How To Train Hospital Management In Reducing Inventory Cost With Lean Canvas

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Abstract: In this article, we introduce an inventory cost reduction technique for hospital using lean canvas. With this technique, we show that it is possible to train management in implementing this method effectively. We believe that a proper training implementation can improve lean canvas skill in reducing the inventory cost, which in turn increase financial output of the hospital as well as promote a unique value proposition for the customers.

Index Terms: Lean Canvas, Inventory Cost, Lean Training, Hospital Management, Value Proposition

1. INTRODUCTION

Inventory cost (IC) is the percentage of hospital budget that should be minimize to increase the financial output of the hospital. The amount of IC is affected by many factors. In fact, service quality seems not to have a significant impact on IC, showing that some parts of IC are unwanted waste [1]. Many methods have been developed to control IC. Some methods proposed are business management by adjusting the relationship between the organization into horizontal, especially in a bad logistic service infrastructure[2]. Other method ensures the demand since the accurate demand signal determines the inventory needed to handle the demand [3]. There is also risk aggregation method by managing the inventory in such a way that it is distributed to several locations according to the risks of each location [4]. However, those are cross-organizational methods and involving wider space to implement. In this article, we introduce lean canvas method to control IC in hospital. Moreover, we offer financial management training method for managers, so that they can implement lean canvas method to control IC in hospital.

2. CONTROLLING INVENTORY COST USING LEAN

Lean is an approach derived from Toyota operating system by James Womack and Daniel Jones [5]. Womack and Jones [5] called it as lean production, referred to the focus of approach on production. It focuses on value creation with less work by increasing efficiency and effectiveness from organizational process and structure [5]. Womack and Jones [5] formulated five principles of lean as follows: (1) specifying the value expected by customers, (2) identifying value stream from each service provided by the organization, (3) making the service flows continuously, (4) standardizing the process based on the best practice, and (5) providing free time for creativity and innovation. Even though it is derived from manufacture industry, lean can be implemented in health care sector [6]. Womack and Jones [5] stated that it is a misconception that lean can only be implemented in the context of manufacture. By implementing this principle, Womack and Jones [5] believed that organization can improve the expected output. For hospital, it means improvement on health care quality, customer satisfaction, safety, work efficiency, and performance. The focus of lean method is eliminating the existing waste within the organization [7]. The first step is to identify any types of waste from the process in the organization, then take some ideas to reduce it which is implemented through a sustainable operating practice and improvement. There are seven categories of waste, which are overproduction, lead time, transport, process, inventory, motion, and correction [8]. IC is a type of waste from lean perspective. Therefore, lean means an improvement to the process which can be led to IC reduction [9]. By implementing lean, the process can run smoothly, reduce costs, minimize waste, improve quality, and satisfy customer, as well as improve health care provider and staff [8]. In terms of industry, lean has reduced inventory between 60-90%, while in terms of health service, a study in Virginia Mason Medical Center showed inventory reduction by 53%, equal to $1,350,000 after two years of implementation [8].

The step taken by lean to reduce waste in general is by implementing solutions optimizing the works which then standardizing them by maintaining the flowing stream according to the pull system based on demand[10]. Particularly for reducing inventory, the general solution is just-in-time, in which inventory is only made when there is demand from the customer. As a solution, just-in-time can be taken after some consideration on many situational factors. There are more common techniques to put possible solution into a frame to reduce IC. One of the common techniques to reduce IC is Lean Canvas (LC). LC is the development of Business Model Canvas (BMC) developed by Osterwalder, Pigneur, & Clark [11]. BMC is a white board consisting of several segment to display the overall business review [12]. BMC consists of key partners, key activities, key resources, customer relationship, channels, customer segments, cost structure, and revenue streams [11]. BMC basically is description of value offered by organization at one or more customer segments and company architecture and its network partner to create, market, and deliver value and capital to produce beneficial and sustainable revenue stream [13]. Figure 1 shows a BMC structure.

