables organizations to identify interdependencies among activities and evaluate their contribution to value creation (Porter, 1985; Shank & Govindarajan, 1993). In the context of higher education, value chain analysis provides a framework to understand how academic and support activities interact to generate institutional value, including reputation, student satisfaction, and financial sustainability (Vale, 2022). However, the application of value chain concepts in higher education requires contextual adaptation, as universities operate not only as economic entities but also as social institutions with multiple stakeholders and objectives (Jongbloed, 2008; Marginson, 2016).

Previous studies indicate that the implementation of SMA in higher education remains limited and fragmented. Challenges include the lack of integration between academic and managerial functions, insufficient data systems, and resistance to change within academic institutions (Agasisti et al., 2008; Ditkaew, 2023; Marlina, 2020). Moreover, existing studies tend to focus on partial aspects of SMA without developing a comprehensive model that reflects the complexity of university value creation processes (Cadez & Guilding, 2012; Nixon & Burns, 2012).

From a theoretical perspective, the resource-based view (RBV) suggests that sustainable competitive advantage is derived from valuable, rare, inimitable, and non-substitutable resources (Barney, 1991; Wernerfelt, 1984). In higher education, academic staff quality, research output, and institutional reputation represent strategic resources that can drive long-term competitiveness (Altbach et al., 2019; Hazelkorn, 2015). At the same time, legitimacy theory emphasizes that universities must gain social acceptance and credibility through compliance with norms, standards, and expectations, often reflected in accreditation and research performance (Deephouse, 1996; Suchman, 1995).

Despite these theoretical advancements, there remains a significant research gap in developing an integrated SMA model based on value chain analysis that is tailored to the characteristics of private universities in regional contexts. Most existing studies are conducted in developed countries and may not fully capture the institutional dynamics and constraints faced by universities in developing regions (Salmi, 2009; Teixeira, 2017). Therefore, a context-specific approach is needed to better understand how value is created and sustained within private higher education institutions in areas such as Kupang City.

Based on the above, this study aims to analyze the interdependencies among activities within the value chain of private universities and evaluate the contribution of each activity to the creation of institutional value added. Additionally, this study aims to develop a value chain-based strategic management accounting model that can serve as a foundation for formulating competitive strategies and enhancing the competitive advantage of private universities in Kupang City. The results of this study are expected to provide a theoretical contribution to the development of strategic management accounting literature as well as a practical contribution to university administrators in improving the effectiveness of decision-making and institutional sustainability.

## **METHOD**

This study employs a qualitative approach with an interpretive paradigm aimed at gaining an in-depth understanding of the practices and meanings of implementing value chain-based strategic management accounting in private universities. This approach was chosen because the study focuses on exploring social phenomena and decision-making processes involving interactions between managerial and academic actors (Creswell & Poth, 2016). The research design used is a case study, allowing the researcher to comprehensively explore the context within the units of analysis under investigation.

The research was conducted at three private universities in Kupang City: Widya Mandira Catholic University, Citra Bangsa University, and Artha Wacana Christian University. The selection of locations was done through purposive sampling, considering the characteristics of institutions facing competitive challenges, resource constraints, and the need for adaptive strategic management. Research informants were selected using purposive sampling, specifically individuals with knowledge and direct involvement in strategic decision-making, including university leadership (rectors and vice rectors), deans, program chairs, as well as financial managers and strategic planners (Creswell & Poth, 2016).

Data collection was conducted through in-depth interviews, observation, and documentation. Interviews were conducted using a semi-structured approach with a guide covering aspects of strategy, finance, governance, and the value chain. The entire interview process was recorded and transcribed verbatim to ensure data accuracy. Observations were conducted to understand work processes, interactions between units, and decision-making dynamics within the university environment. Additionally, data was obtained from supporting documents such as strategic plans (Renstra), financial reports, and performance evaluation reports (Vale, 2022).

Data analysis was conducted through the stages of open, axial, and selective coding to identify the main themes emerging from the data (Creswell & Poth, 2016). This process allowed the researcher to categorize the relationships between activities within the value chain and interpret their contributions to institutional value creation. To ensure data validity, this study employed source and method triangulation by comparing results from interviews, observations, and documentation (Agasisti et al., 2008). Additionally, findings were validated through discussions with key informants to ensure the interpretations align with the empirical context. The research stages and processes are summarized in Figure 1 below.

