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FROM AGRIBUSINESS TO BIOENERGY: EVALUATING STRATEGIC READINESS AND DYNAMIC CAPABILITIES IN PT AGRI MULTI LESTARI

DARI AGRIBISNIS KE BIOENERGI: MENILAI KESIAPAN STRATEGIS DAN KEMAMPUAN DINAMIS DI PT AGRI MULTI LESTARI

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ABSTRACT

PT Agri Multi Lestari (AML) has been mandated to shift from an agribusiness company to a sustainable bioenergy company that supports the Net Zero Emissions target of the parent company and Indonesia in general. AML does this by developing products from biomass, one of which is woodchip production for Co-Firing activities at the PLTU. The study used a mixed-methods approach that combines qualitative interviews and descriptive statistics; this study evaluates AML's position in the Sustainable Business Transformation Typology, Dynamic Capabilities, and Transformation Readiness. The findings of this study indicate that AML is in the transitional stage of sustainability transformation, supported by strong leadership commitment and values oriented towards transformation goals. A survey of AML employees indicates that AML has solid dynamic capabilities, especially in sensing and utilizing opportunities, although several areas need development. Furthermore, AML shows moderate process and high organizational readiness, with gaps especially in supply chain standardization and training provision. The results of this research explore how a multi perspective framework needs to be carried out to prepare for a company's business transformation and show the alignment between Dynamic Capabilities and Transformation Readiness.

***Keywords**: Sustainable Business Transformation, Dynamic Capabilities, Transformation Readiness, Bioenergy Transition.*

ABSTRAK

PT Agri Multi Lestari (AML) telah ditugaskan untuk bertransformasi dari perusahaan agribisnis menjadi perusahaan bioenergi berkelanjutan yang mendukung target Net Zero Emissions dari perusahaan induk dan Indonesia secara umum. AML melakukan hal ini dengan mengembangkan produk dari biomassa, salah satunya adalah produksi serpihan kayu untuk kegiatan Co-Firing di PLTU. Studi ini menggunakan pendekatan campuran yang menggabungkan wawancara kualitatif dan statistik deskriptif; studi ini mengevaluasi posisi AML dalam Tipologi Transformasi Bisnis Berkelanjutan, Kapabilitas Dinamis, dan Kesiapan Transformasi. Temuan studi ini menunjukkan bahwa AML berada pada tahap transisi dalam transformasi berkelanjutan, didukung oleh komitmen kepemimpinan yang kuat dan nilai-nilai yang berorientasi pada tujuan transformasi. Survei terhadap karyawan AML menunjukkan bahwa AML memiliki kemampuan dinamis yang solid, terutama dalam mendeteksi dan memanfaatkan peluang, meskipun beberapa area memerlukan pengembangan. Selain itu, AML menunjukkan kesiapan proses yang moderat dan kesiapan organisasi yang tinggi, dengan celah terutama dalam standarisasi rantai pasok dan penyediaan pelatihan. Hasil penelitian ini mengeksplorasi bagaimana kerangka kerja multi perspektif perlu dilakukan untuk mempersiapkan transformasi bisnis perusahaan dan menunjukkan keselarasan antara Kemampuan Dinamis dan Kesiapan Transformasi.

Kata kunci: Transformasi Bisnis Berkelanjutan, Kapabilitas Dinamis, Kesiapan Transformasi, Transisi Bioenergi.

INTRODUCTION

The global trend toward carbon neutrality through renewable energy encourages various industries to adopt sustainable solutions, including the coal-fired power generation sector, which embraces Co-Firing technology. In Indonesia, this transition aligns with the government's Net Zero Emission (NZE) target for 2060 or sooner. Accordingly, Adaro Group, one of Indonesia's largest mining and energy companies, is committed to achieving the NZE target, which outlined in the Adaro's NZE

Roadmap. The roadmap includes several initiatives, such as the use of electric vehicles, nature-based solutions, carbon capture and storage, and co-firing biomass at Adaro Group's power plant.

PT Agri Multi Lestari (AML) is part of the Adaro Group and is currently operating several agribusiness sectors, which were designated to provide Biomass as a Co-Firing material for the Group. The strategic direction made AML, a company based initially on agribusiness, enter the bioenergy industry. This process is not just an addition to AML's business line but a transformation of AML's business towards a sustainable business. However, AML's management does not yet know what to do so that AML is ready and able to achieve the expected transformation goals. Moreover, how AML can respond to changes in the bioenergy industry's more dynamic business landscape is still questioned.

Research Objectives & Questions

To achieve the goal of transformation as a bioenergy company, it is essential to evaluate AML's readiness to embark on the process of establishing a sustainable business. However, understanding the current position is not enough. AML must have strong dynamic capabilities to respond to market/technology opportunities and changes, considering that the biomass energy sector is a new industry for AML. Furthermore, to implement the transformation initiative effectively, AML's internal processes and operations must have mature readiness. Based on this, this research will answer the following questions.

- RQ 1: Where does AML currently position the sustainability business transformation, and what does this imply for AML's strategic decision?
- RQ2: How capable is AML in responding to challenges and opportunities required for the biomass business transformation?
- RQ3: To what extent are AML's internal processes and operations ready to support the implementation of its transformation into a biomass-based business?

Business transformation

Companies must be able to adapt to maintain their competitiveness, especially in today's rapidly evolving business landscape. Change is inevitable for firms to make themselves relevant to the customers. According to Mckeown and Philip (2003), transformation encourages companies to reduce costs or increase profitability and transform the business they are running. David (2020) argues that the purpose of business transformation extends beyond operational improvement and cost efficiencies. Business transformation like this is part of strategic management that involves the whole organization (Mckeown & Philip, 2003) and is a strategy to future-proof the organization against potential threats and seizing opportunities (David, 2020). In other words, companies must keep transforming their business to stay ahead of the game (Uhl & Gollenia, 2016).

Business transformation is a multi-stage process requiring an integrated approach to competitive strategy (McKeown & Philip, 2023) that can be viewed holistically, structured, fundamentally (Uhl & Gollenia, 2016) and not just changing the company's routine activities (Safrudin et al., 2014). One of the fundamental theories related to business transformation refers to Rouse's opinion (2005) in his paper, "A Theory of Enterprise Transformation," which defines enterprise transformation as a substantial reconfiguration of work

processes and architectures to address experienced or expected value deficiencies. Rouse (2005) suggests that businesses must continually assess their operational performance and strategic alignment to remain competitive and explore new growth opportunities.