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Maurya [14] developed BMC into LC with the reason that BMC only focuses on stable companies. LC changes a number of components of BMC so it is oriented more to the problem. In LC, key partner is replaced with definition of problems, key activity with description of solution, customer relationship with unfair advantage list, and key resource with key metrics [13]. Through this way, it is possible to solve problems of IC control using LC. Figure 2 shows LC illustration.

LC allows IC to be controlled by identifying IC problems in hospital such as specific cost items that should have not increased or reduction of one particular IC component (box 1). After IC problems are known, identification of target consumer is conducted, in this case is patient and supplier (box 2). The target is drawn from consumer perspective by designing a value proposition to the consumer (box 3). This target is an illustration when the existing IC problems have been resolved. Further, brainstorming is conducted to find out the solutions to problems in order to achieve the value proposition. The solutions are written in box 4. Afterwards, advantages for the hospital are considered based on the achieved value proposition (Box 5). Next, revenue stream from the consumer is predicted in box 6 and the incurred costs is placed in box 7. By doing this, the solutions can be compared whether they are beneficial or not. The next step is making an implementation plan by determining key activities to improve the process (Box 8). The results of the correction perceived by the consumer are filled in Box 9.

3 LEAN TRAINING

Lean implementation requires leadership, top-down commitment, persistence, and bottom-up implementation [15]. Ideally, this implementation is conducted holistically rather than segmented [5]. However, segmented implementation could be the starting point to successful role model and motivation in order to achieve implementation for a greater project. An adequate training is an important factor to gain the effects of lean since it allows efficient process [16], [17]. By training, personal and professional skills required for implementing lean can be achieved [15]. Yet, training always comes with challenges. Studies reveal that about 40-50% of planned activities in training have never been performed or only partially performed during the implementation [18]. Therefore, training should not only provide knowledge and skills, but also preventive actions to the problems in the field. The method known for its best effect is training with coach intervention. This intervention includes consultation, observation, and coaching [15]. Before conducting training, pre-course briefing of the overview and discussion on training results implementation in the field, need to be carried out [15]. During briefing or closing of training, each participant is expected to have new roles which are clearly communicated so that they have target to be achieved. Based on the study conducted by Aij et al. [15], it is known that lean training needs interpersonal interaction where goals and aspiration are shared, experiences are discussed, and working practices are demonstrated. Demonstration is important since lean tools can only be learned through real implementation of the process or ‘learning by doing’ [19], [20]. The implementation should be conducted during day time because it allows better concentration of the participant. Training resources are required to ensure successful training. It includes staff, time, and financial support [15]. Those are important to design lean training, including how to implement lean canvas to reduce inventory cost. In this case, reduction can be carried out by providing training with curriculum: basic knowledge on lean and lean canvas, demonstrating lean canvas implementation on one example, exploring inventory cost problems, preparing lean canvas on inventory cost, and preventing the possible obstacles faced during implementation. Training session is ended with giving responsibilities to each participant over their results from lean canvas. The framework connecting inventory problems and customer by involving training is shown in Figure 3. In this framework, inventory cost problem has led the hospital to invest on training resources such as staff, time and budget. The result of this training is knowledge about lean canvas and personal and professional skills to implement it. In line with this fact, bottom-up implementation will be carried out. A successful implementation leads to inventory cost reduction. This reduction is then used as unique value proposition of the hospital. This proposition is channeled to customer segments in order to improve the sustainable competitiveness of the hospital.
4 CONCLUSION

In conclusion, to the best of our knowledge, this is the first time that lean canvas is implemented in the context of inventory cost reduction in literature. With only a few of lean canvas implementation in the context of hospital and the urgent needs to reduce hospital inventory cost, this article addresses to fill the gap of literature and it is expected that it could be used as a richer discussion topic related to this issue as well as to improve understanding on hospital inventory cost reduction.

5. REFERENCES


