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## **The case for operational management: Millennium Printing Press Company**

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**Abstract:** This paper deals with the operations of a printing press company in the Philippines and provides the analysis to stay competitive in the package printing market. The owner of the company claimed that they had already experienced steep declines in their monthly revenues and was in the verge of closing down if it did not make changes to its existing operations. The purpose of this case is to show the students the importance of being able to pinpoint the problem in the operations of the company and be able to make the correct changes so as to achieve the optimal efforts for the manufacturing operations. It also takes into consideration the main product of the company and its limited resources thereby making the decision depend mainly on the accurate use of the operations tools.

**Keywords:** printing operations; operations management; process workflow; process analysis; operations case study; manufacturing process; Millennium Printing Press.

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## **1 Introduction**

Millennium Printing Press had been a printing press company founded in the late 1980 and was claiming to experience sudden sales declines due to the change in management and inability to provide customer demands in terms of turnaround time for the customer orders. After the death of Stanley, Mr. Stephen So, his eldest son of Stanley So, took over the company and re-evaluated the company operations to be able to make the necessary changes in order to make their turnaround time competitive enough to satisfy and satisfy customers. Stephen needed to identify properly the inefficiency that the company was experiencing to be able to generate a solution for the situation. This would be applied to find which operation was the most inefficient or the bottleneck. After year 2010, the company was in a bad situation and was in a position where they must make the right decisions based on what their findings, otherwise they might lose money and even worse, close down operations.

## **2 Company background**

Millennium Printing Press was founded by Mr. Stanley So in 1988 and was located in Galas Quezon City, Philippines on a 400 square metre lot of the family owns. During the early days of the Millennium Printing Press business had been lucrative and there were more interested customers than the company could handle. Mr. Stanley was a very passionate person when it came to his business. All his employees did everything in their power to be able to fulfil any customer to satisfy their requirement. There was even an instance when they accepted a customer who requested for a truck-sized poster which was beyond the capacity of the machines being used at Millennium Printing Press. Although this entailed huge amounts of additional labour, they still accepted this order and delivered it to the customer on time. This strategy made them win a lot of loyal customers throughout the years. In the end of 2012, Stanley passed away due to a sudden sickness. His son, Stephen So, who was still in the process of being trained to take over the business, must know all the operations of the company even before he was really ready. Initially, he wanted to implement some changes in business operations since he thought some of them were inefficient. Majority of their sales demand came from paper-based cigar package printing. He was in the process of reassessing all of their operations and finding how they could maximise their efficiency on 2013. The option to buy newer equipment or just continue running the same operations would depend on his decision based on the analysis of the present business operations. He believed that switching to another industry was not a smart idea because the printing industry was still very profitable despite all the advancements in technology and the growing popularity of internet-based materials. In reality, as the fast moving consumer goods industry flourishes, more and more printing services would be demanded.

The printing operations of Millennium Printing Press were similar with what other printing press companies were operated. They catered to all kinds of printing needs whether a poster, a book, a magazine as long as it involved needing to print something. The strategy was accepting any kind of printing requests and hoping customers to appreciate their services as lifelong partners. Their main product had been printing the paper-based cigar packaging, such as folding cartons for cigars and it had have stable demands annually. The biggest client of the company at the moment was Tabaqueria De Filipinas, who sold handmade cigars in the Philippines (see Figure 1). These products were available in all of the major supermarkets and tobacco stores nationwide. The other products that they cater to were in the printing of posters, brochures, catalogues, business cards and tarpaulins.

**Figure 1** Tabaqueria De Filipinas cigars



*Source:* AJ Cigarettes (2014)

In the early 1990, competition of the package printing had been not that stiff and the printing company had 55 employees in 2004. Late 2010, the company had already downsized their labour force and only has 11 employees left. The company peaked with their performance having annual sales revenue of 20,250,600 pesos which was a huge jump from their average annual revenue of around 12,000,000 pesos in 2004. This revenue increase was the result of the local elections on that year and it made the sudden jump of their demand volume. The company was fortunate to become the government candidates to be hired for their printing services. In 2013, the company needed to re-evaluate their product operations in order to improve their efficiency and hopefully turn their monthly performance around.

### 3 Competitive landscape

*San Miguel Yamamura Packaging Corp* (SMYPC, 2014) continued to account for a large percentage of paper-based packaging in the Philippines, with its corrugated box plant in Davao City. In the end of 2010, the company also acquired the largest packaging firm in Australia, Cospak Group, with three production facilities in Auckland, Sydney and Guangzhou. Cospak was responsible for keeping SMYPC supplied with cartons and carton dividers.