Sustainability Business Transformation

Integrating sustainability and business or sustainable business in a firm is a concept that tries to create and realize social and environmental value in addition to economic return (Adams et al., 2015). Furthermore, Adams et al. (2015) argue that businesses must integrate sustainability into the company's innovation process by considering the triple bottom line (people, planet, and profit). This argument aligns with Eccles et al. (2012), who stated that companies must balance financial, social, and environmental considerations in operations and decision-making. In this case, sustainable business means that companies prioritize long-term value creation for both shareholders and the company's society (Eccles et al., 2012).

In the concept of sustainable business transformation, several authors and institutions try to integrate the triple bottom line concept (planet, people, and profit) or Environmental Social Governance (ESG) into the business transformation framework. Müller & Pfleger (2014) emphasize that sustainable business transformation involves integrating ecological, social and economic objectives into corporate decisions. These authors use the "Sustainability Maturity Cube" model to evaluate maturity across these dimensions. Integrating sustainability into the core process will strengthen long-term corporate resilience (Müller & Pfleger, 2014). In addition, sustainable business transformation is also seen as an integration of ESG principles in business processes (Carreno, 2024) and measurement of sustainability metrics that increase transparency and trust (WEF, 2020). Company leaders run a purpose-driven business by integrating sustainability principles into business transformation (CISL, 2023).

The approach used in this thesis is the Sustainable Business Transformation (SBT) Typology published by the Cambridge Institute for Sustainability Leadership (CISL). This framework was chosen because its pre-diagnosis tools help companies define their initial position toward sustainable business. CISL (2023) defines four typologies of sustainability business transformation. The first two typologies are short-term self-interest and long-term self-interest (developing), broadly representing the current baseline of a firm's business. The following typology is long-term self-interest (mature) and purpose-driven organization, representing a form more aligned with sustainable outcomes. Therefore, CISL (2023) defines 12 initial diagnostic areas to assess and categorize based on the SBT typology.

Dynamic Capabilities

In a rapidly changing business landscape, companies must develop capabilities that can enable them to transform and sustain competitive advantage. Several researchers have studied the relationship between core Dynamic Capabilities (DC) introduced by Teece and business transformation. Pult and Manwani (2017) highlight how sensing, seizing, and transforming capabilities can be integrated with key enablers to drive business transformation processes and outcomes. For example, companies must detect emerging IT opportunities and threats (Sensing),

including digital innovation and market shifts (Pult & Manwani, 2017). Dynamic capabilities also help firms navigate the transformation of services provided by companies by aligning technological and managerial processes (Nootjarat et al., 2012).

In addition, Dynamic Capabilities also facilitate business transformation by fostering innovation and enabling firms to stay competitive (Daniel & Wilson, 2003). Similarly, Bhatt (2000) researched the role of knowledge integration and reconfiguration in driving sustainable transformation efforts. Dynamic capabilities are considered to make the transformation process more effective (Ashurts & Hodges, 2010). They argued that benefits realization capabilities are often underdeveloped in the Company, making the transformation less effective. The role of business transformation through Dynamic Capability will also affect business performance. Correia et al. (2020) tested the mediating role of dynamic capabilities in business performance. The research found that Companies with strong dynamic capabilities show superior market responsiveness and strategic adaptability, translating into sustainer competitive advantage (Correia et al., 2020).

Furthermore, Teece emphasizes three key processes of Dynamic Capabilities: sensing, seizing, and transforming (Teece et al., 2007). Sensing can be interpreted as identifying opportunities and threats while Seizing can be defined as how a company mobilizes its resources to capitalize on existing opportunities. Lastly, Transforming is related to reconfiguring capabilities to sustain competitiveness. Teece (2007) introduced micro-foundations that break down DC into specific organizational routines, structures, and managerial processes, including investment strategies, decision-making, and leadership roles. Teece also highlighted entrepreneurial management as the key to sustaining dynamic capabilities. Teece also connects dynamic capabilities explicitly to business models and industry ecosystems (Teece, 2018). He argues that dynamic capabilities must be embedded in an effective business model. Unlike Tecce's opinion in 1997 and 2007, where Dynamic Capability was mainly on adaptation, Teece (2018) emphasizes how firms proactively shape markets and industry standards. Apart from that, Teece also discussed the role of digital transformation and globalization as key factors that influence dynamic capabilities.

Other researchers like Eisenhardt and Martin (2000) defined Dynamic Capabilities as a company's process of using resources, especially the process of integrating, reconfiguring, gaining, and releasing resources to match, and even creating market change. The main difference between Eisenhardt and Teece is identifiable, structured, and replicable best practices, such as product development routines and knowledge-sharing processes. For Eisenhardt, dynamic capabilities are not hard to imitate, like Teece's opinion, but He suggests that firms can learn, adapt, and refine these capabilities through experience and structured processes. Other authors, such as Wang & Ahmed (2007), suggest that Dynamic Capabilities are embedded in a firm's behaviour, which implies that the firm must develop an internal culture that fosters adaptability and learning. There are three factors of Dynamic Capabilities, according to Wang & Ahmed (2007), namely, Adaptive Capability, Absorptive Capability, and Innovative Capability.

From several authors above, it can be argued that a strong Dynamic Capabilities company will be able to respond well to market changes and existing opportunities. To evaluate the strength of a company's Dynamic Capabilities, it is necessary to measure them. Measuring Dynamic Capabilities allows companies to identify their ability to respond to external changes and ensure continuous innovation (Tjahjono et al., 2023; Kwiotkowska, 2024). In addition, according to Bruyaka et al. (2024), the lack of clarity on the Dynamic Capabilities currently owned by the company can hinder strategic decisions. Therefore, developing a standardized scale of Dynamic Capabilities to support strategic change is important (Kump et al., 2019). Several researchers have tried to measure dynamic capabilities in various contexts. For example, Tjahjono et al. (2023) developed a measurement for Dynamic Adaptive Capability (DAC) in the Indonesian higher education context, while Kwiotkowska (2024) measured Dynamic Capabilities in digital transformation for Small and Medium Enterprise scale. In addition, Bruyaka et al. (2024) conducted an empirical literature review of 185 studies to compile a roadmap for Dynamic Capabilities measurement. One general approach to measuring Dynamic Capabilities was carried out by Kump et al. (2019), where the output is 14 dynamic capabilities scale items generated after researching 269 firms.

