

## **BUSINESS STRATEGY FOR A MULTINATIONAL COMPANY TO EXPAND ITS INDUSTRY 4.0 SOLUTION IN VARIOUS INDUSTRIES IN INDONESIA**

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### **Abstract**

Once a multinational company focuses on sensor measurement technology, data acquisition software, data analytics and process control that is currently focused on a specific industry: pulp & paper in Indonesia should also be able to expand its market especially to the general industry. Given the market potential, this research is aimed at analyzing and designing a business strategy for a multinational company to develop a market outside pulp and paper in Indonesia. Using depth interview data from a multinational company, users, industry expert interview and questionnaires, all data are analyzed using Porter Five Forces, and VRIO for analysis and TOWS and Diamond Strategy as business solution. It can be argued that there is great potential for this multinational company to expand its business beyond pulp and paper and products or solutions such as data acquisition, data analytics and predictive control models can be used in other industries. Realistic target industries are industries in Indonesia that share similarities with the pulp and paper industry integrated plan such as cement and power generation. One of the first steps to developing a business is to use local partners who have knowledge and knowledge of the target market. Internal development and increased resources are also needed to support this strategy.

**Keywords:** Industry 4.0, Business, Strategy, Expansion, Analytical Tools, Process control.

### **1. Introduction**

The multinational company analyzed for this paper has three main divisions consisting of measurement, data information management software and model predictive control. The company focuses on a niche market pulp and paper despite the potential of expanding its software solution business outside the pulp and paper. For both software division as Industrial Internet of Things (IIOT) platform can offers solution that can fit with various industry such as refinery, power plant, kiln based, cement, chemicals industry and others. Having these two-product limited to pulp and paper business can hide its potential to expand the business into other segments which can offer more revenue to the company. The objective of this research is:

1. To analyze the potential of business growth for the multinational company in Indonesia, concerning the promotion the software systems business outside of the Pulp and Paper industry
2. To set the business strategy for promoting and selling the data information management software and model predictive control systems to new potential customers in Indonesia, within the context of the company corporate strategy.

To answer the research objective, both external and internal analysis is conducted using Porter Five Forces and VRIO framework. Pestel is used to analyze important sets of external factors (political, economic, sociocultural, technological, ecological, and legal) that might impinge upon a company. Looking more specific to the industry, five forces model can be used to determine both opportunities and threats for the company from external factors.

After analyzing from external, Internal analysis using VRIO is necessary to assess the competitive implication of the company. The model provided an evaluation if the firm can gain and sustainable competitive advantage only when it has resources that satisfy all the VRIO

With all the analysis framework, TOWS matrix and Strategy Diamond can be developed to determine the full business strategy for the company.

## **2. Literature Review**

### **2.1.1 Strategic Planning for Future Growth**

Developed by a Russian America mathematician and business manager who came up with a concept that help businesses choose their strategy for future growth, Ansoff divides the strategy for growth into 4 type: Market Penetration, Product Development, Market Development and Diversification. This research is aimed to look for market development on how the new product should be accepted by the market.

### **2.1.2 Market Development**

In this strategy, the business expands into new market where the company never compete before. A way to achieve this strategy is by finding new customer to use existing product in different market segment. The new market should examine carefully as this strategy has higher risk than both previous strategies. There are many methods that can be used in this strategy such as new geographical markets, new market segments, etc. but the most known is the new geographical market with the franchise method, that gives the opportunity to the company to expand by exporting products to other places.

### **2.1.3 Strategy Diamond**

Strategy Diamond is the main framework used in this research to determine the right business strategy for the company. Donald Hambrick and James Fredrickson created the Strategy Diamond that provides a concise way to show how the parts of an organization's strategy fit together (Hambrick & Fredrickson, 2001). The strategy diamond model consists of 5 parameters to ensure the company have a good strategy in doing business. The model states that a company will have a good strategy if they can answer all these five questions:

- Where will we be active?
- How will we get there?
- How will we win in the marketplace?
- What will be our speed and sequence of moves?
- How will we make our returns?

