
BACKWARD INTEGRATION AS A BUSINESS STRATEGY TO INCREASE COMPANY PROFITABILITY

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ABSTRACT

PT. Graha Alam Indo Sentosa is a developer operating in the real estate industry. Budiman Napitupulu and his son Binsar Napitupulu founded the company in 2017 in Semarang, Central Java. The organization prefers to construct housing zones for low- to middle-income people. The program is known as "Perumahan Bersubsidi." PT. Graha Alam Indo Sentosa is in the process of constructing a residential community (Perumahan the Sambeng Village) in Pemalang Regency, Central Java. The overall area to be developed is 5,6 hectares and will feature around 530 homes and 37 stores. The developer has built and sold 220 residences and five shops as of November 2021. As part of its backward integration business strategy, PT Graha Alam Indo Sentosa owned the business unit Sambeng PreCast in order to reduce construction costs. The business unit is intended to assist the corporation in generating the building materials needed to create houses, roads, and water channels. This research will elaborate on the success of the backward integration approach and whether or not it can significantly contribute to the company's sales and profits. Based on the discussion in the all chapters available (business exploration, business solution, and financial analysis), profitability has been positively benefited by the backward integration business plan followed by PT Graha Alam Indo Sentosa via the business unit (Sambeng PreCast). Using a backward integration strategy, the corporation can reduce building costs (COGS) and improve revenues and profits automatically. So, the company is advised to continue or even expand the backward integration business strategy.

Keyword: Backward Integration, Business Strategy, Profitability Analysis.

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INTRODUCTION

The Indonesia Government, through the Ministry of Public Works and Housing (PUPR), will give incentives to the developers that build subsidized housing to support the one million houses program (Caritas et al., 2017). The subsidized housing area program benefits the buyers and the developers. Buyers may enjoy advantages such as a 40 million rupiah house discount, long time payback period, and flat interest. The developer would also enjoy tax relaxation 2 and support for public facilities. Due to the benefits of subsidized houses, people are starting to use this government program to buy their dream house rather than rent a home.

PT Graha Alam Indo Sentosa is currently building a housing area (Perumahan the Sambeng Village) in Pemalang Regency, Central Java, Indonesia. The total area will be built is 5.6 hectares and includes around 530 houses and 37 shops. Until November 2021, the developer has built and sold 220 homes and five shops. Due to the high demand for cheap/subsidized houses, the company

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regularly builds more or less six houses each month. Bank BTN also supports PT Graha Alam Indo Sentosa as the official partnered bank to give the buyers funding to buy a house. Based on the survey by Top Brand Award in 2018, Bank BTN got the first position for its KPR/housing funding product (Yanto & Prabowo, 2020).

In order to press the construction cost, PT Graha Alam Indo Sentosa owned a business unit called Sambeng PreCast, as the backward integration business strategy implemented by the company. The business unit is designed to support the company in producing the construction material to build houses, roads, and water channels (three main aspects of a housing area). Sambeng PreCast has already operated since March 2020 and successfully cut down the company cost in terms of construction cost. It is also essential to reduce infrastructure construction costs (Pineda-Jaramillo et al., 2020). Sambeng PreCast owns three production machines to produce light brick, paving blocks, and precast u-ditch.

Since the developer is the one who also produces construction material, it will be easier to do the quality control. Inspection at various stages of production is critical to achieving the product's desired quality (Kang, 2018). Construction specification quality is the crucial point for a house is worth buying or not. Besides cost-efficiency, Sambeng PreCast also contributes to finishing the housing area project faster. Stakeholders typically desire a speedier project completion (Colucci & Albino, 2016).

Sambeng PreCast operates in a 200-meter square workshop with one supervisor, finance admin, and ten laborers. The labor-paying system is based on how many products they could produce per day (pay/unit) to ensure they always have the spirit to produce more. Wages are decided according to output units by an agreement reached between management and employees (Shintia, 2019).

