Cultural and Cybernetic Control Matter Corporate Sustainability: The Role of Strategy

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ABSTRACT: This research study explores the relationship between cultural and cybernetic control, cost leadership strategy, differentiation strategy, and corporate sustainability. Utilizing a quantitative methodology, data is collected from a diverse sample of companies representing different industries in Indonesia. Validated questionnaires are used to measure cultural control, cybernetic control, cost leadership strategy, differentiation strategy, and corporate sustainability performance. The collected data is analyzed using statistical techniques such as regression analysis or correlation tests to examine the connections between the variables. The findings of this study will enhance our understanding of how cultural and cybernetic control mechanisms, in conjunction with cost leadership and differentiation strategies, influence corporate sustainability. The outcomes will provide valuable insights and recommendations for organizations aiming to improve their sustainability practices and optimize their competitive strategies.

KEYWORD: Cultural control, cybernetic control, cost leadership strategy, corporate sustainability, differentiation strategy.

INTRODUCTION
In an increasingly complex and sustainable business environment, companies are faced with the demand to maintain their sustainability in terms of environmental, social, and economic aspects (Rizos et al., 2016). Corporate sustainability has become a major concern for practitioners and academics in accounting (Schaltegger et al., 2017). Corporate sustainability encompasses ecological factors, such as waste management and emissions, and social aspects, such as engagement with the local community and social justice (Sadiq et al., 2022). Economic aspects are also crucial in ensuring the long-term sustainability of a company (Gupta & Singh, 2021). Therefore, management control is highly relevant in assisting companies in achieving these sustainability goals (Menon & Ravi, 2021). Two forms of governance are crucial in achieving corporate sustainability in management control: cybernetic control and cultural control. Cybernetic control involves using feedback mechanisms and continuous improvement to acquire a company's sustainability goals (Lai & Huili Lin, 2017). On the other hand, cultural control consists in forming an organizational culture focused on sustainability goals and integrating sustainability values throughout the company (Di Vaio et al., 2020; Metz et al., 2020). While the importance of these two forms of control is recognized, understanding how corporate strategy influences cybernetic control and cultural control in the context of sustainability still needs to be explored.

The role of strategy in achieving corporate sustainability is the central focus of this research. Corporate strategy guides tactical steps taken and provides long-term direction and vision that influence cybernetic and cultural control (Crutzen et al., 2017; Gschwantner & Hiebl, 2016; Traxler et al., 2020; van Ruler, 2018). Therefore, a deeper understanding of how strategy can affect cybernetic control and cultural control in the context of corporate sustainability is needed. This research aims to fill this knowledge gap and contribute new insights into the role of strategy in achieving corporate sustainability through cybernetic control and cultural control. By understanding the part of strategy in cybernetic control and cultural control, practitioners and decision-makers in companies will be able to develop more effective and sustainable management control practices. Moreover, this research also provides a foundation for further research on the interaction between cybernetic control and cultural control and how these two forms of control can reinforce each other in achieving corporate sustainability. As a result, this research holds both theoretical and practical relevance in advancing the understanding of sustainable management control in the context of corporate sustainability.

Despite the growing recognition of the importance of cultural and cybernetic control in corporate sustainability, there needs to be more research to understand the role of strategy in managing these aspects effectively. Existing studies often focus on cultural or cybernetic control in isolation without considering their interplay and the strategic approach required for successful implementation.
This research aims to bridge this gap by exploring the role of strategy in integrating cultural and cybernetic control for sustainable corporate practices. The novelty of this research lies in its comprehensive examination of the relationship between cultural and cybernetic control and corporate sustainability from a strategic perspective. By investigating the combined impact of these two control mechanisms, the study offers new insights into their interconnected nature and how they can be effectively managed through strategic initiatives. This holistic approach to understanding cultural and cybernetic control in the context of sustainability contributes to the existing body of knowledge. It provides a novel framework for organizations to enhance their sustainability efforts.

The main objectives of this research are as follows: 1) To analyze the relationship between cultural and cybernetic control in the context of corporate sustainability; 2) To explore the impact of cultural and cybernetic control on organizational performance and long-term sustainability goals; 3) To investigate the role of strategy in managing cultural and cybernetic control for sustainable practices; 4) To identify best practices and strategic initiatives that facilitate the integration of cultural and cybernetic control in organizations; 5) To provide recommendations for organizations on how to strengthen cultural and cybernetic control through strategic planning and implementation. By achieving these objectives, the research aims to contribute to the existing knowledge base on corporate sustainability and provide practical guidance for organizations seeking to enhance their cultural and cybernetic control strategies for long-term sustainability.

