Design and Implementation of Hotel Operations Platform: A Study on Selected Hotels in Phuket

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Received: July 23, 2021; Revised: August 22, 2021; Accepted: August 30, 2021

Abstract

This business process improvement research is originated from the current situation in the hotel operations located in Phuket province has various areas for improvement. The DMAIC method is used as a vital improvement methodology, which consisted of defining phase, measurment phase, analysis phase, improvement phase, and control phase. Several analysis tools and data collecting techniques were applied to fulfill the target in each phase. The defining phase has service blueprint, check list, and pareto as the analysis tool along an interview session. Ten employees of the focal organization had participated in the interview during the defining phase. Time-function mapping and voice of customer (VOC) were used during the measurement phase with the observation technique. The cause-and-effect diagram was used in an analysis phase. For the Improvement phase, time-function mapping, lean thinking, and ECRS method were supported by observation and brainstorming techniques. Lastly, standard operating procedures (SOPs) and key performance indicators (KPIs) were used during the control phase. Moreover, these theories have been implemented at the focal hotel as a case study of the design and implementation of the hotel operations platform. The key issue for this business improvement research is to replace the non value added activities in the work process with the IT system. Lastly, this research has provided the results of the improvement including the results from the implementation, the project's reflections, and limitations.

Keyword: Business Process Improvement, Hotel Operations Platform, Phuket

Introduction

The focal organization is an upscale full-service beach resort located in Phuket and was established in 1987. The hotel offers accommodations, dining outlets, guest services, and recreation activities as well as meeting facilities. More than thirty years of hotel operations, the hotel has lots of returning guests every year. Because of this, the services provided need to be right for the first time and every time and to avoid the complaint of service inconsistency. In the meantime, to wow the guests on special occasions such as birthday, honeymoon, anniversary or to recognize the guests as VIP or loyalty guests are necessary to do so. However, the organization has realized that there are some obstacles along with its day-to-day operations. So, key work processes that directly relevant to the guest' s experiences need to be revised and improved to ensure smooth services are provided promptly.

In the hotel's business processes focusing only stay-over purpose, it is consisted of 5 phases to function the operations from beginning stage to the end as depicts in figure 1 which involve with various departments in terms of guest-contact (Sales, Reservations, Front office, Housekeeping, Food and Beverage services, Security, Guest's activities, Spa) and non-guest contact (Kitchen, Engineering, Information Technology, Purchasing, Human Resources and Total Quality Management).

Figure 1 Guest's experience journey

According to the labor-intensive nature of this hotel operations, there will be both permanent and outsourced staff (in some areas–security guard, gardening, limousine services) to ensure staff coverage in all areas. Under this condition, the hotel management may face the difficulty to control the standard of service delivery, which can be resulted in increasing times of human error and decreasing level of guest's satisfaction.

Business process improvement is an approach to increase the effectiveness and efficiency of business processes that provide output to internal and external customers (Zellner, 2011). DMAIC methodology, as shown in figure 2 is a process improvement cycle of Six Sigma (Hung & Sung, 2011). Its strength is to form the process standardization (Jacobs, Chase, & Aquilano, 2009), eliminate error and improve efficiency by identifying and implementing improvement that can uplift the products and services provided from all functions (Karout & Awasthi, 2017).

Figure 2 DMAIC Roadmap

Shokri (2017) defined Lean management that it was widely recognized as a Business Process Improvement strategy, which helps the organization reducing the high-cost impact. It is also known as the technique to remove the waste by every member of the organization through the values stream. The goal of Lean management is to aim for customer satisfaction and profit generation. 7 wastes of lean includes overproduction, inventory, motion, transportation, over-processing, defects, and waiting time. Referring to the content from Faculty of Science,

Srinakharinwirot University (2015), lean thinking can separate the production process into three types such as Value Added (VA), Non-Value Added (NVA), and Necessary but Non-Value Added (NNVA). Value Added is defined as what the customers willing to pay for it or the activity is designed and done the first time correctly; Non Value Added is considered as waste or unnecessary activity that causes awaiting, defect, overproduction, even unnecessary inventory. The key to lean thinking is to find which event is categorized as NVA or NNVA. Activity with NVA should be taken out from the process flow while the team should consider the best solution to saving cost and time to keep the same of the end result for NNVA activity.

Time-Function Mapping is a type of process map that illustrates how the transaction flows through each functional area with time adding on the horizontal axis. Moreover, this tool helps to identify and eliminate unnecessary steps or reduce lead-time (Labach, 1991). Time-Function Mapping provides a simple method to understand the current performance and help to seek for the room for improvement in terms of removing waste and remaining only core activities (Zhan, 2016).