*Papercon Philippines* (Papercon, 2014) was another large producer of paper-based containers in Philippines. Established in 1963, it continued to excel in producing folding cartons and labels for consumer product packaging. Another company with a corrugated carton plant was *Asia Brewery*, a sister company of Fortune Tobacco Corp, a majority stakeholder in cigarettes in the Philippines prior to its acquisition by Philip Morris Philippines Manufacturing.

There had been no major issues faced by paper-based package printing companies until 2010. After 2010, the playing field had been highly dynamic with many relatively small companies cropping up and offering labelling services for many packaging opportunities. It was seen as a trend brought about by the increased digitisation of printing presses in Philippines, with its becoming easier to offer services to layout and print simple paper-based packaging for the smaller businesses as well. Among the three major packaging companies that also catered to printing services in the Philippines, the major competitor of Millennium Printing Press was Papercon Philippines, a printing press corporation who served the major fast-moving consumer goods (FMCG) companies in the Philippines. Their ability to serve huge capacities made them the best choice for companies that had huge volumes of orders for printing services and wanted their orders at the shortest turnaround time. Although these companies had similar products as Millennium Printing Press, both companies had the same tobacco companies as their major client. The printing demand was elastic for such companies since the more demand they had for their product, the more printing services they would be subscribing for. Being part of the small-medium enterprise segment, the minor competitors were other privately owned printing press companies such as Reynan Printing Press (Reynan, 2014), Banting Printing Press and JAV Printing Press. The business model for the companies was similar to one another and these companies target any kind of customer that has any kind of printing needs.

### 4 Operations of millennium printing press

The paper-based cigar package printing provided around 70% of their annual sales revenues of Millennium Printing Press in 2013. It meant that cigar paper-based package printing was the major source of their sales revenues. The company on the average got orders of 100,000 printing papers which considered as one business order. For January to June 2013, the company got an average of around three business orders per week. Their operations run five days a week. Their orders varied in finishing time depending on when the orders were placed. Usually, weekly demands range from 1 to 5 orders except for the weeks of November and December (see Table 1).

**Table 1** Weekly order demand distribution between July 2012 and June 2013

	July	August	September	October	November	December	January	February	March	April	May	June
Week 1	3	1	5	2	10	15	8	2	1	3	4	2
Week 2	2	1	4	3	12	18	4	2	3	1	2	2
Week 3	4	2	2	4	16	16	3	3	2	4	3	4
Week 4	3	2	2	2	17	18	2	3	4	5	3	3

The company, for the past few years, had been focusing on the production of their main product, the paper-based cigar package prints. In order to solve operational issues, the framework to identify the process was required it also helped to understand the current operations. The operations logic was the framework to describe the operations of the system. It used to identify all relevant elements of a process improvement project before analysing the process. The operations logic was similar with SIPOC diagram (Simon, 2010) but it was more general to describe the operational process. Based on the operations logic (see Table 2), Mr. So could find the starting point how to design, planning, control and improvement of the process.

**Table 2** Description of the operations logic

<i>Factors</i>	<i>Descriptions</i>	<i>Remarks</i>
Target	The output of the operations and what should be improved (DCQ). Classically, the final products are outputs but it is not always the case. It depends in the objective of the process. The audience is also concerned because it may determine the scope of process.	Delivery, cost, quality
Resources	Anything that is directly related with the current operation scope. Cost and time are typical resources but customers, demand, raw materials may also be considered as resources.	Human resources, budgets, time
Interfaces	The input and output of the process. Typical interfaces are the peak hour demand (input) and the product (output). But it can be anything such as raw materials, products even Internet data and budget (money).	Input and output
Process	One of core part for operations management. As an operational manager, students must know how to deal (design, planning, control, improve) with the process. First step is designing the process based on the situations.	Process flow (diagram)
Environments	The things that are indirectly related with the current process. Market sites and other connected operations and limitations of process analysis are typical examples for environmental factors.	Substitute, competitors

There are eight workers are fully worked during their day time for printing press process (see Table 3). Five non-skilled workers are dedicatedly assigned for finishing touches task and three skilled workers who have worked more than ten years are covering the whole cigar cover printing process. Since the area of where the location of the company is near a huge informal settler area, hiring additional non-skilled workers was not a problem for the company. In addition, the employees of the company lived nearby and tardiness had not been an issue with the employees.