LITERATURE REVIEW

Warrick (2017) insight that cultural control refers to the management and shaping of organizational culture to align it with the desired values, beliefs, and behaviors that support the achievement of corporate objectives and sustainable practices. It involves establishing norms, values, and shared understandings among employees, which influence their attitudes, decision-making processes, and actions within the organization. Cultural control encompasses the social and psychological aspects of an organization, shaping its identity, purpose, and collective behavior (Ferdman, 2013). Cultural control is often established through various mechanisms such as leadership styles, communication channels, training and development programs, performance management systems, and organizational rituals and symbols (S.-M. Tseng, 2017). These mechanisms shape the shared beliefs, values, and assumptions that guide employees' behavior, fostering a cohesive organizational culture that supports sustainability initiatives (Metwally et al., 2019). Cultural control plays a crucial role in driving corporate sustainability by influencing employee attitudes and behaviors, fostering a sense of responsibility towards environmental and social issues, and facilitating the adoption of sustainable practices throughout the organization (Ansari et al., 2021).

Cultural control refers to the process by which organizations establish and maintain a specific set of values, norms, and beliefs among their employees to shape their behavior and align it with the organization's objectives (Madhani, 2014). It involves creating a shared understanding of desired behaviors and attitudes that contribute to the organization's culture (Pathiranage et al., 2020). According to Cortes-Mejia et al. (2022), cultural control mechanisms influence employee behavior by shaping their perceptions, motivations, and decision-making processes. Cultural control is often manifested through organizational values, mission statements, codes of conduct, and shared rituals and symbols (Giorgi et al., 2015). It encompasses the social and psychological aspects of an organization, influencing the way employees think, act, and interact within the workplace (Denhardt et al., 2018). Flanding & Grabman (2022) explain that cultural control, organizations aim to foster a cohesive and purpose-driven culture that supports their sustainability goals and practices. Cultural control has a significant impact on corporate sustainability efforts (Maas et al., 2016; Siyal et al., 2022; M.-L. Tseng et al., 2018; Weerts et al., 2018). It influences employee attitudes and behaviors, shapes the organizational climate, and creates a foundation for sustainable practices (Shaari, 2019). The importance of cost leadership strategy in cultural and cybernetic control lies in its ability to assist organizations in efficiently allocating resources, managing costs rigorously, and achieving operational efficiency. This strategy enables consistent replication of cultural and cybernetic control practices, cost-effective training for employees, adoption of affordable technology solutions for cybernetic control, and maintenance of competitive advantage through cost savings and sustainable practices (Grove & Rickards, 2022; Nishant et al., 2020). Differentiation strategy is important in cultural and cybernetic control as it helps organizations establish a unique identity, engage employees, enhance stakeholder perception, foster innovation, attract talent, and gain a competitive edge (Danso et al., 2019; Nishant et al., 2020). By differentiating through sustainable practices and cultural control, organizations can stand out, inspire their employees, build a positive brand image, drive innovation, and achieve long-term success (Omotayo, 2015).

Based on the literature review, the hypotheses and conceptual framework of this study can be visualized in Figure 1.
H1 = Cultural control relates to corporate sustainability
H2 = Cybernetic control relates to corporate sustainability
H3 = Cost leadership strategy moderates between cultural control and corporate sustainability
H4 = Cost leadership strategy moderates between cybernetic control and corporate sustainability
H5 = Differentiation strategy moderates between cultural control and corporate sustainability
H6 = Differentiation strategy moderates between cybernetic control and corporate sustainability

**Figure 1. Study framework**

**METHODOLOGY**

The quantitative methodology in this study aims to examine the relationship between cultural control, cybernetic control, cost leadership strategy, differentiation strategy, and corporate sustainability performance. Firstly, clear research objectives will be established to explore the role of cost leadership and differentiation strategies in achieving corporate sustainability. Subsequently, a conceptual framework will be developed to connect the key variables in this research. Measurements will be conducted using previously validated questionnaires, including measurement scales to assess cultural control, cybernetic control, cost leadership strategy, differentiation strategy, and corporate sustainability performance. A sample of companies will be identified representing various industries, and data will be collected through surveys administered to respondents with an understanding of corporate strategies. Path analysis using structural equation modeling (SEM) will analyze the collected data and test the relationships between the measured variables. The sample used in this study will be purposive sampling with a focus on the manufacturing industry of sports equipment, consisting of 10 companies in Tangerang City, Banten Province, Indonesia. Respondents will include individuals from top management, personnel, and production departments, with 15 participants from each company, resulting in 150 participants. The questionnaires will be distributed via WhatsApp, email, and Google Forms, with the respondent data consisting of 102 males (68%) and 48 females (32%). A total of 144 questionnaires will be returned and available for analysis.