Since the government regulates the subsidized house selling price, the developer struggles to provide the best quality building to meet the low selling price (the situation is getting worse due to the covid-19 pandemic which last for the past two years). In order to deal with that, the developer implements the backward integration business strategy by producing the building material by itself through the business unit called Sambeng PreCast. A backward integration strategy also will be helpful to deal with further expected demand due to the pandemic situation, 9 which is getting better. This paper will discuss more regarding the effectiveness of the backward integration strategy and whether the strategy can contribute significantly to the company's revenue and profit or not. The other available business strategy alternatives will also be discussed in this paper, completed with why those other strategies are not recommended compared to the backward integration

Based on the research questions above, the objectives of this research are: 1. To give PT Graha Alam Indo Sentosa the big picture of the importance of backward integration strategy (Sambeng PreCast), does the strategy give the profit to the company or not. 2. To make sure that further investment in the backward integration strategy can be done and generate more profit in the future. 3. To find the best possible funding alternative to be taken by PT Graha Alam Indo Sentosa to enlarge the backward integration business strategy.

METHOD

The author uses the descriptive analysis research method to prove that backward integration is profitable for the company. The author uses the descriptive analysis method since the author has full access to the company's operational and financial data. The sequences of this research are:

1. Company Current Business Analysis

The author uses almost all available business environments analysis such as Porter's Five Forces, Business Model Canvas, SWOT analysis, and PEST Analysis. All of those analyses will be useful in determining the surrounding business environment.

2. Generate future demand projections

The author uses the company's past historical data to determine future demand projections. The demand projections are essential to ensure that the supply and demand of the company market will be balanced in the future.

3. Find the Investment Sources

The author also does a financial feasibility analysis to find the best possible funding option to execute the business strategy. The risk and opportunity analysis of each possible funding method also become the author's consideration to decide.

4. Give the Company Recommendation

The final output of this research will be a bunch of recommendations for the company to be followed based on any financial calculations provided in this research.

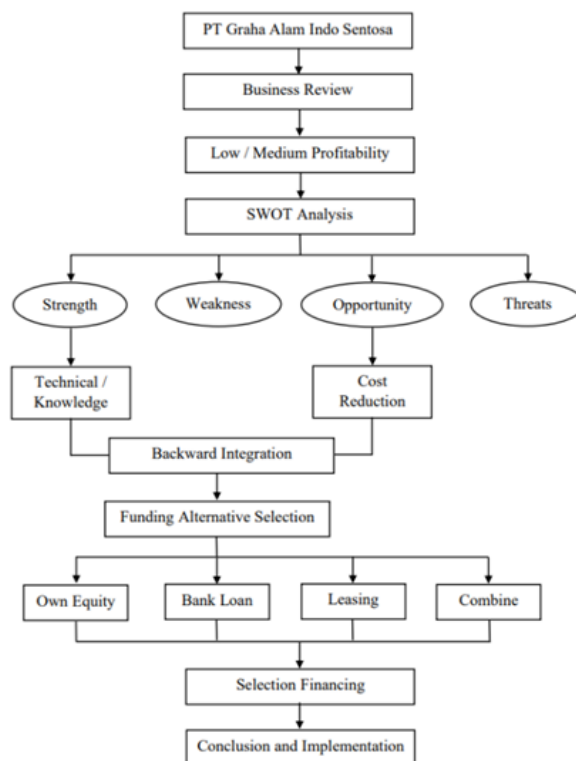


Figure 1. Conceptual Framework

Moreover, The financial aspect commonly becomes the concern for the investor with the profit orientation. It helps the investor estimate how profitable the investment will be. Financial considerations include a revenue model and a cost analysis (Engelken et al., 2016). Several approaches are commonly used in the financial aspect of the feasibility study; the approaches are as follow:

1. Payback Period

The payback period is the needed time for an investment to be recovered or how long it takes to reach the break-even point (BEP). The use of the payback period is generally recommended when significant uncertainties are present because it allows assessing the duration during which an investor's capital is at risk (Orioli & Di Gangi, 2015). Usually, the shorter the payback period, the more attractive the investment. However, it still depends on the investor's preference, whether they want it to be a long-term or short-term investment. The formula of the payback period will be as follow:

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Cash Flow Per Year}}$$

2. Incremental Cost

The incremental cost method determines the number of additional costs when using a particular production pattern (Ningtyas et al., 2018). Additional costs of a chosen investment alternative that correlates with production volume change are also considered incremental costs. The value calculation of the incremental cost is vital information for company management in deciding the amount of production capacity (addition and reduction).