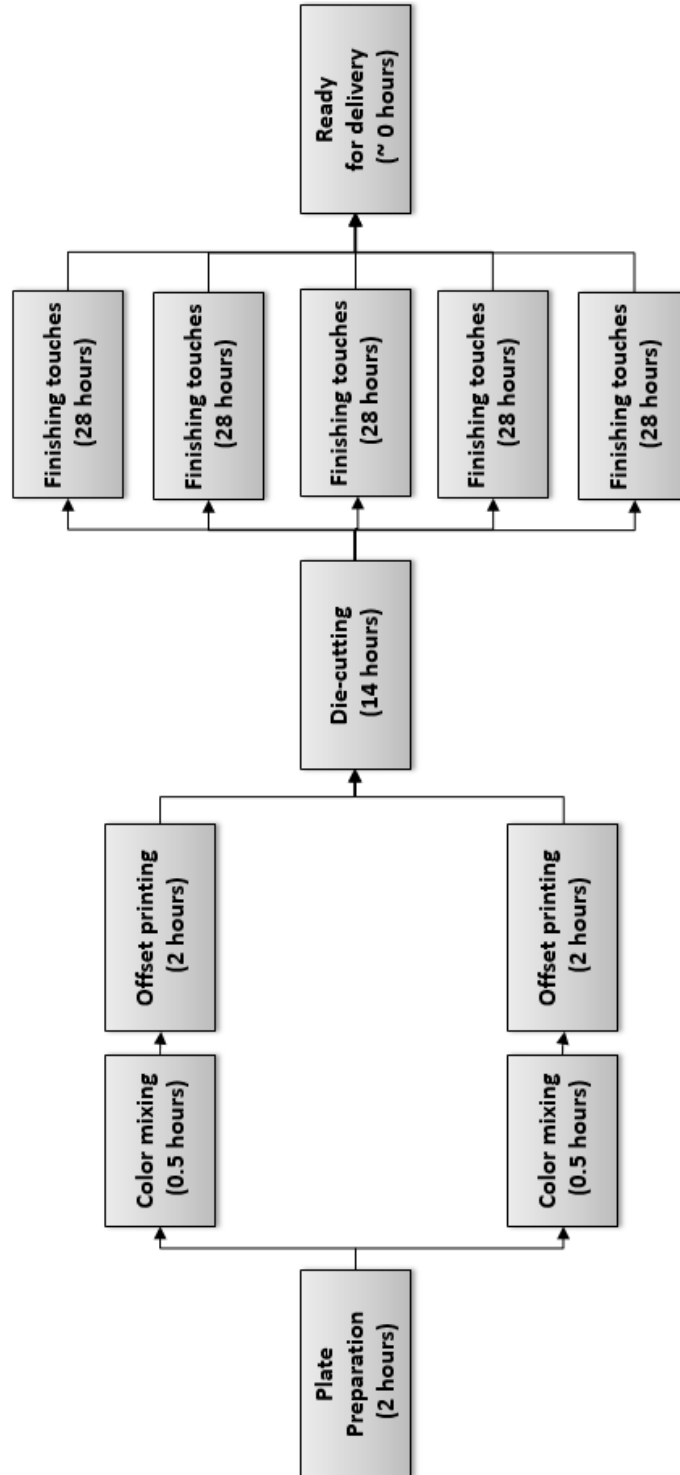
**Table 3** Employee work schedule

	<i>Time</i>
Morning operations schedule	9am–12pm
Lunch break	12pm–1pm
Afternoon operations schedule	1pm–6pm

The company had the following equipment in their facility: one plate creation table, one dark room, two tarpaulin machines, one photocopier, two offset printing press machines, three vertical letter press machines, two single cutter machines and one die-cut machine. Their printing operations for the cigar cover paper printings were as follows (see Figure 2):

- *Plate preparation* was the first step. Once an order had already been placed for a plate to be prepared. Each order required one plate and it normally took two hours to complete. For more than one order of the same product, the use of the same plate could be done since the design and layout would just be the same. Only one skilled worker performed this task.
- *Colour mixing*: the next step after preparing a plate was the mixing of the colours of the ink that was to be used for the design of the order. The colour mixing process took around 30 minutes for completion per offset printing. It required the skilled worker that accomplishes this step. Since there were two offset printing machines, one skilled worker could be utilised for each machine simultaneously.
- *Offset printing*: after ink colours were mixed accordingly, the plates were installed to the offset printing press machines for mass printing of the products. Normally, the offset printing press machines needed to be warmed-up before start the printing. The two skilled workers were the ones that monitor the proper printing of the offset printing machines and intervene whenever they noticed any error. One order can be completed by each offset printing press machine in two hours per machine.
- *Die-cutting*: the company used a manual die-cutting machine. One non-skilled worker was tasked to be the one to use the machine to press and cut the printed products for them to be shaped accordingly. Each die-cutting task took around 14 hours to be completed for one order.
- *Finishing touches*: the final step for the production was the finishing touches process. This process was where all the customisations or added requests of the client comes into completion. In the case of the cigar paper-based prints, an additional government warning sticker still needed to be attached to each piece in the order. Five non-skilled workers were stationed in a common area to accomplish the finishing touches processes. It took an average of 28 working hours for an order to be completed in this task per person.
- *Ready for delivery*: once production had been complete, the orders were stocked and was either delivered to the client or was picked up by the client from the office depending on their agreed upon time.

