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Determine Financial Planning In Start Up Company: A Case Study of Hi! Drops

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Abstract:

According to the McKinsey report, the Internet of Things or IoT is predicted to become the most disruptive technology. The new form of IoT known as Internet of Living Things or IoLT. It helps humans to understand more of the other living things and know the right treatment for them. One of IoLT products is a smart flower pot. A lot of companies are interested in using IoT into their product system.

Through this study, researchers chose Hi!Drops as the company to be analyzed based on its problems. Hi!Drops create a smart flower pot that helps people to be possible having indoor gardening with any type of plants. The product also supports people to minimize efforts, reducing cost, and saving more time. However, the company faces a difficulty to keep the company sustain.

A limited fund becomes the company's problem, furthermore it also needs a longer time in the research and development process. The purpose of this study is to determine the most product price fit to Hi!Drops and creates the most appropriate financial scenario in order to help the company manage their fund. Researchers design the scenarios through financial planning by making the cash flow projection, NPV, IRR, and payback period. Hi!Drops can use the planning as their business strategy for the next 5 years.

Researchers use a qualitative method in collecting the datas. The source of data is primary and secondary data. Hi!Drops Financial Statement in 2019 will be the primary data along with an interview. The interview aims to understand the consumer preferences from Hi!Drops target market, notably price recommendation and purchasing power. In addition, the research also uses supporting datas from BPS reports and analyzes it through literature review and synthesis. Through the secondary data, researchers are also able to find the right market size for Hi!Drops.

Keywords: *Financial planning, cash flow projection, smart flower pot, indoor gardening*

1. Introduction

IBM Think Academy's researchers define the Internet of Things (IoT) through its process. Most devices embedded with sensors and chips that link to an IoT platform. The platform will process the data and integrate it into analytical data. Commonly, the IoT platform provides a visual dashboard, in the form of charts or graphs, to make it easier for the user to read it. McKinsey's annual report in 2019 predicts IoT will be part of the most disruptive technology in 2025.

Researchers are developing a new form of IoT. It is known as IoLT or Internet of Living Things (Hadabas et al, 2019). IoLT is connecting the living things to the internet to connect and analyze real-time data and monitor it. One of the products that use IoT is smart flower pot. The existence of a smart flower pot helps people to give the right treatment for their plants when they do not have enough knowledge and time to treat it.

Hi!Drops creates a new way for people to take care of their plant in the room or also known as indoor gardening. Several problems often occur while doing indoor gardening. First, a limited choice of what types of plants can plant indoors. People can only plant some types of plants, but they can not be flowers. Second, giving the right treatment to plants is quite tricky. People need to maintain the waters, light, and humidity so the plants can keep growing.

Hi!Drops offers a new way for people to keep their flowers alive inside a room. The company designed a smart flower pot complete with an automatic lighting system. In order to mimic the sunlight, Hi!Drops use the LED photosynthesis inside the pot. People can control the lighting system anytime and anywhere through the website. Furthermore, the pot also comes with a simple and modern design so it can be used as a room decoration.

2. Literature Review

2.1. Cash Flow Projection

Cash flow is the results of calculation related with cash inflows (revenue) and cash outflows (expense). Based on Brigham and Ehrhardt (2013), cash flow divides company's activities into three forms such as operating, financing, and

investing. The operating cash flow includes all cash created by the key business operations of companies while the financing cash flow covers all the proceeds from issuing debt and equity, as well as the company's payments. Investing cash flow aims to involve in both capital acquisitions and investments in other corporate activities.

2.2. Net Present Value (NPV)

The difference between the actual value of the projected cash flows and the present value of the invested capital is NPV (Ross et al, 2013). In other words, It can be used to determine whether or not the business is valuable enough to invest. Basically, NPV is obtained from the difference between present value of cash inflows and initial investment. NPV has its decision criteria. If the project has a positive NPV ($> \$0$), the value is generated and should be agreed. Otherwise, if it has a negative NPV ($< \$0$), it means the project destroys its value and should be rejected. In conclusion, NPV combines the size, pacing and probability of future cash flow projections.

2.3. Internal Rate of Return (IRR)

IRR helps companies are looking to find a single rate of return that sums up a project's merits. In particular, the rate used is a company's internal rate that only depends on the cash flows of particular investment in those companies (Gitman and Zutter, 2014). The decision criteria in order to use IRR as consideration to make accept-reject decisions are if its IRR is greater than the cost of capital, then accept the project. Otherwise, its IRR is less than the cost of capital, rejecting the project. IRR and NPV are closely connected which leads to the same decisions for a project as NPV.