Transformation Readiness

Transformation Readiness is one of the frameworks in Business Transformation Management Methodology (BTM2), which includes process and organizational readiness (Uhl & Gollenia, 2016). Each aspect of readiness has three criteria. First, process readiness includes process standardization, automation and digital integration, and process governance and ownership as the criteria. Secondly, organizational readiness consists of leadership support and commitment, change management and workforce readiness, and cultural adaptability and innovation (Uhl & Gollenia, 2016). BTM2 defines transformation readiness across four main levels, namely:

- Level 1 (Not Ready): The organization does not have adequate structures, systems, and commitments to start the transformation.
- Level 2 (Some Readiness): Initial initiative and organizational awareness are still limited to some units or individuals.
- Level 3 (Moderate Readiness): Most organizational components are actively involved, and structures and processes are starting to be integrated.
- Level 4 (Fully Ready): The organization as a whole is ready to carry out the transformation, supported by strong systems, human resources, culture, and technology.

RESEARCH METHODS

Sustainable Business Transformation – Pre Diagnosis for Business Typology Interview

The data collection process in this phase was conducted by conducting interviews with AML's top management, in this case, the President Director and Operational Director of AML. Those respondents are chosen based on their helicopter view to assess the condition and direction of AML toward the future, which aligns with the assessment process. The interviews were arranged based on preliminary diagnostic tools from the sustainable business transformation CISL (2023). The interview process used was a structured interview, where each organizational enabler already had its

structured key questions. Using this method, the author will gather answers and standardize its structure to make it easier to compare and analyse (Saunders et al., 2019). Next, the transcription is processed using clean verbatim by eliminating filler speech or repetition of words that do not have substantive meaning (Halcomb & Davidson, 2006; Bailey, 2008). The transcript is also arranged by giving line numbering to facilitate the coding process during the data analysis. Timestamps are also not included because the research focuses on the thematic content and meaning conveyed by the informant, not on the chronological order or duration of the conversation (Kvale & Brinkmann, 2009)

The demographics of the respondents are as follows.

Table 1. Respondent Demographic of Interview

Interviewee No.	Level	Age	Length of Office	Education
1	President Director	50-55	4 Years	Postgraduate
2	Director	50-55	5 Years	Postgraduate

The thesis uses the Directed Content Analysis method to analyze the results of sustainable business transformation interviews. Directed Content Analysis (DCA) is a qualitative research approach that begins with a theoretical framework or previous empirical findings to guide the coding and interpretation of data (Hsieh & Shannon, 2005; Assarroudi et al., 2018). Furthermore, Hsieh and Shannon see the primary purpose of DCA as being to validate or extend an existing framework or theory. In addition to validating, DCA is also useful for generating interpretations of the theory (Assarroudi et al., 2018) or comparing empirical findings with predetermined categories (Bengtsson, 2016).

The explanation above shows that the purpose of using DCA is to validate the existing theory, in this case, the CISL business transformation topology framework. DCA will directly help fill the gap between current conditions (from interview results) and important things in the business transformation process towards sustainability.

There are at least three main phases for conducting DCA: preparation, organization, coding, interpretation, and reporting (Assarroudi et al., 2018; Bengtsson, 2016; Kibiswa, 2019; Krippendorff, 2004). A codebook or standard will be built in the preparation phase based on the theory or concept used. The interview results will be transcribed, and the unit of analysis (whether sentences or paragraphs) will be determined. The organization and coding phase is related to comparing or applying codes to existing text or paragraphs, including refining for clarity and data alignment. The last phase is the interpretation and reporting phase, where the findings from each category will be summarized, the results interpreted, and a report from the DCA will be prepared.

AML Dynamic Capabilities & Transformation Readiness Survey

To measure Dynamic Capabilities in AML, several specific assessment areas and capabilities identified by Teece (2007, 2018) and Wang & Ahmed (2007) are mentioned. This approach was chosen because Teece and Wang & Ahmed are often the basic references for measuring Dynamic Capabilities. In addition, several other measurement standards studied by Tjahjono (2023), Kwiotkowska (2024), Bruyaka et al. (2024), and Kump et al. (2019) have different contexts from the business transformation topic discussed in this research. Therefore, the assessment areas and specific capabilities identified are also adjusted to the objectives of AML business transformation.

In the identification process, 16 specific capabilities were found as a part

of Dynamic capabilities proposed by Teece (2007, 2018) and Wang & Ahmed (2007). Data collection activities were conducted by surveying AML employees. The survey is contained 16 specific capabilities which were compiled based on the concept of Dynamic Capabilities from Teece (2007, 2018) and Wang & Ahmed (2007). The purpose of the questions is to determine the perception or opinion of AML employees regarding the current level of Dynamic Capabilities of AML through 16 specific capabilities identified before. Another survey focuses on Transformation Readiness, which includes process and organizational readiness (Uhl & Gollenia, 2016). Each readiness dimension encompasses 3 assessment areas, resulting in a total of 6 assessment areas. To measure each area, 17 indicators in form survey questions are developed that reflecting process and organizational readiness dimension.

By its purpose, the type of questions submitted for both surveys are rating questions with a Likert-style rating (Saunders et al., 2019). The Likert scale is 1 (strongly disagree) to 5 (strongly agree). A 5-point Likert scale is considered appropriate because it helps simplify decision-making for respondents or avoids overwhelming respondents due to too many options (Joshi et al., 2015). The demographics of the respondents are AML's team in Jakarta and Kalimantan site as detailed below.

Table 2. Respondent Demographic of Survey

Demographic Variable	Category	Number	%
Age	21-30	1	14.3%
	31-40	3	42.9%
	>40	3	42.9%
Education	Undergraduates	6	85.7%
	Post Graduates	1	14.3%
Gender	Male	5	71.4%
	Female	2	28.6%
Job Level	Department Head	2	28.6%
	Section Head	1	14.3%
	Supervisor/Officer	3	42.9%
	Field Coordinator	1	14.3%

Descriptive statistics are chosen in this thesis to analyse data on the dynamic capabilities and transformation readiness survey. The justification for using descriptive statistics is due to two factors, which are nature of the study and small population size (< 10 respondents). This study does not make predictions or generalization but aims to describe respondent perception and understand it in the view of AML Dynamic Capabilities. In addition, the survey was administered to all AML Biomass employees, despite the small number of participants. When using inferential statistics, sample data typically exceeds 30 (the central limit of theorem). Therefore, statistic descriptive is chosen rather than inferential statistical which require a larger sample size to be statistically meaningful and usually use to make prediction or testing hypothesis.