Further, to go from having a strategy to having a great strategy, then each of the areas must reinforce and support each other.

## **3. Methodology**

To do this research project we look for Primary Data and Secondary Data as follows:

### *Primary Data*

This research is using a structured interview with a minimum of from all stakeholders of one of the company researched, including the internal company, owner, existing customers, and

potential new customers. In addition to the interviews, survey questionnaires will also be sent to the users of industry 4.0 and experts in industry 4.0.

#### *Secondary Data*

In addition to the primary data, the research will also use many articles, books, and other documents to gather many secondary data, to enrich this research project.

### **4. Findings and Argument**

Table 1 Interview result of external analysis from internal company

<b>Categories</b>	<b>Questions</b>	<b>Response Summary</b>	<b>Total Response</b>
External Condition	Potential Business outside pulp and paper	A lot. Cement, Powerplant, Water, O&G, Food, etc.	9
		Do not Know	1
	Power of Supplier	Low	9
		Medium	1
		High	1
	Power of Buyer	Low	1
		Medium	3
		High	9
	Rivalry among existing competitor	Low	3
		Medium	1
		High	8
	Possible of New Entrants	Low	7
		Medium	1
		Not Sure	2
Substitute	High. Other type of control, manual data, etc.	10	

Table 2 Interview result from customer about potential business

	Power Plant Industries	Pulp & Paper Industries	Cement Industries
Q1	Connected to Internet	Automation based and less interaction with human	Smart system, analytic and give benefit to the industry
Q2	Not important	Important	Important
Q3	Efficiency and Time	Safety, Efficiency, Cost	Performance (Efficiency and reduce COGM)
Q4	Exchange information	Avoid being disrupted	Avoid being disrupted
Q5	People, process, and performance system	Automation and Optimization	Inhouse visualization and optimization
Q6	Risk assessment first then ROI	Technology update, reduce cost, efficiency	Avoid being disrupted especially if competitor is implementing Industry 4.0
Q7	Not urgent	Not urgent	Not urgent
Q8	2-4 Years	< 3 years	1-2 Years
Q9	Price, and customer oriented	Focus on giving solution and can give benefit calculation	Process knowledge, customer oriented

From the interview result of the company and the users of Industry 4.0, some of the customers consider Industry 4.0 as not important, but some others consider it important even though all have mentioned that is not urgent right now. With the difference of perception about the industry 4.0 definition, how they should implement the industry 4.0, what option and supplier available to help them are still not clear and no company can be mention as the leader in providing industry 4.0 tools for customer. This shows all the players in the industry 4.0 supplier still has the same chance and an opportunity of educating the market about the importance of industry 4.0 and what they can achieve by implementing it. The path is clear that the customer is expecting some benefit to their plan by investing in industry 4.0

To confirm the interview result from internal and external about the opportunity of providing industry 4.0 solution in industry outside pulp and paper, the questionnaire sent to external can be divided into two categories: needs of Industry 4.0 and what should a multinational company provide for the industries in order to fulfill the customer needs needs of industry 4.0.