The findings from the analysis of the collected data will be interpreted to identify significant relationships between the variables under investigation. The research findings will address the research questions and provide a better understanding of the role of cost.
leadership and differentiation strategies in achieving corporate sustainability. Conclusions of the study will be drawn based on the analysis and interpretation of the data, and the implications of the findings will be discussed in theoretical and practical contexts. Relevant recommendations will be provided to companies in developing sustainable cost leadership and differentiation strategies. This quantitative methodology focuses on data collection through questionnaires measured with valid measurement scales and statistical analysis to test the statistical relationships between the measured variables. The measurement instruments for the cultural control variable were adopted from Warrick (2017) and, the cybernetic control was adopted from Grove & Rickards (2022) and Traxler et al. (2020), the cost leadership strategy and the differentiation strategy was adopted from Maas et al. (2016) and the corporate sustainability performance was assumed from Siyal et al. (2022).

FINDINGS AND DISCUSSION

We assessed the validity of the indicators using the convergent technique, looking at the external loading factor values. A range of 0.50 to 0.70 for the loading factor is sufficient in early exploratory investigations. In this study, all indicators had extreme loading values greater than 0.70, indicating good convergent validity. We then evaluated the discriminant validity of each variable by comparing the square root of the average variance extracted (AVE) for each latent factor with the correlation coefficients between other elements in the model. It helped us determine if the variable could distinguish between different groups (Fornell & Larcker, 1981). The value of the variable indicators is determined through the utilization of composite reliability in the very last phase. Results were judged reliable whenever the composite reliability and Cronbach's alpha were significantly higher than 0.7. The reliability of the variable indicators was determined using composite reliability. The indicators were considered reliable if both the composite reliability and Cronbach's alpha values were above 0.70 (Chin, 2010). (see Table 1).

Table 1. Explanatory result

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
<th>Outer Loading</th>
<th>Cronbach's Alpha</th>
<th>rho_A</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost leadership strategy</td>
<td>COST1</td>
<td>0.764</td>
<td>0.943</td>
<td>0.996</td>
<td>0.953</td>
<td>0.773</td>
</tr>
<tr>
<td></td>
<td>COST2</td>
<td>0.874</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COST3</td>
<td>0.919</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COST4</td>
<td>0.934</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COST5</td>
<td>0.921</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COST6</td>
<td>0.932</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate sustainability</td>
<td>COSU1</td>
<td>0.840</td>
<td>0.927</td>
<td>0.929</td>
<td>0.943</td>
<td>0.736</td>
</tr>
<tr>
<td></td>
<td>COSU2</td>
<td>0.911</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COSU3</td>
<td>0.873</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COSU4</td>
<td>0.913</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>COSU5</td>
<td>0.715</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>COSU6</td>
<td>0.879</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural control</td>
<td>CULC1</td>
<td>0.927</td>
<td>0.967</td>
<td>0.969</td>
<td>0.973</td>
<td>0.858</td>
</tr>
<tr>
<td></td>
<td>CULC2</td>
<td>0.954</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>CULC3</td>
<td>0.912</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>CULC4</td>
<td>0.961</td>
<td></td>
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<tr>
<td></td>
<td>CULC5</td>
<td>0.856</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CULC6</td>
<td>0.945</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cybernetic control</td>
<td>CYBC1</td>
<td>0.854</td>
<td>0.871</td>
<td>0.881</td>
<td>0.904</td>
<td>0.616</td>
</tr>
<tr>
<td></td>
<td>CYBC2</td>
<td>0.874</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CYBC3</td>
<td>0.648</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>CYBC4</td>
<td>0.767</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>CYBC5</td>
<td>0.652</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CYBC6</td>
<td>0.876</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The composite reliability calculation showed values ranging from 0.892 to 0.973 (above 0.70), indicating that the indicators of the variable were reliable. Similarly, Cronbach's alpha scores ranged from 0.853 to 0.967, exceeding the threshold of 0.70, further confirming the reliability of the indicators and their freedom from errors (Chin, 2010).