3. Net Present Value (NPV)

Net present value calculates the present value of future cash flows (Wicaksono et al., 2019). When the NPV and the initial cash flow are compared and have a positive result, the investment project can be executed or accepted. Net Present Value is the value of the difference between cost and earning (or benefit) and is dependent on total time (years), discount rate, and cost-earning growth (Gumilang et al., 2016). The net present value can be calculated using the following formula:

$$\text{Net Present Value (NPV)} = \frac{R_t}{(1+i)^t}$$

R_t : Net Cash Flow at Time T
 i : Discount Rate
 t : Time of the Cash Flow

4. Internal Rate of Return (IRR)

The Internal Rate of Return (IRR) has been used for years by economists and engineers to estimate projects' profitability (or potential profitability) (Mellichamp, 2017). IRR is commonly used to calculate the real rate of return. It is an important influence on the measurement of the

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financial attractiveness of an investment (Patrick & French, 2016). The formula used to calculate the Internal Rate of Return (IRR) is as follow:

$$\text{Internal Rate of Return (IRR)} = i_1 + \frac{PV_1}{PV_1 - PV_2} \times (i_2 - i_1)$$

- i_1 : lower discount rate chosen
- i_2 : higher discount rate chosen
- PV_1 : PV at lower discount rate chosen
- PV_2 : PV at higher discount rate chosen

5. Profitability Index (PI)

The profitability index is none other than the ratio of the present value of cash inflows (so the benefits) and outflows (so the costs) (Erményi, 2015). Economic researcher prefers to use the profitability index (PI) instead of the net present value (NPV) since it is easier to understand. The profitability index (PI) solves this NPV limitation by comparing future net revenues discounted to present value (Rangel, 2016). Moreover, the profitability index (PI) is also famous as the Profit Investment Ratio (PIR) / Value Investment Ratio (VIR). The general formula of the profitability index can be seen below.

$$\text{Profitability Index (PI)} = \frac{\text{Present Value of Future Cash Flows}}{\text{Initial Investment}}$$

Or

$$\text{Profitability Index (PI)} = \frac{(\text{Net Present Value} + \text{Initial Investment})}{\text{Initial Investment}}$$

6. US' Index Theory

Dr. Ir. Uke Marius Siahaan, MBA, firstly founded the US' Index theory. He works as an MBA program lecturer in the School of Business and Management – Institute of Technology Bandung (SBM-ITB). The idea of the US Index is to assess the company's repayment capability by comparing its Basic Business Profitability (BBP) to the Loan Interest Rates (I) (Siahaan, 2021). The formula of the US Index is available below:

$$\text{US' Index} = \frac{\text{Basic Business Profitability (BBP)}}{\text{Loan Interest Rate (I)}}$$

Moreover, the formula of the Basic Business Profitability (BBP) is as follow:

$$\text{BBP} = \frac{\text{Earnings before Interest and Taxes}}{\text{Total Assets}} \times 100\%$$

The US Index's calculated value can give the company the indicators of whether the company should focus on leverage or equity.

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RESULTS AND DISCUSSION

By doing the BMC analysis, it would be easier for the researcher to get the big picture of the business situation in the company. Moreover, PT Graha Alam Indo Sentosa and Sambeng PreCast business model canvas (BMC) analyses are available below.



Figure 2. Business Model Canvas

Moreover, one of the famous approaches that commonly be used to analyze the market aspect is the SWOT analysis. SWOT Analysis (short for strengths, weaknesses, opportunities, threats) is a business strategy tool used to determine how a firm stacks up against its competitors (Teoli et al., 2019). SWOT analysis can also be considered a preliminary stage for a company before making a decision.

	STRENGTHS	WEAKNESSES
INTERNAL	<ul style="list-style-type: none"> Subsidized selling price Guaranteed product quality Few local competitors Low construction cost 	<ul style="list-style-type: none"> Worker performance inconsistent Specific customer profile Unpredictable weather Low customer buying power
	OPPORTUNITY	THREATS
EKSTERNAL	<ul style="list-style-type: none"> The real estate business is growing Use digital marketing Increase construction capacity Cooperate with more banks 	<ul style="list-style-type: none"> People build their own house Government stop the program New upcoming regulation Natural disasters

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Figure 3. Business Model Canvas

Based on the building cost (COGS) calculation, the backward integration strategy implemented by the company since March 2020 is really impactful to the company's profitability. For each unit, the strategy contributes Rp. 2.600.000,00 savings for the company. The total savings calculation of the backward implementation is available below. House Sold March 2020 – December 2021 = 111 units Total Saving = 111 units x 2.600.000,00 = Rp. 288.600.000,00. The business unit only produces three types of building material (lightweight brick, u-ditch precast, and paving block). Suppose the company can expand the backward integration strategy even further and produce more material quantity and types. In that case, the savings will automatically become higher and higher.