1. Customer Needs of Industry 4.0

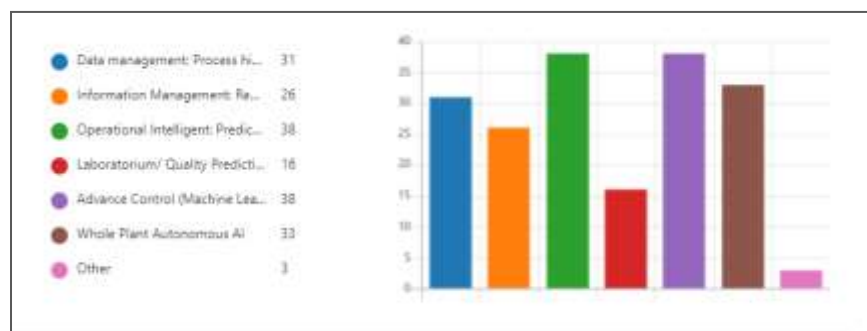


Figure 1 Questionnaire result for definition of Industry 4.0

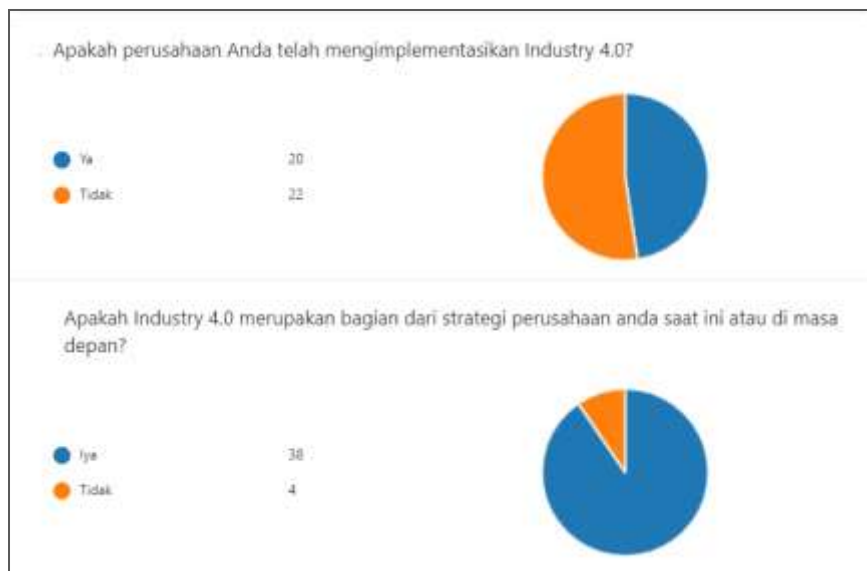


Figure 2 Questionnaire result for Industry 4.0 as company strategy

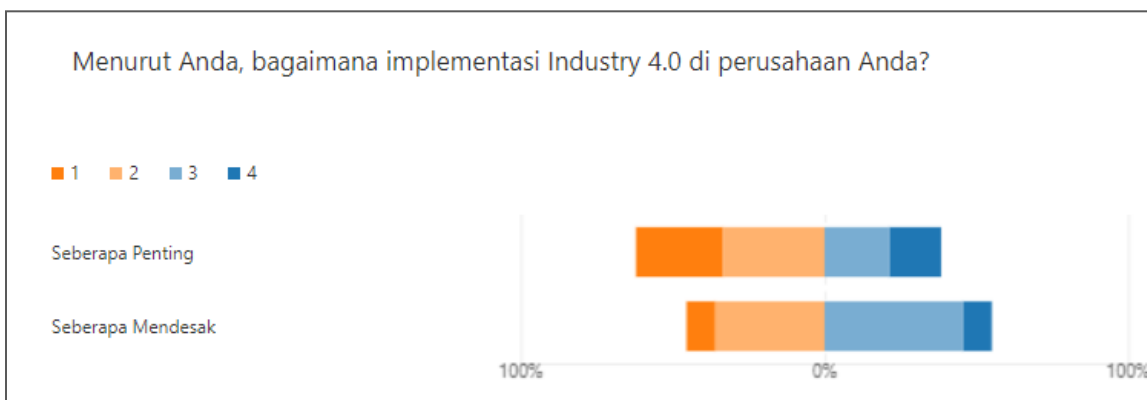


Figure 3 Questionnaire result for implementation of Industry 4.0

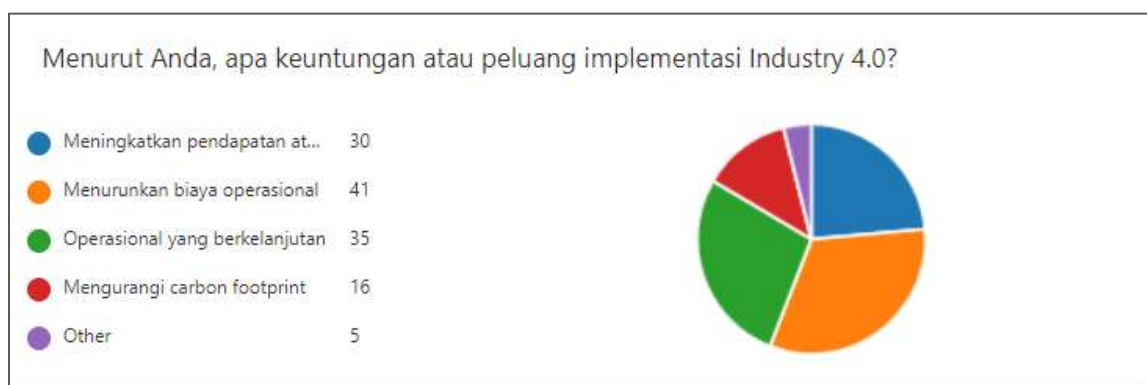


Figure 4 Questionnaire result for benefit and opportunity of Industry 4.0



Figure 5 Questionnaire result for ROI

From the questionnaire results, it shows that Industry 4.0 is part of their company strategy with the opportunity and benefit of increasing revenue, lower operation cost, sustainable operation and reduce carbon footprint as an environmental issue. The industry 4.0 implementation is expected to give return more than 1 year according to most of the respondents.

- Opportunity for the multinational company to provide digital product/solution that can fit with customer needs



Figure 6 Questionnaire result for what company needs now for data management



Figure 7 Questionnaire result for what company needs in future data management

From the questionnaire's result, it shows most of the companies or industry currently has data management or information management only where it can be supplied by a big player like OSIsoft or developed in house, while in future they need operational intelligent or data analytics where OSIsoft as the market leader don't have this. This is a huge opportunity and differentiator for BTG as it offers the solution until operational.



Figure 8 Questionnaire result for what company needs now for process optimization



Figure 9 Questionnaire result for what company needs in future for process optimization