![Figure 2. Path Analysis](image)

The results of the hypotheses testing exhibited that cultural control ($t=2.622>1.96$) and cybernetic control ($t=2.769>1.96$) had a significant and positive influence on corporate sustainability. Furthermore, the cost leadership strategy moderates cultural management and corporate sustainability ($t=2.290>1.96$) and also moderates cybernetic control and corporate sustainability ($t=2.121>1.96$). In addition, the differentiation strategy moderates cultural control and corporate sustainability ($t=2.347>1.96$) and also moderates cybernetic control and corporate sustainability ($t=2.347>1.96$). Therefore, all hypotheses from H1 to H6 are accepted (see Table 2).

Table 2. Path Coefficient Result

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Construct *</th>
<th>Original Sample</th>
<th>T Statistics</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>CULC -&gt; COSU</td>
<td>0.153</td>
<td>2.622</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>CYBC -&gt; COSU</td>
<td>0.151</td>
<td>2.769</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>Moderating Effect 1 = COST * CULC -&gt; COSU</td>
<td>0.118</td>
<td>2.290</td>
<td>Accepted</td>
</tr>
<tr>
<td>H4</td>
<td>Moderating Effect 2 = COST * CYBC -&gt; COSU</td>
<td>0.158</td>
<td>2.647</td>
<td>Accepted</td>
</tr>
<tr>
<td>H5</td>
<td>Moderating Effect 3 = DIFF * CULC -&gt; COSU</td>
<td>0.112</td>
<td>2.121</td>
<td>Accepted</td>
</tr>
<tr>
<td>H6</td>
<td>Moderating Effect 4 = DIFF * CYBC -&gt; COSU</td>
<td>0.121</td>
<td>2.347</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

*) CULC=Cultural control; CYBC=Cybernetic control; COST=Cost leadership strategy; DIFF=Differentiation strategy; COSU=Corporate sustainability
The statement "Cultural control impacts on corporate sustainability" suggests that cultural control practices within an organization directly influence its ability to achieve and maintain sustainability (H1 accepted). Cultural control refers to the systems, values, norms, and practices that shape the behavior and actions of individuals within the organizational context. Corporate sustainability encompasses various aspects such as environmental stewardship, social responsibility, and economic viability. Therefore, the interpretation of this statement implies that effective cultural control practices can significantly impact an organization's sustainability performance. By fostering a culture that prioritizes sustainability values and behaviors, organizations can drive the adoption of sustainable practices, promote responsible decision-making, and create an environment conducive to long-term sustainability. It, in turn, can lead to positive environmental outcomes, social benefits, and enhanced economic performance for the organization. This finding similar with prior study (see Maas et al., 2016; Siyal et al., 2022; M.-L. Tseng et al., 2018; Weerts et al., 2018).

The statement "Cybernetic control influences corporate sustainability" suggests that the implementation and utilization of cybernetic control mechanisms within an organization significantly impact its ability to achieve and maintain sustainability (H2 accepted). These findings are consistent with the study by Nishant et al. (2020), which states that cybernetic control involves using technology, data analytics, and feedback loops to monitor, regulate, and optimize organizational processes. Corporate sustainability encompasses various dimensions, including environmental responsibility, social impact, and economic viability. The interpretation of this statement implies that by implementing effective cybernetic control systems, organizations can enhance their ability to measure, manage, and improve their sustainability performance. Cybernetic control enables real-time monitoring of environmental metrics, facilitates data-driven decision-making, and supports identifying areas for improvement. By leveraging cybernetic control mechanisms, organizations can enhance resource efficiency, reduce waste, and proactively address sustainability challenges, fostering long-term sustainability and resilience.

The acceptance of hypothesis (H3) can be evaluated by considering that when an organization adopts a cost leadership strategy, it moderates the relationship between cultural control and corporate sustainability. In other words, the effectiveness of cultural control in promoting sustainability outcomes is influenced by the organization's focus on cost leadership. A cost leadership strategy may create pressure to prioritize cost reduction over sustainability initiatives or encourage integrating sustainable practices into cost-saving measures. Therefore, the extent to which cultural control practices positively contribute to corporate sustainability outcomes may vary depending on the organization's emphasis on cost leadership. It highlights the need to strike a balance between cost-reduction efforts and the adoption of sustainable practices. By effectively integrating cultural control, cost leadership, and sustainability objectives, organizations can strive for long-term sustainability while maintaining cost competitiveness.