Moreover, the author uses Minitab software to project the future demand using the past historical data. The error of this calculation (MAPE, MAD, and MSD) can also be considered usable, so the projection calculation data is fair enough to be used in this research calculation. Based on the projection calculation, the developer is projected to sell six to ten houses on average.

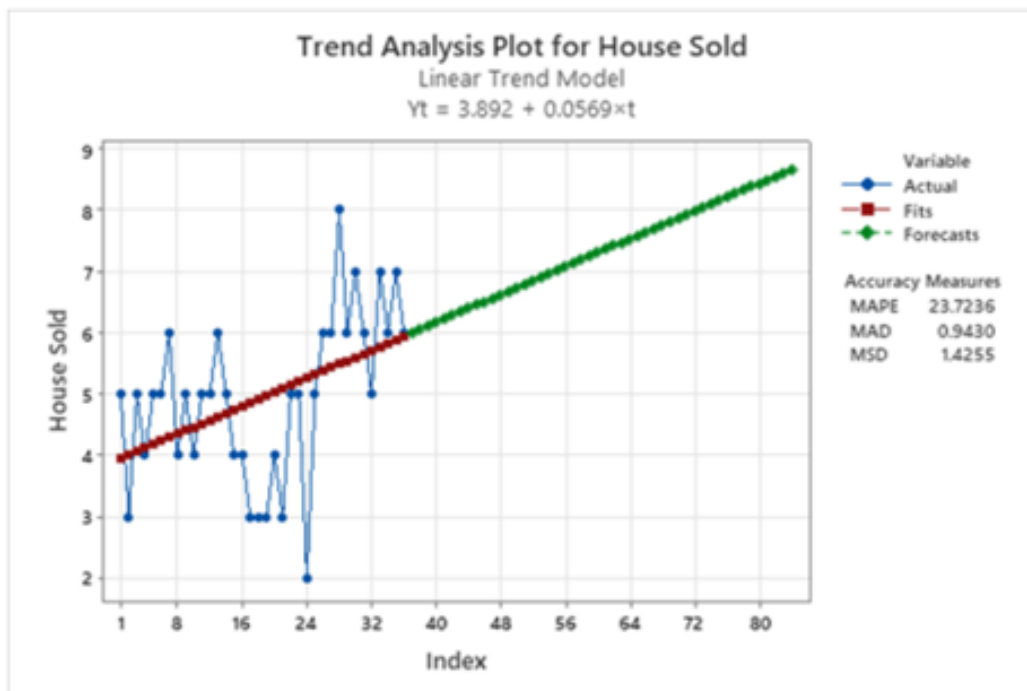


Figure 4. Business Model Canvas

Table 1. Future Projection of House Sales per Month

Year	House Sold / Month
2022	6
2023	7

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2024	8
2025	9
2026	10

Table 2. Company Future Savings Projection

Year	Unit Sold	Total Saving
2022	72 Units	Rp187,200,000.00
2023	84 Units	Rp218,400,000.00
2024	96 Units	Rp249,600,000.00
2025	108 Units	Rp280,800,000.00
2026	104 Units (Rest of the Unit)	Rp270,400,000.00
Total		Rp1,206,400,000.00