Descriptive statistics have three measurement categories: measures of central tendency, measures of dispersion, and measures of position (Nicholas, 1999; Wahyuni, 2020; Dong, 2023). The measure of central tendency describes a data set's middle point or representative value. Some measurements such as Mean, Median, and Mode are examples of measurements of central tendency. Another thing is the dispersion measurement, which measures the spread of data from its average value. Examples of parameters are range or standard deviation. The last is the position measurement, where the parameters used are percentiles or

quartiles (Dong, 2023; Wahyuni , 2020). In this thesis, the frequency distribution of responses on the Likert scale for each indicator will be analysed. From this distribution, the tendency of respondents' perceptions regarding the Dynamic Capabilities dimension of AML will be assessed.

RESULTS AND DISCUSSIONS

Sustainable Business Transformation Typology

The analysis in for SBT typology is conducted through a Directed Content Analysis, where the interview results are compared with the Pre-Diagnosis Sustainable Business Transformation standard issued by the Cambridge Institute of Sustainable Leadership (CISL). The standard has 12 assessment areas, each with four categories of company positioning: Current baseline (short-term self-interest developing), Intermediate stage (long-term self-interest developing), Advanced stage (long-term self-interest mature), and Most Sustainable (Purpose-Driven Organization).

After the interview, a transcription using the clean verbatim method and codification was provided. Then, the interview answers were compared with the description of one of the four positioning categories for each assessment area in the CISL standard. From this, AML's positioning will be seen in its position to transform into a sustainable business. Analysis was also carried out in each assessment area, especially to compare the answers from the two interviewees.

The results of the sustainable business typology AML can be summarized based on the description of each assessment in table 3.

Next, to facilitate understanding the interpretation of business typology data, scoring is implemented for each interviewee's answer for each assessment area. Scoring is given by translating each CISL category into numbers using the following guidelines.

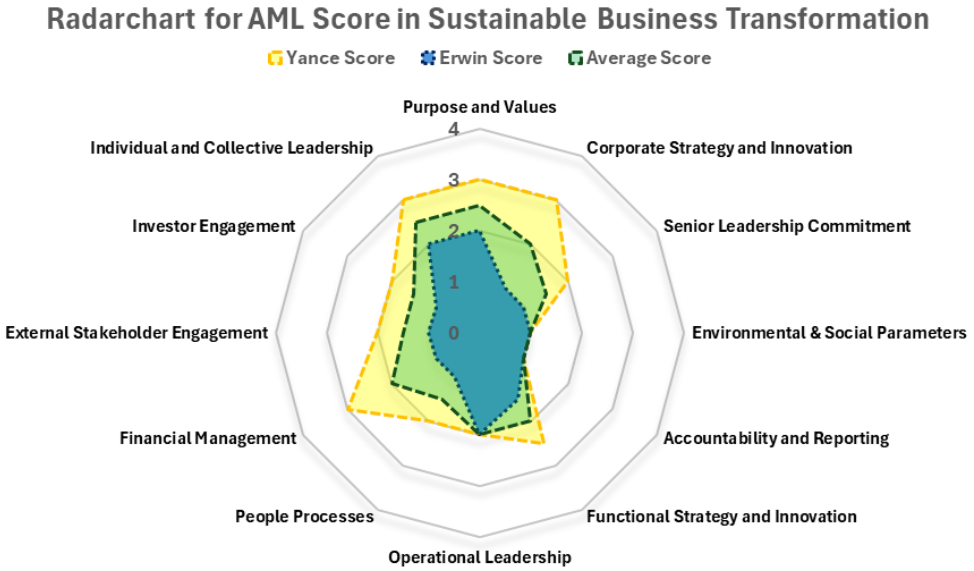
CISL Maturity Category	Score Assigned
Current Baseline	1
Intermediate Stage	2
Advanced Stage	3
Most Sustainable	4

Table 3. Summary of Directed Content Analysis from Interview related to Sustainable Business positioning

	Assessment Area	Position Summary	Key Findings
1	Purpose and Values	Mixed: short-term self-interest and long-term self-interest (developing)	The top-level leadership articulates a strong vision (Advanced), yet the implementation across directorates remains limited.
2	Corporate Strategy and Innovation	Mixed: short-term self-interest and long-term self-interest (developing)	Strategic direction is clearly established at the top, but lacks supporting structure, innovation systems, and clear targets.
3	Senior Leadership Commitment	Mixed: short-term self-interest and long-term self-interest (developing)	There is commitment at the discursive level; however, formal systems, indicators, and accountability mechanisms are lacking.
4	Environmental & Social Parameters	Short-term self-interest	Compliance remains the primary driver; no evidence of systematic risk assessment or impact monitoring mechanisms.
5	Accountability and Reporting	Short-term self-interest	Sustainability KPIs and reporting mechanisms are absent, with ESG-related performance yet to be formally measured.
6	Functional Strategy and Innovation	Mixed: long-term self-interest (developing) and Advanced long-term self-interest (mature)	While digital tools and innovation forums exist, integration across departments and functions remains fragmented.
7	Operational Leadership	Long-term self-interest (developing)	Leadership actions on sustainability have begun through awareness and practical efforts, but cultural alignment is limited.
8	People Processes	Mixed: short-term self-interest and long-term self-interest (developing)	Recruitment, reward systems, and training do not yet reflect sustainability goals, though values are beginning to emerge.
9	Financial Management	Mixed: long-term self-interest (developing) and Advanced long-term self-interest (mature)	Strategic intention for integrating ESG into budgeting exists, but current practice remains reactive and conventional.
10	External Stakeholder Engagement	Mixed: short-term self-interest and long-term self-interest (developing)	The top level engages proactively with government and associations, but no systematic stakeholder management exists.
11	Investor Engagement	Mixed: short-term self-interest and long-term self-interest (developing)	Investors are starting to inquire about ESG; yet, sustainability communication remains limited and informal.
12	Individual and Collective Leadership	Mixed: long-term self-interest (developing) and Advanced long-term self-interest (mature)	A clear vision for sustainability-driven leadership is conveyed at the top, while collective internalization is still maturing.