Figure 2 Cigar printing process workflow





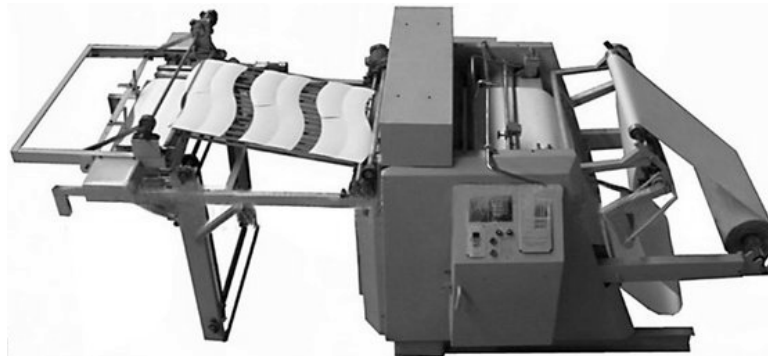
## 5 Before moving to the future

Mr. Stephen So had to run the whole operations of Millennium Printing Press in 2012. Originally, he was tasked to handle the marketing operations of the company and ensure good public relations of the company with its customers. Before his dad had passed away, Stephen would go to each and every one of their major clients to make sure that the products that they deliver are of superb quality and at the same time provided other solutions that their major customers might need. The situation was changed rapidly in 2013 and Stephen could no longer afford to visit their major customers one by one to ensure customer satisfaction because he had to monitor their business operations in their office daily.

**Table 4** Millennium printing press income statement

	<i>Millennium Printing Press</i>	
	<i>Average income statement</i>	<i>Average income statement</i>
	<i>January 2010–December 2012</i>	<i>January 2013–June 2013</i>
Sales (PH)	1,035,610	363,210
COGS	673,146.5	236,086.5
Gross profit	362,463.5	127,123.5
Operating expenses	207,122	72,642
EBIT	155,341.5	54,481.5

**Figure 3** Linghang 9060 automatic flat die cutting machine and punching machine



Stephen believed that the company had to improve their turnaround time to level with their competitors. The performance of the sales had already declined at a critical level for the first six months of year 2013 (see Table 4). Stephen believed that the decline of 65% could still be turned around if they were able to improve the bottleneck of the operations which was not even determined yet. He knew that the demand of the paper-based package printing was still gradually increasing and could be captured by the company if they could operate efficiently to cater the demands of customers. The dilemma of Mr. So was identifying the inefficiency in their operations and creating the necessary changes for improvements. He needed to figure out what to do with the company in order to maximise the potential of the company. He was currently open to any option on what he

has to do or to change to improve the company operations. Before move on to the next step, he was facing the following critical questions for the printing operations:

- The existing printing press operations were well managed?
- How to control the orders during the peak seasons?
- What would be the options to improve the existing operations?
- Using the auto die-cut printing machines instead of manual die-cut machines was effective for improving the existing operations?
  - 1 One of candidate is 9060 full automatic cutting machine by Wuhan Linghang (Alibaba, 2014) which was capable to handle 10,000 papers within an hour (see Figure 3).
  - 2 How many auto die-cutting machines are required to be purchased?

## 6 Conclusions

The case emphasises the importance of identifying the correct problem and it is good for the case discussion materials of the operation management courses. The complexity of the process is similar with the classic operation management case (Bohn, 2006) but the situation is based on the real company situations. In 2013, Millennium Printing Press Company wanted to fine the operation status of the existing printing process. Currently, the customers have been demanding for a faster turnaround time for their printing orders for the paper-based cigar package printing. Understanding the process and knowing how to analyse the process are one of key criteria for operations managers. It had been also important for Mr. Stephen So to make the correct decision-making of his business. He must be able to make the correct conclusion to decide on what changes would be implemented to the operations. The whole printing process could be framed based on the operations logic (Table 2) and the process flow analysis (Stevenson, 2010) which is the basic tool for the operations management could be applied to deliver the effective decision-making.

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*The case for operational management: Millennium Printing Press Company 275*

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