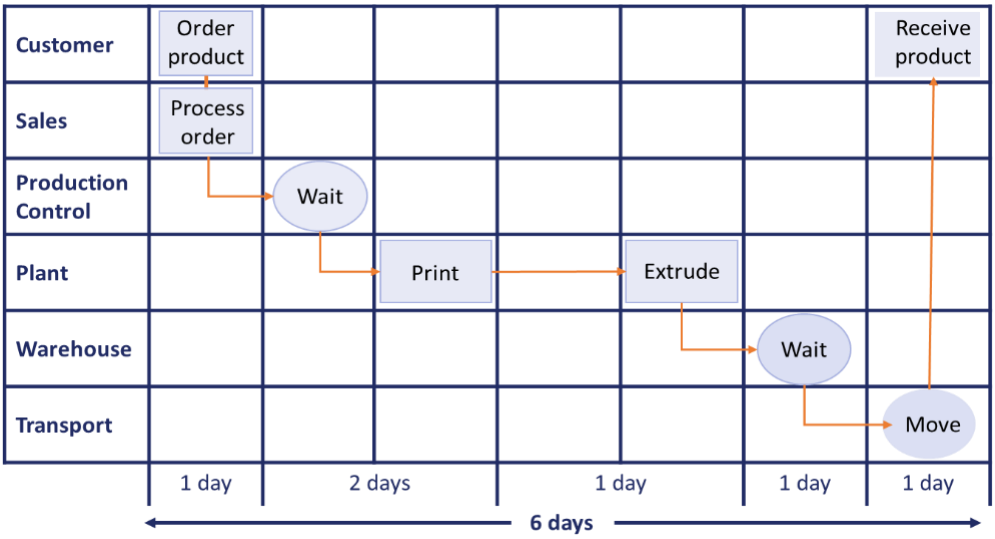

Figure 3 An example of Time-Function Mapping
Adapted from (Edwards, 2016)

ECRS is one of the productivity techniques to improve production lines which consist of four principles such as E-Eliminate unnecessary work; C-Combine operations; R-Rearrange the sequence of operations; S-Simplify the necessary operations (Kasemset, Pinmanee, & Umarin, 2014). Figure 4 shows to understand how each term of ECRS represents and what output needed to meet these factors. Narayana Rao (2021) emphasized that these four terms can be used at the level of process analysis, operation, and proper motion and with all types of business. Suhardi,

Anisa, and Laksono (2019) cited that the principle of ECRS is quite flexible in applying in every function for improvement purposes. The critical point when analyzing the ECRS is to choose the right level of detail depending on job function and the duration of the operation involved.

DMAIC method is used a development framework, which is consisted of Define, Measure, Analyze, Improve, and Control. Several analysis tools and data collecting techniques are applied to fulfill the target in each phase. The Define phase has Service Blueprinting, check sheet, and Pareto as the analysis tool with the interview session. Time-Function Mapping and Voice of Customer (VOC) are used during the Measure phase with the observation technique. The Cause-and-Effect diagram is used for the Analyze phase. For the Improve phase, Time-Function Mapping, Lean Thinking, and ECRS methods are supported by observation and brainstorming techniques. Lastly, Standard Operating Procedures (SOPs) and Key Performance Indicators (KPIs) are used during the Control phase.

Research Objectives

Hotel operations can be separated into two primary functions–front end and back end. Front Office, Housekeeping and Food and Beverage departments are key areas of the front of the house while the Engineering department performs those back-end functions. According to the daily operations' observation and customer complaints, it is found that the current processes of Front Office, Housekeeping and Engineering department have crucial roles towards hotel operations with a high impact on the guest's experience. So, priorities for this operational improvement plan are listed as follows.

1. Task dispatch during pre-arrival and in-stay: there is no real-time guestroom status to share among relevant parties. The Front office team does not know which room is ready to release for guest check-in after Room Attendants making up the room or technician fixing the in-room facilities. Also, Room Attendants and technicians do not know which room is released for cleaning or fixing. On top of this, there is no tracking system to support the guest's preferences. The operation's team, mainly for the Housekeeping and Food and Beverage Service team, will never know whether the products or services are delivered to the guest until receiving complaints or second reminder from the guests. Current workflow employs manual phone call and paperwork for these tasks.

2. Problem and complaint analysis from in-stay and post-stay: manual logbook is used to record the problem, complaint, or incident in the hotel that is not efficient when doing monthly or yearly analysis for further improvement. A respective departmental coordinator has recorded those entries into the excel file for a summary. However, there is no evidence to see trending analysis by any statistical tool. Not only to increase the workload for an assigned person but the human error, inaccurate data usually are the obstacles also. However, other day-to-day issues are monitored by the respective departments.