By changing the category of each line of answers with the guidelines above and taking the average for each interviewee, we can see the value for each assessment area through the following chart.

Based on the average score of the radar chart for 12 CISL assessment areas, AML can be categorized in the Intermediate Stage category (average score 1.75) in the CISL's sustainability business typology. The average score in almost all assessment areas is 1.5–2.5, showing that AML has begun its transformation journey from the current baseline to the intermediate stage. However, in terms of the process, it has not yet reached the stage of full integration into the organization's system, structure, and culture.

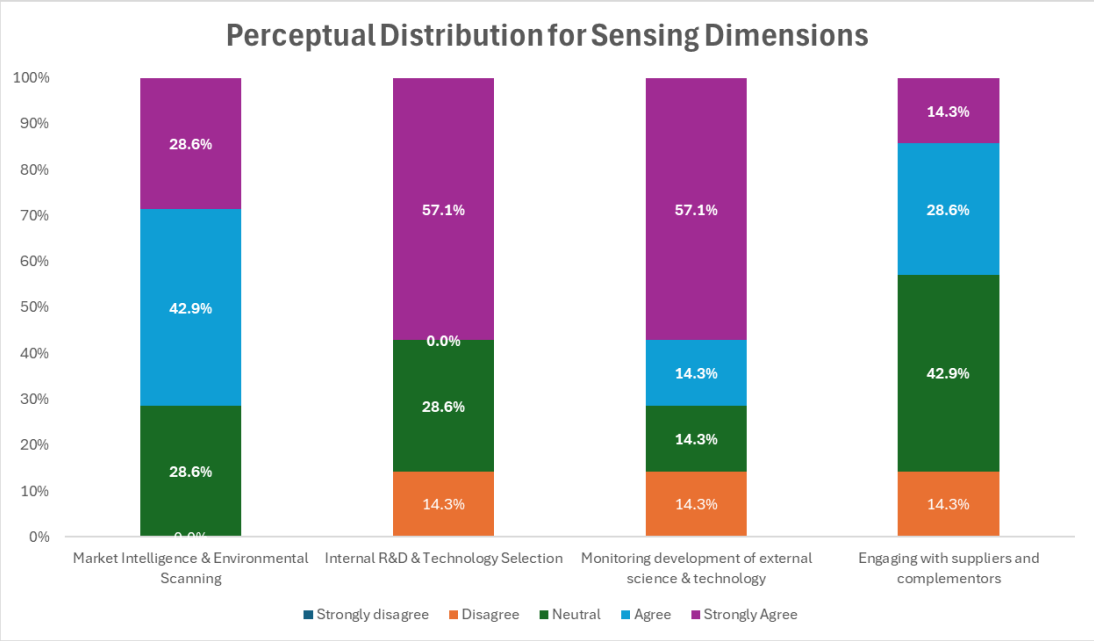


Picture 1. Sustainable Business Assessment Area's Score

Based on the radar chart score results, the most prominent assessment areas in AML's sustainability business transformation process are the Purpose and Values area and Individual and Collective Leadership (average score 2.5). These two aspects reflect that AML's top management has a relatively mature understanding and strategic orientation towards the importance of sustainability. A clear vision of the company's values oriented towards sustainability has begun to be stated explicitly, and there are efforts to form collective leadership that becomes a role model for internal change. Although it is still predominantly top-down, the direction of organizational culture change has shown significant progress at the strategic level.

Meanwhile, several assessment areas are in a moderate or developing position, such as Corporate Strategy and Innovation, Functional Strategy and Innovation, Operational Leadership, and Financial Management. In these areas, there are indications of willingness and initial initiatives to transform internal processes and policies towards sustainability. However, implementation at the operational level is still limited and not comprehensive. Coordination between functions, consistent long-term planning, and cross-unit support systems are still challenges that need to be resolved to encourage the maturity of the transformation at the next stage.

On the other hand, aspects that require significant improvement are in the areas of Environmental and Social Parameters, Accountability and



Picture 2. Sensing Dimension's Perceptual Distribution

Reporting, People Processes, External Stakeholder Engagement, and Investor Engagement. The assessment of these areas is still at the Current Baseline level on average, indicating that formal processes and systems that support sustainability have not been formed. The absence of strategic sustainability KPIs in AML, an ESG reporting system, or the integration of sustainability aspects in the recruitment and training processes are indicators of the weakness of these areas in AML. In addition, communication with stakeholders and investors is still limited to conservative aspects of business

Measurement of AML Dynamic Capabilities

The results of a survey of 7 internal respondents of PT AML provide an overview of AML's dynamic capabilities in the context of business transformation from agribusiness to bioenergy. The evaluation was carried out on three main dimensions of Dynamic Capabilities, namely sensing, seizing, and reconfiguring, which were broken down into sixteen indicators. The analysis used descriptive statistics on the 5-Likert scale values from the survey. The distribution of respondents' perception data per indicator is illustrated in the following graph.

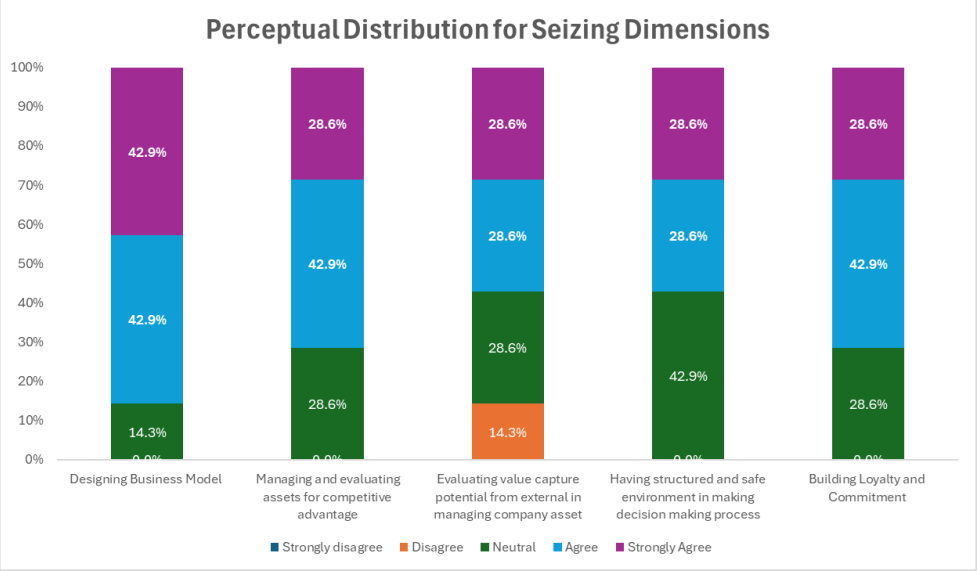
The graph above presents the distribution of respondents' perceptions in the four indicators under the Sensing dimension. More than 50% of respondents "Agree" and "Strongly Agree" that AML has implemented 3 out of 4 Sensing indicators. Market Intelligence & Environmental Scanning shows a relatively consistent and positive view, with most respondents choosing "Agree" (42.9%) and "Strongly Agree" (28.6%), and none choosing a negative response. This result shows a consensus that AML has an adequate mechanism to monitor market dynamics. In addition, implementing Internal R&D & Technology Selection and Monitoring Development of External Science & Technology is perceived to have been carried out with a survey result of 57.1% "Strongly Agree" on both indicators.