## RESEARCH FLOW DIAGRAM

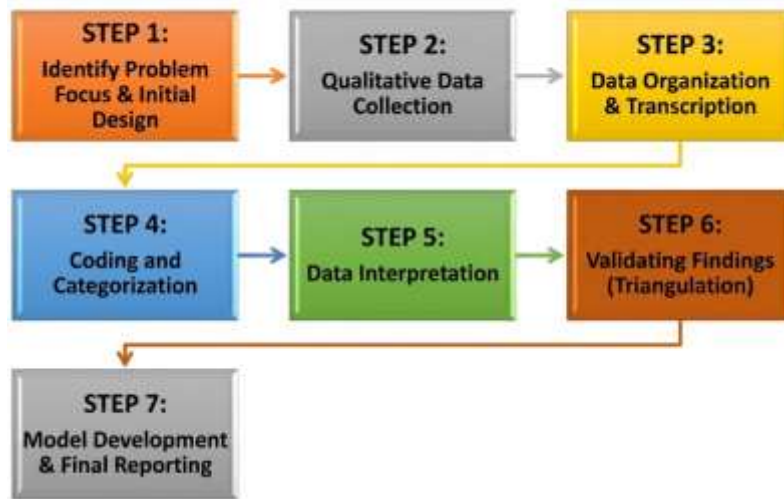


Figure 1. Research Flowchart

## RESULTS AND DISCUSSION

### Research Results

#### Dependency and Value Chain Integration in Private Universities

The results of this study clearly show that the value chain in private universities in Kupang City is not linear, but rather takes the form of a complex, dynamic, and interdependent system. These findings indicate that core and support activities cannot be clearly separated as in the classical business organization model, but rather operate within a relational network that simultaneously influences one another.

In this context, the management and academic boards at Widya Mandira Catholic University (UNWIRA), Citra Bangsa University (UCB), and Artha Wacana Christian University (UKAW) identified the value chain as a causal structure linking academic activities, institutional reputation, student enrollment, financial condition, and supporting activities such as infrastructure and governance. This identification is not conducted normatively or administratively, but is based on empirical experience and strategic reflection arising from the daily practice of institutional management.

Conceptually, these findings affirm that the value chain in the higher education sector possesses characteristics distinct from those in the industrial sector as formulated by Porter, (1985). While in the business sector the value chain is oriented toward transforming inputs into outputs in the form of products or services, in the context of higher education, the value chain operates as a multidimensional value-production system encompassing academic, social, and financial aspects simultaneously. Thus, value is not measured solely by economic profit but also by academic legitimacy, reputation, and institutional sustainability.

Furthermore, the research findings indicate that the process of identifying interdependencies among value chain components is conducted through the utilization of information generated by the strategic management accounting system. This information includes cost data, performance metrics, and non-financial indicators used to evaluate the contribution of each activity to the institution's value creation. In practice, the use of this information is not mechanistic but interpretive, where management actively interprets the data to understand the cause-and-effect relationships among activities. Thus, it can be said that the

value chain in private universities functions not only as an analytical tool but also as a strategic framework used by organizational actors in decision-making.

### **Academic Activities as the Starting Point for Value Creation**

One of the most notable findings in this study is the role of academic activities as the primary source of value creation within the higher education value chain. The academic activities in question include faculty quality, the learning process, research productivity, and community service activities. Interview results indicate that all three universities regard faculty quality as a key factor in determining the success of academic activities. Enhancing faculty qualifications, particularly through doctoral education (Ph.D.), is viewed as a strategic investment with long-term impacts on various aspects of the institution. Informants consistently emphasized that highly qualified faculty members tend to produce better scientific publications, which in turn enhance program accreditation and the university's reputation.

Within a theoretical framework, these findings can be understood through the resource-based view (RBV), which emphasizes that an organization's competitive advantage is determined by resources that are valuable, rare, difficult to imitate, and hard to substitute. In the context of higher education institutions, high-quality faculty members constitute strategic resources that meet these criteria, thereby serving as the primary foundation for value creation. Furthermore, academic activities are not merely understood as internal processes but also as mechanisms for producing external legitimacy. Scientific publications, for instance, serve not only as indicators of academic performance but also as tools for building public trust and enhancing the university's standing within the higher education ecosystem. This demonstrates that academic outputs have a dual function: they are both the result of internal processes and inputs for external activities such as collaboration and marketing.