2.4. Payback Period

The payback period, as measured from cash inflows, is the time it takes the company to recover its initial investment in a project. In making decisions through the payback period approach, if the payback period is less than maximum acceptable payback period, then companies should accept the project. On the other hand, companies should reject the project if it is greater than the maximum acceptable payback period (Gitman and Zutter, 2014). The payback period is obtained by dividing the initial investment and after tax cash flow.

2.5. Indoor Gardening

Indoor gardening is the alternative way for people who do not have enough space to keep doing gardening. Indoor gardening has the same instruments with conventional gardening in terms of treating the plants. Light, water, nutrients, soil, and gardening equipment are still needed in taking care of indoor plants.

In 2020, gardening will concentrate on making the most of what people have and building places that are perfect for gardeners and their plants. Garden Design published the 2020 Trends in Garden Design that consists of 9 remarkable trends. One of them is 'Turning to Tech for Houseplant Help'. House Plants (or also known as indoor plants) continue to become more common as people appreciate their mood-enhancing effects and decorative contributions to make the atmosphere more alive. Studies have shown that having interacted with indoor plants can reduce physiological and psychological stress, in other words, indoor gardening has a soothing effect on humans (Lee et al, 2015). Moreover, studies showed that being around plants can also facilitate concentration and memory.

2.6. Smart Flower Pot Mechanism

To make a smart flower pot, Hi!Drops implemented an IoT by using an arduino. Initially the company wanted to make a product that had full features such as an automatic lighting system and monitoring system. Hi!Drops used a Light-emitting diode or LED grow-lighting to narrow the spectrum of light that provides just one color, referred to as nanometer specific light (Halleck, 2018). They used the blue and red light or known as UV LED Lamp inside its smart flower pot. By using only blue and red light together, it can drive plants to keep doing photosynthesis. For the monitoring system, the user of Hi!Drops smart flower pots can monitor their plants whenever they want. Users can monitor it through Hi!Drops website by registering their pot code in their account.

3. Conceptual Framework

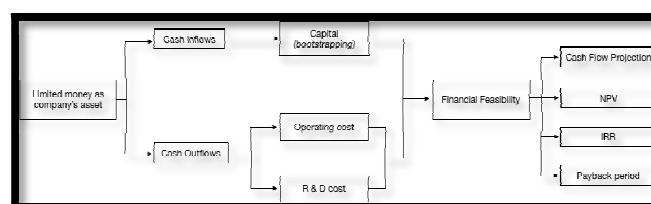


Figure 1: Conceptual Framework
Source : Researcher's Analysis

From Hi!Drops historical financial data, it was found that Hi!Drops has limited money as the company's asset. The company has used the cash inflows to operating cost and R&D cost. Researchers will use cash flow projection, NPV, IRR, and payback period to develop the financial feasibility.

4. Methodology

Interviews are conducted for this research in order to collect the primary data. Due to the government regulations in solving the Covid-19 Pandemic, the interviews are collected through online platforms such as Google Meet and WhatsApp. The data gathered from 4 respondents in the Jakarta area which qualifies to the target respondents requirements.

The purpose of conducting an interview is to find any possible keywords regarding Hi!Drops product price fit from their potential consumers preferences. Through the interview, Researcher expects to get information regarding the respondents budget for hobby, the knowledge of indoor gardening, and the suitable price for Roseate. The interview is done by using semi-structured interviews. Researchers classified the interviews into four stages: (1) respondent profile; (2) respondent preferences; (3) indoor gardening awareness, and (4) intention to technology approach in doing indoor gardening (Montoya, 2016).

In order to minimize the bias information, Researchers also used literature synthesis as the secondary data from books, government reports, and journals that have relations with the research's topic. According to Harvard Graduate School of Education (2020), literature synthesis means create a new explanation after combining two or more elements from literature reviews.

5. Analysis and Result

5.1. Hi! Drops Financial Statement

The financial statement is taken from Hi!Drops financial historical data in 2019. According to it, researchers found that Hi!Drops has a lot of spending but has a limited amount of funds. Researchers can not identify the fluctuations because the data is only for one year.