The most fragmented perception is found in the Engaging with Suppliers and Complementors indicator, where responses are spread across the spectrum from "Disagree" to "Strongly Agree",

with the most significant portion (42.9%) being "Neutral". This variation implies limited consensus and uncertainty regarding how AML cooperates or involves third parties in its operations and business development. In practice, AML is careful and has strict procedures in selecting third parties for cooperation.

respondents also acknowledged AML's efforts to manage its assets to keep it competitive.

An interesting thing was having a structured and safe environment in the decision-making pro cess indicator. Although the majority of respondents chose "Agree" and "Strongly Agree" with a total of 57%, the neutral



Picture 3. Seizing Dimension's Perceptual Distribution

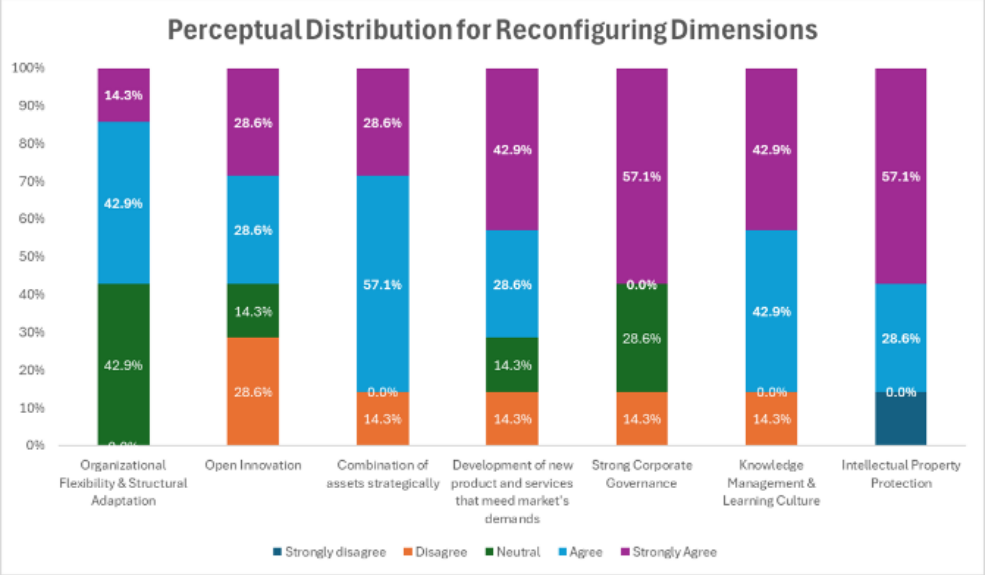
The survey results for the five indicators in the Seizing dimension show a positive orientation towards AML's ability to mobilize resources, make decisions, and build commitment to transformation. This is shown by most respondents' choices of at least "Agree" on all Seizing indicators (57-85%). Several indicators perceived to be very strong in their implementation are designing a business model, managing and evaluating assets for competitive advantage, and building loyalty and commitment, where the level of respondent agreement is very high (> 70%). This perception certainly shows the level of trust from employees regarding how AML is developing the new business model to achieve its business transformation. In addition, perception on this indicator was the highest (43%) compared to other indicators in the Seizing dimension. This perception was chosen by all respondents in the Jakarta Head Office, which shows a different level of psychological safety compared to employees in the Kalimantan site. Most employees in Jakarta are Middle Management, such as Department Heads and Section Heads, and are at a decision-making level closer to Top Management. In other words, this is more influenced by structural proximity to the highest decision maker.

The final analysis is in the Reconfiguring dimension, where there are seven indicators perceived to have been implemented by AML by most respondents. This reflects AML's

internal ability to restructure and integrate organizational resources, structures, and processes in response to transformation. In the perception of Organizational Flexibility & Structural Adaptation, it is significantly divided, with 42.9% of respondents choosing "Neutral" and 42.9% choosing "Agree", while only 14.3% chose "Strongly Agree". This pattern shows confidence in AML's internal structural adaptability but also reflects a lack of strong consensus. This variation occurs because the structure in AML is often top-down and consistent every year. New changes just occurred in 2023 when a new department was formed to run a pilot project for woodchip procurement.

means, which is how the company actively exchanges ideas and resources with external parties to foster innovation. In further follow-up with on-site employees, this definition was less understood; they assumed that Open Innovation has more or less the exact definition as doing innovation. In addition, the high perception of "Neutral" is found in Corporate Governance with a figure of 28%, although most respondents' perceptions are at "Strongly Agree" at 57%. These results indicate that Governance is still developing, especially with several procedures related to biomass activities that are still being developed.