Table 3. Needed Investment Detail

Backward Integration Expansion Needed Investment			
Item Needed	Qty	Item Price	Total Price
New Paving Block Hydraulic Press Machine	4	Rp 80.000.000	Rp 320.000.000
Water Pump And Pond	1	Rp 27.000.000	Rp 27.000.000
New Light Brick Special Mixer	4	Rp 42.000.000	Rp 168.000.000
New Foam Generator	1	Rp 18.000.000	Rp 18.000.000
New U-Ditch Precast Mold	4	Rp 20.000.000	Rp 80.000.000
New Drying Fans	1	Rp 15.000.000	Rp 15.000.000
New Truck as Transportation	2	Rp 400.000.000	Rp 800.000.000
Workshop Building Expansion	1	Rp 50.000.000	Rp 50.000.000
Material Warehouse	1	Rp 32.000.000	Rp 32.000.000
Diesel Generator	4	Rp 22.000.000	Rp 88.000.000
Administration and Paperwork	1	Rp 2.000.000	Rp 2.000.000
Total Neede Investment			Rp 1.600.000.000

Table 4. Financial Statement

PT Graha Alam Indo Sentosa Financial Statement					
	72 units	84 units	96 units	108 units	104 units
	2022	2023	2024	2025	2026
Sales	Rp 10.836.000.000	Rp 12.642.000.000	Rp 14.448.000.000	Rp 16.254.000.000	Rp 15.652.000.000

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COGS	Rp 7.992.000.000	Rp 9.324.000.000	Rp 10.656.000.000	Rp 11.988.000.000	Rp 11.544.000.000
Gros profit	Rp 2.844.000.000	Rp 3.318.000.000	Rp 3.792.000.000	Rp 4.266.000.000	Rp 4.108.000.000
Over head	Rp 600.000.000	Rp 600.000.000	Rp 600.000.000	Rp 600.000.000	Rp 600.000.000
Depreciation	Rp 300.000.000	Rp 300.000.000	Rp 300.000.000	Rp 300.000.000	Rp 300.000.000
EBIT	Rp 1.944.000.000	Rp 2.418.000.000	Rp 2.892.000.000	Rp 3.366.000.000	Rp 3.208.000.000
Interest exp	Rp 480.000.000	Rp 360.000.000	Rp 240.000.000	Rp 120.000.000	Rp 0
EBT	Rp 1.464.000.000	Rp 2.058.000.000	Rp 2.652.000.000	Rp 3.246.000.000	Rp 3.208.000.000
Tax, 30%	Rp 429.200.000	Rp 617.400.000	Rp 795.600.000	Rp 973.800.000	Rp 962.400.000
NAT	Rp 1.024.800.000	Rp 1.440.600.000	Rp 1.856.400.000	Rp 2.272.200.000	Rp 2.245.600.000
R/G, 60%	Rp 614.880.000	Rp 864.000.000	Rp 1.113.840.000	Rp 1.363.320.000	Rp 1.347.360.000
End profit/year	Rp 409.920.000	Rp 576.240.000	Rp 742.560.000	Rp 908.880.000	Rp 898.240.000

Table 5. Feasibility Study Calculation Result

Description	Result
Needed investment (100% Loan)	Rp1,600,000,000
Bank Interest Rate / WACC	12%
IRR	48.80%
PP	2 Years
NPV	1922642571.50
ROI	172.85%
PI	2.201651607
US Index	14.40416667
Financial Condition	Go For Loan

CONCLUSION

Based on the discussion above, it can be concluded that backward integration business strategy implemented by PT Graha Alam Indo Sentosa through the business unit (Sambeng PreCast) has successfully impacted the company profitability. Using a backward integration strategy, the company can minimize the building cost (COGS) and automatically increase the revenues and profits. The company may further minimize costs by producing more building materials and types. Until today, the business unit only produces three different building materials (lightweight brick, u-ditch precast, and paving block). Based on the future projected demand by Minitab software, the current condition of the backward integration strategy is not enough to cover the projected demand. So, strategy expansion is not an option anymore. However, it has become a must for the company to take the backward integration strategy to a different level. Since backward integration is not the company's initial strategy (just started in 2020), the company can choose internal financing as the fund source to expand the business unit. The company has already decided to use the retention for growth money to buy new land and start another housing area project after this project is finished. The backward integration expansion feasibility study shows that the company has enough power and capability to seek external financing. All the IRR, PP, NPV, ROI, PI, and US Index calculation shows

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a positive 54 value, which means the company is safe to take a loan from the bank or the venture capital. The bank loan is the best option for the company to fund the backward integration expansion project since the company's financial condition can ensure the bank can pay off the debt in the future. The company may choose the best possible loan program offered by the banks.

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