	2019
Income Statement	Rp436,465
Balance Sheet	Rp9,000,000
Statement of Cash Flow	Rp436,465

Table 1: Hi!Drops Financial Statement 2019

Source : Hi!Drops Financial Report

5.2. Content Analysis

In order to analyse the interview's data, this research applies the content analysis methods. By using content analysis, researchers aim to identify the purpose and message from the respondent. It helps researchers to interpret and get a better understanding of the interview's data (Erlingsson and Brysiewicz, 2017). It is a linear approach which means in the process of identifying the units meaning, coding, and categorising can not be done in one time. There are several codes and categories that have been identified through respondent's statement'.

Category	Keyword (Code)	Interpretation
Indoor Gardening Benefits	Wellbeing	Respondents believe having indoor plants can give a positive impact to the owner. Plants are effective in helping them to release their stress.
	Decoration	Plants are visually appealing from every factor such as color, shape, layout, and harmony. Indirectly, indoor plants can also beautify a room. One of the respondents said by having indoor plants or indoor gardening, she can use the plants also as decoration. The color from the plants can complete the whole decoration in one room. The variation of plants can boost the aesthetics of the owner's house.
	Atmosphere	When talking about garden spaces in the room, the atmosphere refers to a direct form of physical perception. Respondents' answers stated that indoor plants help them create a more positive and comfortable atmosphere in their home. Indoor plants can provide a sense of pleasure or enjoyment.

Category	Keyword (Code)	Interpretation
	Air Quality	One of the respondents stated that having indoor plants able to clean the room from certain pollutants and increase a room's humidity. Indoor plants can enhance the air quality inside the house. Plants are known as the oxygen producer while they also absorb carbon dioxide. Moreover, some plants also can infiltrate harmful chemicals and toxins. They can reduce dust levels and keep air temperatures low.
Indoor Gardening Preferences	Plants Treatment Preferences	Through this research, the researchers aimed to find out who is caring for plants. Researchers want to examine the ability of respondents to care for their plants. If they can take care of their plants, it means they have enough time to care for them. On the contrary, it means they don't have enough time and need help from others.
	Plants Type Preferences	The company designed this smart flower pot to grow any plant, whether it's flowers or vegetables. Researchers want to dig deeper into the type of plants that respondents prefer. Decorative plants (such as flowers) is a plant type that both respondents choose.
Personal Budget Preferences	Monthly Income	Researchers need data regarding respondents' monthly income to classify them as the company's prospective customers. Both respondents had a monthly revenue above the Jakarta monthly revenue average (UMR). Then, researchers define them as a potential customer for Hi!Drops.
	Hobby's Budget	Researchers asked respondents about the budget for doing their hobby every month. So researchers will use the data to analyze the purchasing power of respondents related to their hobbies. Researchers define 'hobby' as an activity related to plants. It also has been confirmed through previous questions.
	Price Recommendation	Researchers give questions to respondents about the price of smart flower pot that can be accepted. Furthermore, respondents gave a price recommendation of around Rp500,000 to Rp1,000,000. Respondents agreed on this price because the product has advantages in technology and easy to use.

Table 2: Researchers Interpretation from Interview's Result by Using the Content Analysis
Source : Researchers Analysis

5.3. Literature Synthesis

In order to support the primary data, researchers used literature synthesis to process the secondary data. This research uses some journals and BPS Statistics reports according to the category on the previous content analysis.

First, indoor gardening has proven to have a positive impact on humans by scientific journals. Researchers were looking for plant sales and consumption in Jakarta, especially ornamental plants, to determine the gardening trends. However, this data is not yet available so researchers decided to use BPS Statistics data that reported the number of horticulture establishments and other horticulture businesses in Indonesia in 2019. Through these data, researchers analyze the growth of ornamental plant establishments in Indonesia. It stated that ornamental plants obtain the highest score (40.7%) for horticulture establishments based on community groups in Indonesia among the other groups. Researchers assume that the ornamental plant industry in Indonesia is growing. This statement can direct Hi!Drops to make assumptions about market opportunities for smart flower pots in Indonesia.

The last, researchers use BPS Statistics data related to income and consumer tendency index (CTI). On the monthly salary/wage of formal employees in Jakarta, researchers focus only on three age groups (25-29, 30-34, and 35-39) that require the Hi!Drops's target market. The average salary/wage of formal employees aged 25-39 approach Jakarta's provincial minimum wage. The data verifies Hi!Drops targeted market. In the same report, BPS Statistics also present the household expenditure in Jakarta. The smart flower pots can be included in the 'other' category because there is no specific category on hobby. Researchers use the data and calculate the CAGR or Compound Annual Growth Rate to analyze the household expenditure growth in the 'other' category. The 'other' category has increased by 7.5% from 2015 to 2019. If it relates to the Hi!Drops situation, their smart flower pots have opportunities in this 'others' category because the market is growing.