Additionally, the research findings indicate that academic activities are managed through strict internal evaluation mechanisms. Research and community service activities are evaluated not only in terms of quantity but also regarding their relevance to the institution's vision and mission, as well as the efficiency of resource utilization. This indicates an effort to ensure that every academic activity genuinely contributes to value creation, rather than merely fulfilling administrative requirements. Thus, academic activities in this study function not only as operational activities but as the core of the university's value system, triggering a chain reaction across other components.

### **Transforming Academic Output into Reputation and Access to Resources**

Research findings indicate a strong and consistent relationship between academic output and institutional reputation, as well as access to external resources. In this context, scientific publications and program accreditation serve as key mechanisms for establishing a university's legitimacy in the eyes of stakeholders. Empirically, informants from the three universities confirmed that improvements in academic quality directly impact increased trust from partners, opportunities for collaboration, and attractiveness to prospective students. This indicates that reputation is not built in isolation but is the result of a continuous academic process.

From a legitimacy theory perspective, these findings indicate that higher education institutions seek social recognition through improved academic performance. Scientific publications and accreditation function as symbols of legitimacy, demonstrating that the institution meets widely recognized quality standards. Thus, reputation can be understood as a form of symbolic capital that holds strategic value within the higher education value chain.

Furthermore, a good reputation opens access to various external resources, including collaboration with other institutions, research funding, and an increase in student enrollment. In this regard, reputation acts as a bridge between academic activities and financial sustainability, making it a crucial component in the value chain.

These findings also indicate a reciprocal relationship between reputation and academic activities. On the one hand, high-quality academic activities enhance reputation; on the other hand, a good reputation drives the improvement of academic activities through access to greater resources. Thus, the relationship between the two is cyclical and mutually reinforcing.

### **Students as an Integrative Node in the Value Chain**

One of the most significant findings of this study is the position of students as a central component in the higher education value chain. Unlike traditional value chain models that treat customers as external parties, this study shows that students play a dual role as both input and output. As input, students are the primary source of institutional revenue through tuition fees. The research results indicate that over 90% of the operational revenue of private universities in Kupang City comes from students. This creates a very high dependence on the number and characteristics of students. As an output, students are the primary product of the educational process, reflecting the institution's quality. High-quality graduates enhance the university's reputation, which in turn attracts more new students. Thus, students occupy a position that connects all components of the value chain.

From a systems perspective, this position of students can be understood as a nodal point or integrative node connecting various value streams within the organization. Any change in the number or quality of students will trigger a chain reaction affecting academic activities, reputation, and finances. These findings have significant implications for how universities manage their strategies. The high dependence on students requires institutions to maintain a balance between academic quality and market appeal. If they focus too much on academic aspects without considering market needs, institutions risk losing students. Conversely, if they are too market-oriented without maintaining academic quality, the institution's reputation may decline. Thus, students function not merely as objects of education but as strategic actors within the higher education value chain.

### **The Strategic Role of Support Activities in Value Creation**

Research findings indicate a significant shift in how universities view support activities. Activities that were previously regarded as administrative functions are now positioned as strategic components in value creation. The supporting activities in question include infrastructure, information technology, governance, and organizational systems. In practice, these activities not only support academic activities but also have the potential to become new sources of value.

For example, the use of campus facilities such as auditoriums is not limited to academic activities but also serves as an alternative revenue source. This demonstrates that physical assets can be converted into economic value when managed strategically. Additionally, information technology systems play a role in enhancing the efficiency and transparency of institutional management. The digitization of academic services, for instance, can improve the quality of services provided to students while simultaneously reducing operational costs.

From an organizational theory perspective, these findings indicate a shift from the cost center paradigm toward the value driver paradigm. Support activities are no longer viewed as

cost burdens but as strategic investments capable of generating added value. Furthermore, support activities also have a reciprocal relationship with core activities. Good infrastructure improves the quality of learning, which in turn enhances the institution's reputation and increases student enrollment. Conversely, an increase in student enrollment drives the need for better infrastructure. Thus, in this study, support activities function as both enablers and creators of value within the higher education value chain.