From both questionnaires' result above, it confirms that respondents prefer to have advance control and whole plant autonomous in the future. However, for control and process improvement, there are a lot of player where they have the same opportunity according to porter five force analysis result. One of the ways to create differentiator is by having data analytics/ process intelligent and model predictive control as AI Machine learning as combination or solution package to the customer.

With Porter five forces, the competition in the industries 4.0 supplier in Indonesia can be summarized below.

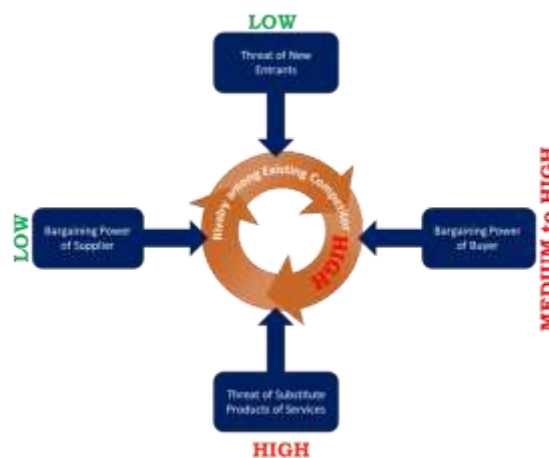


Figure 10 Porter 5 Force for Industries 4.0 supplier in Indonesia

Combining both external and internal analysis, a SWOT matrix is shown on the table below.

Table 3 SWOT Matrix

<b>Strength</b>	<b>Weakness</b>
<ul style="list-style-type: none"> <li>- Process and business gapping capability</li> <li>- Quality of product, and richness of portfolio</li> <li>- Resource capability and ownership</li> <li>- Solution focus and doing business based on customer value proposition</li> </ul>	<ul style="list-style-type: none"> <li>- Does not have strong marketing</li> <li>- More expensive price compared to some other competitor</li> <li>- Not Aggressive on expanding business</li> <li>- Small company size, do not have a lot of resource</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>- Data information management software and model predictive control as Industry 4.0 key enabler can be apply easily in all industry especially will be lot of easier to apply in more simple industry than pulp and paper like cement, and power plant without lot of investment.</li> <li>- The Importance of implementing Industry 4.0 from potential customer</li> </ul>	<ul style="list-style-type: none"> <li>- Lost of competitor, with one major player on the data processing: OSIssoft which is well known in many industry</li> <li>- Lack of customer knowledge about Industry 4.0 can be a potential barrier to business expansion outside pulp and paper</li> <li>- Threat from substitution product which is customer inhouse data visualization, and analytics tools, supervisory/regulatory control, or not want to change</li> </ul>