BPS Statistics also published the report of Consumer Tendency Index (CTI) for the 4th quarter of 2019 and projection for the 1st quarter of 2020. The data show the CTI, for the consumption rate of groceries, food, and beverage in the restaurant and non-food (clothes, housing, education, transportation, communication, health, recreation, and others), will decrease by 20.5% the 4th quarter of 2019 to the 1st quarter of 2020. However, the overall CTI of the 1st quarter of 2020 is still between 100 and 200. In conclusion, the consumer economic conditions are expected to improve, but consumer optimism is lower when compared to the previous quarter. The CTI data helps researchers to understand the market condition of Hi!Drops target.

5.4. Market Size

Researchers use Gross Domestic Product of Region or GDP to determine the market size for Hi!Drops. Jakarta's GDP in 2019, specifically for the 'others' categories, in 137,9 Trillion Rupiahs. As the researcher's previous statement, the smart flower pot includes in the 'others' category of the household expenditures.

The total Population in Jakarta is 10.5 million (10,557,810). Researchers focus only on three age groups such as 25-29, 30-34, 35-39. The selected age groups have 2.9 million people (2,935,933) or equal to 27.81% of Jakarta's total population.

From both datas, researchers then multiply Jakarta's GDP in other categories with the percentage of selected aged (25-39) population in Jakarta to find their spending for a hobby. In conclusion, the total population of Jakarta, aged 25-39, that uses its income for other categories in household expenditure is worth 38 Trillion Rupiahs (38,364,141,491,465).

Researchers recommend Hi!Drops to use 5% of the potential target as a company's segment. It is equal to 1 Trillion Rupiahs (Rp1,918,207,074,573). However, Hi!Drops may not be able to fulfil the segment due to the limited company resources and capability. So it would be wise for Hi!Drops to do the positioning as SMEs that have sales turnover worth 4 million rupiahs per year under the government regulations (UU No. 20 Tahun 2008).

5.5. Cash Flow Projection

In creating the cash flow projection for Hi!Drops, researchers create some assumptions regarding the product price per unit and the number of units per year. This research creates three scenarios (best, normal, and worst) with different assumptions for each scenario.

Year	Best	Normal	Worst
1	-Rp300,000	-Rp9,435,000	-Rp4,805,000
2	Rp47,700,000	Rp9,160,000	-Rp2,420,000
3	Rp156,100,000	Rp42,050,000	Rp12,800,000
4	Rp335,600,000	Rp98,700,000	Rp13,050,000
5	Rp333,100,000	Rp248,500,000	Rp24,950,000

Table 2 : Cash Flow Projection Scenario

5.6. NPV, IRR, and Payback Period

The results of the NPV are acceptable because the value is positive (>0). It means this business is worthy enough to be invested. The IRR results in the table also acceptable because it is higher than the cost of capital. The cost of capital comes from the WACC in the technology's sector that is applicable in Indonesia. The default WACC is 11.79%. Then, for the payback period, the unit of measurement is year.

	Best	Normal	Worst
NPV	Rp552,293,111	Rp341,728,431	Rp26,825,908
IRR	501%	569%	78%
Payback Period (in years)	1.5	1.6	1.9

Table 3 : NPV, IRR, and Payback Period

6. Conclusions and Recommendations

According to Hi!Drops Financial Statement in 2019, Hi!Drops have a lot of spending but have a limited amount of funds. It is the only historical data that Hi!Drops have so researchers can not identify any fluctuations. An interview was conducted with 4 respondents located in the Jakarta area. The interview aims to understand the consumer preferences in order to find the Hi!Drops product price fit. Through the interview, it is found that all the respondents recommend Rp500,000 - Rp1,000,000 as the most suitable price for Hi!Drops smart flower pot. The interview data is also supported by some journals and BPS Statistics data.

To design the financial planning of Hi!Drops, researchers propose three cash flow projections based on three scenario conditions (best, normal, and worst). Each scenario has a different unit of price and number of units produced. This research also presents the NPV, IRR, and Payback Period that can be used as the bases while creating Hi!Drops strategy in the next 5 years. Adjustments to workshop rent expenses and general & administrative expenses are required to make the scenario successful and obtain sufficient cash flow.

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