Overall, in the three dimensions of



Picture 4. Reconfiguring Dimension's Perceptual Distribution

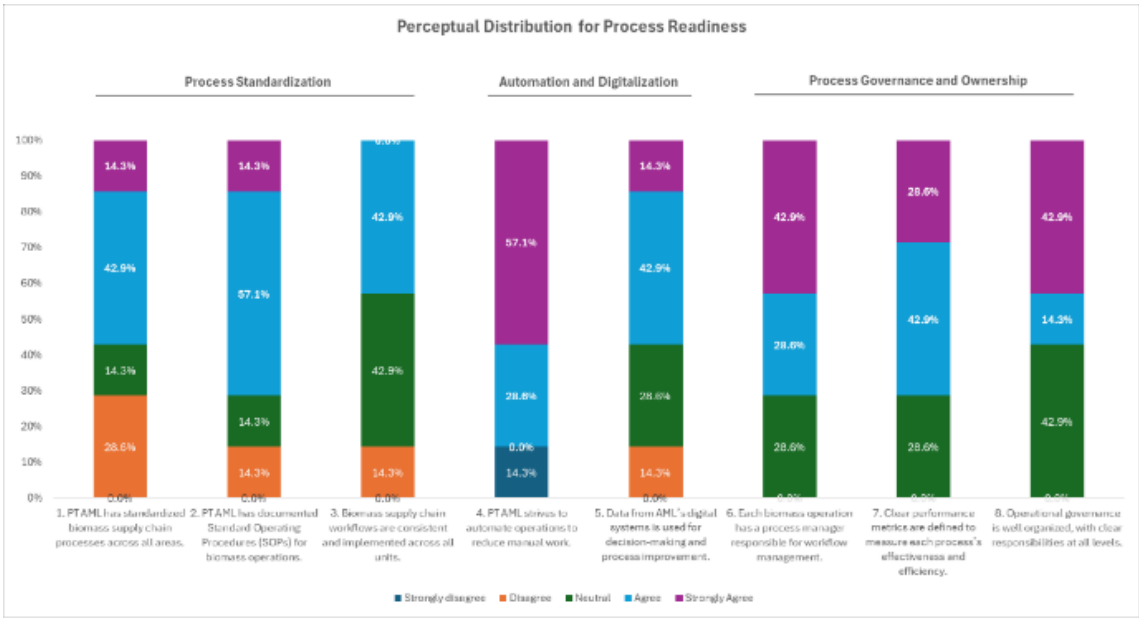
The Open Innovation indicator shows a more varied picture, with the highest level of disagreement (28.6%) among all indicators in this dimension. The distribution of this indicator reflects a polarized perception. Further analysis of the respondents' profiles found that middle management respondents in the Head Office chose disagreement. The Department and Section Head of AML in Jakarta understand what open innovation

Dynamic Capabilities, which are translated into operational perceptions of 16 indicators, respondents have a positive perception with an agreement level above 50%. However, several indicators have a high level of neutrality or uncertainty, such as Engaging with Suppliers and Complementors, having a structured and safe environment in making decisions, and Organizational Flexibility & Structural Adaptation.

According to Teece (2007), Dynamic Capabilities are determined by managerial intention, internal processes, and formed routines. The analysis results support the interpretation that AML has positive foundational dynamic capabilities that encourage the transformation of AML towards a more sustainable bioenergy business.

Transformation Readiness Analysis

Transformation readiness analysis was conducted based on a survey (with a Likert scale of 5) conducted on AML employees in the Biomass Department on indicators of transformation readiness. A descriptive statistical method was used to measure transformation readiness, where the parameters used was frequency distribution. Two dimensions of transformation readiness are described in 6 assessment criteria and 17 indicators. The result per readiness dimension can be seen below.



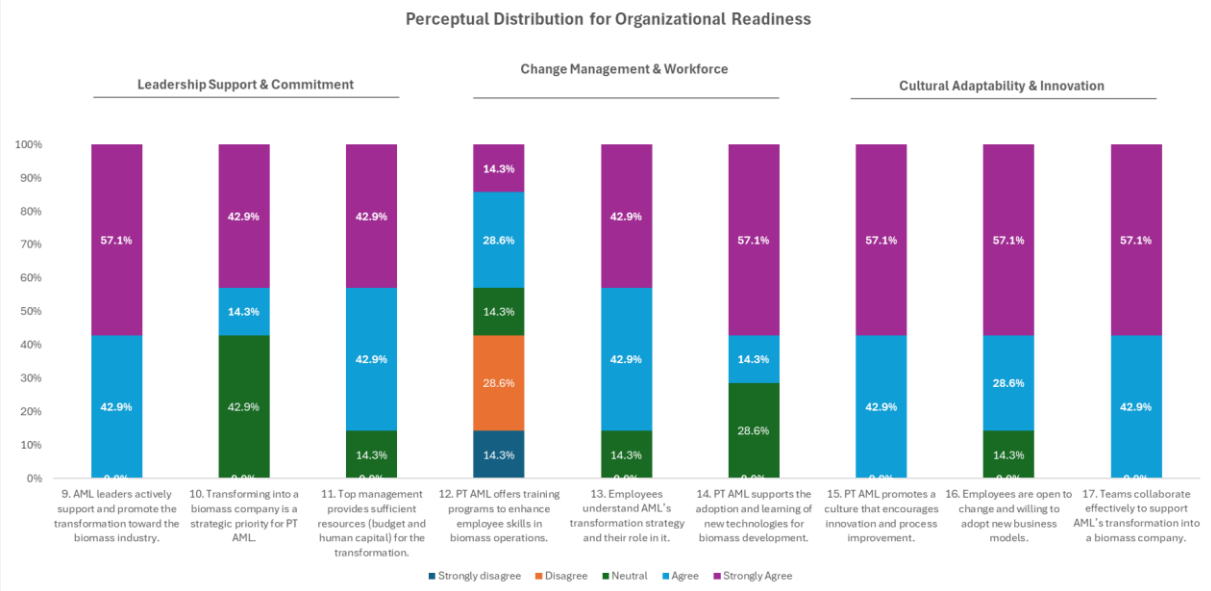
Picture 5. Process Readiness Perceptual Distribution

The AML Process Readiness dimension shows varying readiness levels in three main categories: Process Standardization, Automation & Digitalization, and Process Governance & Ownership. In the aspect of process standardization, most respondents (>50%) stated "Agree" and "Strongly Agree" on two indicators, which are Standardization of the supply chain process and Documented procedures that AML has implemented. However, in the implementation indicator, respondents tend to be uncertain (43%) and "Disagree" (14%). This difference in perception is understandable because the transformation activities are still in the early stages, even the biomass project is still in the pilot project phase, so inconsistencies in implementation can still be found. This finding does not mean neglect by AML but rather an observation to update the AML supply chain process standards.