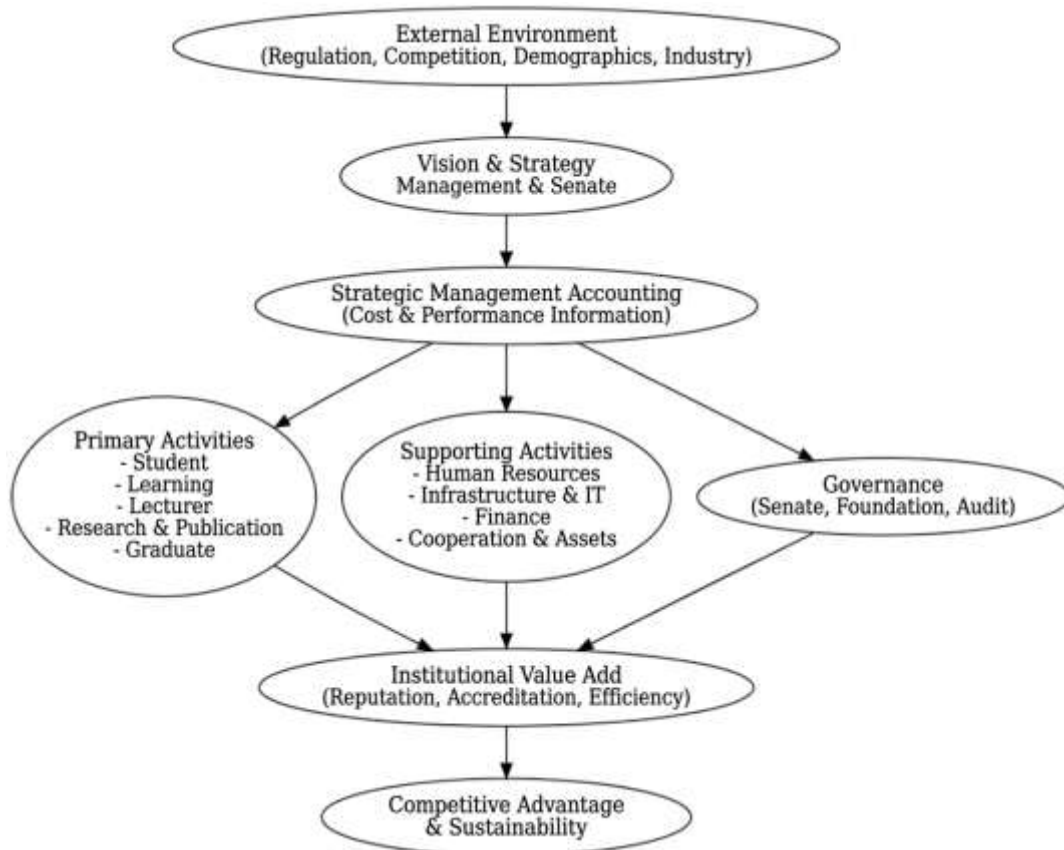
### **Strategic Management Accounting Model in Private Universities**

This conceptual model demonstrates that value creation and competitive advantage in universities are not generated by a single activity, but rather through the dynamic interaction between primary activities, support activities, and the strategic decision-making system. Students are positioned as the integrative node connecting the entire value chain both as the main input (upstream) and as a strategic output (downstream) so that any change in the number, quality, and characteristics of students triggers a cascading impact on the institution's academic, financial, and reputational performance.

Primary activities such as student recruitment, faculty quality development, the learning process, scientific publications, and graduate outcomes are understood as core value generators that directly shape the reputation and competitiveness of the university. However, the value of these primary activities does not stand alone; rather, it is highly dependent on support activities, including financial governance, infrastructure development, information technology systems, and an adaptive organizational structure. This model affirms that support activities are not merely administrative in nature but can transform into strategic value sources when managed proactively for example, by optimizing campus assets as alternative revenue streams or through the digitalization of academic services to enhance efficiency and transparency.

Strategic management accounting acts as a linking mechanism that enables management and academic boards to identify interdependencies among activities within the value chain, evaluate each activity's contribution to value creation, and assess trade-offs between academic quality and resource constraints. Through cost, performance, and non-financial information, this system helps universities shift from a mere budget control orientation toward value-based management.