## 5. Analysis of Business Solution

### a. TOWS Matrix

The TOWS matrix is formed by taking the SWOT analysis as its input, then combine all internal and external factors to generate a list of strategic options to be pursued by the company in new market outside pulp and paper. The result of TOWS matrix will be ranked based on priority from the potential benefit of the strategy and how easy it is to execute that strategy. The TOWS matrix for developing data information management software and model predictive control business outside pulp and paper is shown on table 2 below.



**Table 4 TOWS Matrix**

	Strength	Weakness
Opportunity	<p><b>S1:</b> Process and business gapping capability</p> <p><b>S2:</b> Quality of product, and richness of portfolio</p> <p><b>S3:</b> Resource capability and ownership</p> <p><b>S4:</b> Solution focus and doing business based on customer value proposition</p>	<p><b>W1:</b> Does not has strong marketing</p> <p><b>W2:</b> Has more expensive price compared to some other competitor</p> <p><b>W3:</b> Not Aggressive on expanding business</p> <p><b>W4:</b> Small company size, do not have a lot of resource</p>
Threat	<p><b>O1:</b> Data information management software and model predictive control as Industry 4.0 key enabler can be apply easily in all industry especially will be lot of easier to apply in more simple industry than pulp and paper like cement, and power plant without lot of investment</p> <p><b>O2:</b> The Importance of implementing Industry 4.0 from potential customer</p>	<p><b>W1, W3, W4, O1, O2</b></p> <p><b>W2, O2</b></p>
Threat	<p><b>T1:</b> Lot of competitor, with one major player on the data processing: OSISOFT which is well known in many industry</p> <p><b>T2:</b> Lack of customer knowledge about Industry 4.0 can be a potential barrier to business expansion outside pulp and paper</p> <p><b>T3:</b> Threat from substitution product which is customer inhouse data visualization, and analytics tools, supervisory /regulatory control, or not want to change</p>	<p><b>W1, W2, T1</b></p> <p><b>W4, T1, T2, T3</b></p> <p><b>S1, S3, S4, T2, T3</b></p>

**i. Strengths and Opportunities (SO)**

1. S1,O1: With the process and gapping capability as one of the main differentiator, be more aggressive on entering the market outside pulp and paper. Start with an industry that has the same at some process characteristic with integrated pulp and paper such as cement and power plant industry without put lot of investment in additional resources.
2. S1, O2: Use process and gapping capabilities to understand and connect the customer needs of Industry 4.0 and propose based on a value added.
3. S2, S4, O2: With the richness of portfolio and the corporate strategy of solution focus, Target the customer with high importance of implementing the industry 4.0 solution by combine data acquisition and control as a complete solution.

**ii. Weaknesses and Threats (WT)**

1. W1, W2, T1 : Approach the customer one on one and turn that customer into word-of-mouth marketing by offering paid on service for process improvement to increase case study, to be

able to compete with lot of competitor and try to avoid the customer that already has PI (OSIsoft) as their platform as a first move.

2. W4, T1, T2, T3: Find a customer that still looking for partner of industry 4.0 and focus only to that customer

### iii. Strengths and Threats (ST)

S1, S3, S4, T2, T3: Educate customer to improve their knowledge of the importance of Industry 4.0 without talking about the product first and build relationship.

### iv. Weaknesses and Opportunities (WO)

The strategy for weakness and opportunities is how the company can use an opportunity to overcome a weakness.