Meanwhile, variations were found between the two existing indicators in the area of automation and digitalization. In the operation automation indicator, 57% of respondents perceived "Strongly Agree" that this can help operational activities. However, in using digital data for decision making and process

improvement, the distribution of respondents' answers is more varied, although in general, there are still many who "Agree" around 43%. This result is confirmed by the reality in the field, where the existing data is still not used optimally, and the application is still limited to routine performance reporting.

In Organizational Readiness, most respondents perceived AML as having positive readiness in 8 out of 9 indicators in this dimension. There were even three indicators where all respondents at least "Agree" that implementation had occurred in AML, namely Support from leader (indicator 9), Innovation Culture



Picture 6. Organizational Readiness Perceptual Distribution

On the other hand, process governance shows strong and consistent results in the three indicators that represent it. The majority of respondents stated that they agree or strongly agree, with a total of more than 50%, that each process has a person in charge, there are clear measurement metrics, and the governance system is well structured (indicators 6-8). However, the perception of neutrality or uncertainty is quite large, with around 43% of respondents regarding the clear responsibilities for the operational governance indicator. Most respondents answered this in Jakarta, where they often interact with supporting functions. So that in the process and its dynamics, several activities can still be found whose accountability has not been regulated in the related procedures.

(indicator 15), and Team Collaboration (Indicator 17). However, the largest perception of uncertainty or neutrality came from the leadership support and commitment assessment area. In the strategic priority indicator (indicator 10), 43% answered "Neutral". This perception was mainly obtained from employees working in AML's agribusiness line. Regarding short-term strategy, AML is still focused on its current business, and biomass activities are still seen as promising but need a process and proof of their success.

Perceptions of Change Management & Workforce Readiness showed greater variation, especially in the training indicator (indicator 12). Although 28.6% of respondents stated that they agreed, there were also 28.6% who disagreed, and even 14.3% who strongly disagreed. This finding shows

that not all employees have a training program to improve their related biomass skills. In contrast, the other two indicators (13 and 14) reflect employee understanding of the transformation strategy and AML's Support for technology adoption, with the majority of respondents stating "Agree" or "Strongly Agree". Finally, in the Cultural Adaptability & Innovation aspect, all indicators (15, 16, and 17) show a very high and stable level of readiness, with 57% of respondents stating "Strongly Agree" and 43% "Agree" on each indicator. This good perception shows that AML's organizational culture is adaptive to change, innovative, and has strong cross-team collaboration.

Based on the analysis of the frequency distribution of respondents' perceptions on both dimensions of transformation readiness and compared to the theoretical framework of transformation readiness from Uhl & Gollenia (2012), the level of AML's transformation readiness shows a different position between the two main dimensions. In Process Readiness, there are varying perceptions, especially in the Process Standardization area, where all three indicators have respondents who "Disagree" regarding the implementation of this area in AML. This places AML Process Readiness at Level 3 – Moderate Readiness, by the characteristics of organizations that already have standard processes but are not fully integrated. In contrast, in Organizational Readiness, most respondents stated that they agree or strongly agree with almost all indicators in this dimension. The only striking variation is in the Workforce Readiness area, especially for the Training Provision indicator. Therefore, the AML Organizational Readiness dimension is placed at Level 4 - Full Readiness in the BTM2 framework, namely that the entire organization is ready, adaptive, collaborative, to be ready to carry out a comprehensive transformation.

CONCLUSION AND SUGGESTION

This study discusses the position, capabilities and readiness for transformation of PT Agri Multi Lestari (AML) toward bioenergy company. The research in this thesis was conducted using a mixed-methods approach that combines quantitative surveys, qualitative interviews, content analysis, and statistic descriptive. With this methodology, it is expected to answer four main aspects outlined in the research questions and objectives, namely: 1) Orientation Towards Sustainability, 2) Dynamic Capabilities, and 3) Transformation Readiness.

RQ 1: Where does AML currently position the sustainability business transformation, and what does this imply for AML's strategic decision?

Based on the Directed Content Analysis results for the interview results, AML is in a typology position that is almost at the middle stage (average score = 1.75). This score is a sign that AML is trying to develop itself towards sustainability in the long term. For the AML Board of Directors, sustainability has become a strategic direction, but the formal structure, ESG KPI, and ESG reporting system have not been fully implemented. However, regarding the "Purpose & Value" and "Leadership" aspects, AML's leadership has shown a clear commitment and is in line with the Net Zero Emission direction of the Adaro group. In addition, aspects such as people process and investor engagement can be improved, especially by starting to include ESG aspects in training, or communication with external stakeholders and shareholders.

RQ2: How capable is AML in responding to challenges and opportunities required for the biomass business transformation?

The results of the Dynamic Capabilities analysis show that majority employee of AML perceive positive about AML's operationalization in 16 indicators of Dynamic Capabilities. In other words, AML employees agree that AML has dynamic capabilities to adapt to change and transform. From the Sensing capabilities, majority respondents perceive strong agreement for 3 out of 4 from Sensing indicators. The only indicators that had polarize perception is found in the Engaging with Suppliers and Complementors indicator. The survey results for the five indicators in the Seizing dimension show a positive orientation. Several indicators perceived to be very strong in their implementation are designing a business model, managing and evaluating assets for competitive advantage, and building loyalty and commitment, where the level of respondent agreement is very high. Lastly, in Reconfiguring dimension, where seven indicators is perceived to have been implemented by AML by most respondents. However, open innovation is an indicator of this dimension that had various perceptions from respondents due to different levels of understanding of its meaning.

RQ3: To what extent are AML's internal processes and operations ready to support the implementation of its transformation into a biomass-based business?

AML's transformation readiness is perceived a moderate to whole readiness level. This is indicated by the level of perceiveness from AML's employee toward Process and Organizational readiness indcators. In Process readiness, 2 out of 3 indicators had positive perception from the respondents. Implementation of process and its standarization are the major concerns on this dimension. On the other hand, nearly all indicators of Organizational readiness received strong approval regarding their implementation AML.

Based on the Conclusion above, this thesis provides practical recommendations to several related stakeholders. For AML top management, as one of the key drivers of Transformation, it can focus on improving indicators that are considered ineffective in implementation such as development of ESG performance indicators & reporting, having strategic engagement with third parties that enhance innovation and business growth, implementation of open innovation, and consistent of standardization & implementation of Biomass supply chain. For academics and other business actors, this framework can be developed or applied to other companies or industries to validate its effectiveness and usefulness.

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