Overall, this model interprets a university's competitive advantage as the result of strategic integration among academic vision, resource management, and adaptive responses to the competitive environment. This advantage becomes dynamic and sustainable when the university is able to simultaneously align academic and managerial decisions, so that the value chain functions not only as an internal analytical tool but also as a strategic framework for maintaining institutional sustainability amid declining student enrollments and increasing competition among universities. The following conceptual model of Strategic Management Accounting in Private Universities in Kupang City can be described as follows:



**Figure 2.** Conceptual Model of Strategic Management Accounting in Private Universities

This model asserts that the competitive advantage of private universities is generated through the strategic integration of primary activities, support activities, and governance, mediated by strategic management accounting. Cost and performance information is used to identify interdependencies among activities and to evaluate each activity's contribution to the institution's value creation. This added value is reflected in enhanced reputation, accreditation achievements, resource management efficiency, and financial sustainability, which ultimately shape the university's competitive advantage in a dynamic competitive environment.

Furthermore, this model demonstrates that strategic management accounting not only functions as an information-providing tool but also as an integrative mechanism that connects various functions within the organization. Through cost and performance information, management can identify which activities contribute most to value creation and which activities need improvement or restructuring. Thus, strategic management accounting plays a role in supporting evidence-based decision-making, ensuring that every policy adopted has a strong rational basis and is oriented toward long-term value creation.

In addition, this model also emphasizes the importance of governance in ensuring that the integration between primary and support activities runs effectively. Good governance, through the functions of the senate, foundation, and audit system, acts as both a controller and a director to keep every activity aligned with the institution's vision and strategy. Without strong governance, value chain integration risks dysfunction, such as a mismatch between academic policies and financial capacity. Therefore, governance in this model not only serves as an overseer but also as a strategic part of the institution's value creation process.

The implications of this model suggest that private universities need to shift their management paradigm from an administrative approach toward an integrated strategic approach. Competitive advantage is no longer determined by a single factor but rather by the institution's ability to manage the interrelationships among activities systemically and adaptively in response to changes in the external environment. Consequently, the sustainability of a university is highly determined by management's ability to optimize synergies between resources, strategies, and information systems, thereby responding effectively and sustainably to the dynamics of higher education competition.

## **Discussion**

The findings of this study demonstrate that the value chain of private universities is not linear but forms a dynamic, integrated, and interdependent system. This result extends the classical concept of value chain proposed by Porter, (1985), which emphasizes sequential linkages among activities, by showing that in higher education, value creation occurs through recursive and simultaneous interactions among academic, financial, and reputational dimensions. This aligns with recent studies highlighting that universities operate as complex adaptive systems rather than linear production entities (Barnett, 2022; Marginson, 2016; Pinheiro, 2019).

From an interpretive standpoint, academic activities emerge as the primary driver of value creation, triggering cascading effects on institutional reputation and financial sustainability. This finding is consistent with global higher education research emphasizing that teaching quality, research productivity, and community engagement are central determinants of institutional competitiveness (Altbach et al., 2019; Hazelkorn, 2015; Shin, 2011). Moreover, empirical studies confirm that research output significantly influences university rankings and international visibility, which in turn affect student recruitment and funding opportunities (Abramo et al., 2019; Moed, 2017).

However, this study goes further by demonstrating that academic value is not merely an output but a strategic resource that continuously circulates within the institutional system. This finding can be interpreted through the lens of the resource-based view (RBV), where intangible assets such as academic reputation, intellectual capital, and faculty expertise function as sources of sustained competitive advantage (Barney, 1991; Dumay, 2016; Wernerfelt, 1984). In this regard, universities are not only knowledge producers but also strategic actors managing knowledge as an economic and symbolic asset (Ferlie, 2008; Marginson, 2016).

Another significant contribution of this study lies in identifying students as an integrative node within the value chain. Unlike traditional models that position customers as external entities, this study reveals that students simultaneously function as inputs (revenue sources) and outputs (graduates as institutional products). This dual role supports the conceptualization of students as co-creators of value, consistent with service-dominant logic, which emphasizes value co-creation between organizations and stakeholders (Galan-Muros, 2019; Vargo & Lusch, 2008). Furthermore, recent higher education studies confirm that student engagement and outcomes are central to institutional performance and sustainability (Klemenčič, 2015; Tight, 2020).

The findings also indicate a paradigm shift in the role of support activities. Traditionally viewed as cost centers, support functions such as infrastructure, information technology, and governance are now repositioned as strategic value drivers. This transformation aligns with contemporary management accounting literature, which emphasizes the strategic role of non-financial resources in value creation (Cinquini & Tenucci, 2010; Nixon & Burns, 2012).

Additionally, digital transformation in higher education has been shown to enhance operational efficiency, improve service quality, and create new revenue streams (Bond, 2018; Selwyn, 2021).