W1, W3, W4, O1, O2: Use agent, partner or licensing that already has good connection and knowledge with the market outside pulp and paper and use them to penetrate the new market

W2, O2: Offer combine solution or offer sub part of the software or specific feature to be able to compete and target the customer with most importance and high urgency.

## b. Strategy Diamond Model

The Strategy Diamond for market expansion is shown on figure below.

**Figure 11 Strategy Diamond Model**



### i. Arena

The fundamental choice of the strategy for the company is where the company should expand its business. From lot of industry in Indonesia where the product can be implemented, more simple industry and close to some of the process in pulp and paper is a wise move. From the secondary data and primary data, the cement plant and power plant are an example of the industry that the company can target. Below is the summary of the Arena where the company should compete:

- Market Segments: Pulp & Paper, Cement, Power Plant
- Geographic: Indonesia Market and Potentially to expand to nearby Emerging countries
- Product Categories: Industry 4.0 Key enabler
- Core Technology: Software for Data Analytics, Operational Intelligent, Control loop Monitoring and Model Predictive Control

## ii. Vehicle

After deciding on the arena where they should compete, based on the data analyzed, the company should set how to get there using the moves as follows:

- Internal Development. Training of gapping with new customer
- Agent or Licensing with strong connection in target market
- Find Joint Venture with company that have hardware or sensor but does not have software solution

## iii. Differentiators

As this company has been using differentiation strategy for a long period of time, when enter new market the company should keep using differentiation strategy with customer value proposition. The differentiator that the company should pursue are:

- Image: Build image by using parent company
- Customization: Provide combination of solution as per customer need rather than only sell data information management software and model predictive control separately
- Give smaller package
- Customer Training include in the package
- 2 Years' service warranty
- Aggressive introduction by customer education

## iv. Staging

This part defines how the company should make the move to get to the target. The staging is shown on the graph below.



**Figure 12 Staging for Market Expansion**

- Stage 1: Find Local partner at the same time develop local capability
- Stage 2: Create Beachhead to increase case study in Indonesia
- Stage 3: Expand to more customer and wider segment

## v. Economic Logic

One of the weaknesses of the company is not having sufficient case studies in emerging market and the knowledge of the customer that are far behind developed country on the importance of Industry 4.0

Increasing the case study will help companies to educate other customer by using proof of concept in emerging market, especially in Indonesia. After having the case study, the company can go all premium with combined software as a solution to the customer. Below is the economic logic that companies should take.

- Pay per Savings until gain Case Study
- Going Premium with combined solution later

## 6. Conclusions

In conclusion, analysis business solutions are:

1. There is a lot of potential for the company to expand outside pulp and paper segment in Indonesia. With thousands of industries that offer opportunity for data analytics and process improvement based on model predictive control, they can fit with all the needs for Industry 4.0. However, with all the weaknesses and treat out there, the company can start with industry that has some of the process characteristic same as pulp and paper industry and prospect that have importance and high urgency on implementing it.

The needs of finding a local partner to help the company expanding the business is a must. With the help of a local partner that have knowledge on the target market and connection to target prospect, they can expand the business outside pulp and paper faster than only depend on the organic growth.

2. The multinational analyzed is an establish company who has good data analytics and software control business in developed country in pulp and paper or outside, where the customer has good knowledge on the product. In emerging market like Indonesia, they should take a start as it is a startup company which the market outside pulp and paper are new. The company should identify the needs of the customer first using the core competence of the company and educate the prospect as it builds the relationship as well.

To be able to penetrate the new market, the company should be able to offer unique value as differentiator that does not offer by competitor. Two of the critical and the most important components in developing market are customer value proposition and documenting economic impact.

3. In an emerging country like Indonesia, affordability is still one of the things to be considered at most. With integration of product and solution the business model can be conceived in a variety of ways such as:
  - Enhance Product Portfolio and integrate as a solution to customer
  - Expand into new market for data information management software and model predictive control business outside pulp and paper
  - Adopt an existing company best practice in pulp and paper to outside pulp and paper market
  - Find new local partners for faster growth
  - Leverage parent company connection and capabilities to deliver profitable growth aligned with company strategy

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