The acceptance of hypothesis (H4) can be evaluated, implying that when an organization adopts a cost leadership strategy, it moderates the impact of cybernetic control on corporate sustainability. In other words, the effectiveness of cybernetic control in driving sustainability outcomes is influenced by the organization's emphasis on cost leadership. A cost leadership strategy may create pressure to prioritize cost reduction over sustainability initiatives or encourage integrating sustainable practices into cost-saving measures enabled by cybernetic control. Therefore, the degree to which cybernetic control positively contributes to corporate sustainability outcomes may vary depending on the organization's focus on cost leadership. It highlights the need to find a balance between cost reduction efforts and using cybernetic control to enhance sustainability performance. By effectively incorporating cybernetic control, cost leadership, and sustainability objectives, organizations can strive for long-term sustainability while maintaining cost competitiveness.

In addition, H5 was accepted. It implies that when an organization adopts a differentiation strategy, it moderates the impact of cultural control on corporate sustainability. In other words, the effectiveness of cultural control in driving sustainability outcomes is influenced by the organization's emphasis on differentiation. A differentiation strategy may prioritize sustainability practices to stand out in the market, attract customers, and enhance the organization's brand image. Therefore, the extent to which cultural control practices positively contribute to corporate sustainability outcomes may vary depending on the organization's focus on differentiation. It highlights the importance of integrating cultural control, differentiation strategy, and sustainability objectives. By effectively aligning cultural control practices with a differentiation strategy, organizations can leverage their unique position in the market to drive sustainability initiatives and achieve long-term sustainability goals while differentiating themselves from competitors.
Finally, H6 was accepted. It indicates that when an organization adopts a differentiation strategy, it moderates the impact of cybernetic control on corporate sustainability. In other words, the effectiveness of cybernetic control in driving sustainability outcomes is influenced by the organization's emphasis on differentiation. A differentiation strategy may prioritize integrating sustainable practices into technological advancements enabled by cybernetic control to create a competitive advantage and meet customer demands for sustainable products or services. Therefore, the degree to which cybernetic control positively contributes to corporate sustainability outcomes may vary depending on the organization's focus on differentiation. It highlights the importance of aligning cybernetic control, differentiation strategy, and sustainability objectives. By effectively incorporating cybernetic control practices within a differentiation strategy, organizations can leverage technological advancements to drive sustainability initiatives, differentiate themselves in the market, and achieve long-term sustainability goals.

CONCLUSION

This study has explored the relationship between cultural and cybernetic control and corporate sustainability. The findings indicate that cultural and cybernetic control significantly shapes an organization's sustainability outcomes. Cultural control influences corporate sustainability by fostering a sustainable organizational culture, employee engagement, and stakeholder perception. On the other hand, cybernetic control facilitates real-time monitoring, data-driven decision-making, and resource optimization, leading to improved sustainability performance. Moreover, the study highlights the moderating role of differentiation and cost leadership strategies in enhancing the impact of cultural and cybernetic control on corporate sustainability.

Implications and recommendation

The findings of this study have several implications for practitioners and policymakers:
1. Organizations should recognize the importance of cultural control in promoting sustainability values and behaviors among employees. Creating a sustainable organizational culture and fostering employee engagement can lead to better sustainability outcomes.
2. Cybernetic control systems can enable organizations to monitor and optimize their sustainability performance. By leveraging technology and data analytics, organizations can identify areas for improvement and make informed decisions regarding resource allocation.
3. The findings emphasize the significance of differentiation and cost leadership strategies in enhancing the effectiveness of cultural and cybernetic control practices for sustainability.

Limitations and future research

While this study provides valuable insights into the role of cultural and cybernetic control in corporate sustainability, it has limitations:
1. This research focused on the sports industry specific to Tangerang City, Banten Province, which may limit the generalizability of the findings. Future research could explore different industries and organizational contexts to understand better the relationship between cultural and cybernetic control and sustainability.
2. The study primarily relied on quantitative data, and future research could employ mixed methods or qualitative approaches to gain a deeper understanding of the underlying mechanisms and subjective experiences related to cultural and cybernetic control.
3. This study did not consider the potential interactions between cultural and cybernetic control.

Investigating the combined effects of these control mechanisms on corporate sustainability could provide further insights into their interplay and potential for enhancing sustainability performance. This study lays the groundwork for further research on integrating cultural and cybernetic control in pursuing corporate sustainability. By addressing the identified limitations and expanding the scope of inquiry, future studies can contribute to a more nuanced understanding of these control mechanisms and their implications for sustainable organizational practices.

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