From a strategic management accounting (SMA) perspective, this study confirms that SMA functions not only as a tool for cost control but also as an integrative mechanism that connects various organizational activities. The use of cost, performance, and non-financial information enables management to identify interdependencies and evaluate trade-offs between academic quality and resource constraints. This finding is consistent with prior studies highlighting the role of SMA in supporting strategic decision-making and organizational alignment (Cadez & Guilding, 2008; Cescon, 2019; Hoque, 2006).

Importantly, this study contributes to the ongoing debate regarding the applicability of SMA in non-profit and public sector organizations. While SMA has traditionally been associated with the private sector, recent literature suggests its increasing relevance in higher education due to growing competition, funding constraints, and accountability pressures (Agasisti et al., 2008; Grossi, 2020; Lapsley, 2019). The findings of this study reinforce this perspective by demonstrating that SMA can be effectively adapted to support value-based management in universities. Another critical insight relates to the role of governance in ensuring the effectiveness of value chain integration. The study shows that governance structures function not only as control mechanisms but also as strategic enablers that align academic and managerial objectives. This finding resonates with institutional theory, which emphasizes the importance of governance in maintaining legitimacy and organizational stability (Deephouse, 1996; Suchman, 1995). Furthermore, effective governance has been linked to improved institutional performance and accountability in higher education (Trakman, 2008).

Comparatively, this study offers a contextual contribution by focusing on private universities in a developing region, which are often underrepresented in the literature. Most existing studies on SMA and higher education are concentrated in developed countries with relatively stable funding systems and institutional capacities (Salmi, 2009; Teixeira, 2017). By contrast, this study highlights the unique challenges faced by private universities in resource-constrained environments, including high dependence on tuition fees and limited access to external funding. This contextual insight is crucial for developing more inclusive and globally relevant theories of higher education management (Altbach et al., 2019; Marginson, 2016).

The novelty of this research lies in the development of a value chain-based SMA model that integrates academic, financial, and governance dimensions into a single analytical framework. This model advances previous studies that tend to treat these dimensions separately (Cadez & Guilding, 2012; Nixon & Burns, 2012). By positioning students as an integrative node and emphasizing the dynamic interaction among activities, the model provides a more holistic understanding of value creation in higher education. From a theoretical perspective, this study contributes to the refinement of value chain theory by demonstrating its adaptability beyond the industrial context. It also extends SMA literature by incorporating interpretive and context-sensitive approaches, highlighting that accounting information is not merely technical but also socially constructed and strategically interpreted (Langfield-Smith, 2008; Mouritsen, 2005).

Practically, the findings suggest that university managers should adopt an integrated strategic approach that combines financial and non-financial information in decision-making processes. The use of SMA as a value chain mapping tool can help institutions identify key value drivers, optimize resource allocation, and enhance institutional sustainability. Furthermore, the emphasis on academic quality as the primary source of value highlights the need for long-term investment in human capital and research capacity. In conclusion, this study underscores that

competitive advantage in higher education is not derived from isolated activities but from the continuous and strategic integration of multiple value-creating components. In an increasingly competitive and uncertain environment, universities must move beyond traditional administrative models toward adaptive, data-driven, and strategically integrated management practices.

## CONCLUSIONS

This study finds that the implementation of value chain-based strategic management accounting in private universities in Kupang City reveals a strong interrelationship and interdependence among primary activities, support activities, and institutional governance. Academic activities are proven to be the primary source of value, driving improvements in reputation, accreditation, and student appeal, which in turn have a direct impact on the institution's financial sustainability. On the other hand, support activities such as infrastructure, information technology, and governance not only serve administrative functions but also act as enhancers and even creators of new value. These findings also affirm that students have a strategic role as an integrative node in the value chain, both as inputs and outputs, so that changes in this component have a systemic impact on the overall performance of the university. Conceptually, this study produces a strategic management accounting model that positions cost and performance information as a connecting mechanism to identify interdependencies among activities and to evaluate each activity's contribution to the institution's value creation. This model demonstrates that the competitive advantage of private universities is not generated by a single activity, but rather by the continuous strategic integration of academic and managerial aspects in responding to the dynamics of the external environment. Based on these findings, further research is recommended to test this model quantitatively in broader university contexts to empirically measure the strength of relationships among value chain components. Additionally, subsequent research can develop more measurable strategic management accounting-based performance indicators to support decision-making in the higher education sector.

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