The research objectives of this research is to reduce the working process and increase operational performance by redesigning related processes of task dispatch and workload allocation by implementing the hotel online operations platform to managing hotel's guest experience.

1) To analyze the current situation and root cause of each area for improvement.

2) To design the improved work processes by hotel operations platform for key departments.

3) To implement a hotel operations platform and sustain the practice.

Research methodology

Table 1 describe analysis tools during each step of the DMAIC process. For primary data, it consists of an interview with 4 management and 6 employees in both corporate functions and hotel site from selected departments related to the focal point of these business processes that much concerns about the internal issues; the brainstorming among the working team who involved in the improved process; and observation for acquiring the result of improved process duration including for the ensuring the consistent execution of the improved process. Besides, Secondary data is collected from the hotel guest's feedback channel, which can discover both reviews available in online sources and the internal surveys that sent out automatically to the guest's email after checking out. On top of this, the performance of the process improvement will be compared by using a term of before and after. In before stage, related questions from the internal survey and similar online review are collected in 2019. On the other hand, the data for after stage will be collected with the same survey question and the same category of online review to be compared.

Table 1

DMAIC with analysis tools related to hotel operations

Phase	Tool used	Justification of usage
Define	Service Blueprinting	To gain information on problems based on the standard sequences of hotel operations
	Check-sheet	To summarize the issues counted from the interview in numeric term
	Pareto	To prioritize the issues from the results of the check sheet
Measure	Time-Function Mapping	To identify all sequences in the 'as-is process' and measure the time spent to further improvement
	Voice of Customer	To measure how many complaints from online review and internal surveys occur related to the concerned area
Analyze	Cause-and-Effect diagram	To find the right area for corrective action
Improve	Time-Function Mapping	To outline the 'to-be process' to see an opportunity for improvement through Lean thinking and ECRS method
	Lean thinking	To consider which sequence of process needed to maintain or improve by identifying its values as value, non-value added, or necessary, but non-value added
	ECRS	To provide a specific way for improvement for the process sequence of non-value added and necessary but non-value added
Control	Standard Operating Procedures (SOPs)	To align the current practice with the written standard according to the change of work instruction
	Key Performance Indicators (KPIs)	To set the criteria of measurement to ensure guest satisfaction is met or reduce the number of complaints of the focus issues

In order to focus on the right area for improvement, both analyses are included in one diagram as depicts in Figure 4 to see the entire factors impact the major's hotel complaints.

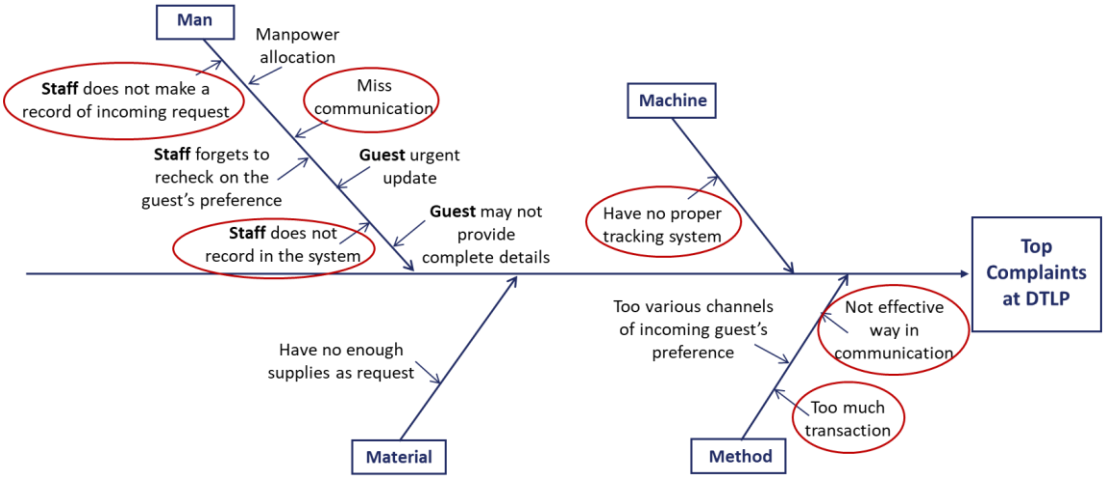

Figure 4 Customer complaints through a summary of Cause-and-Effect diagram

Each activity in this Housekeeping process flow will be defined as its value status first in order to know which one the working team should take action with. So, the Lean Thinking concept with the ECRS technique is applied as depicts in Figure 5.

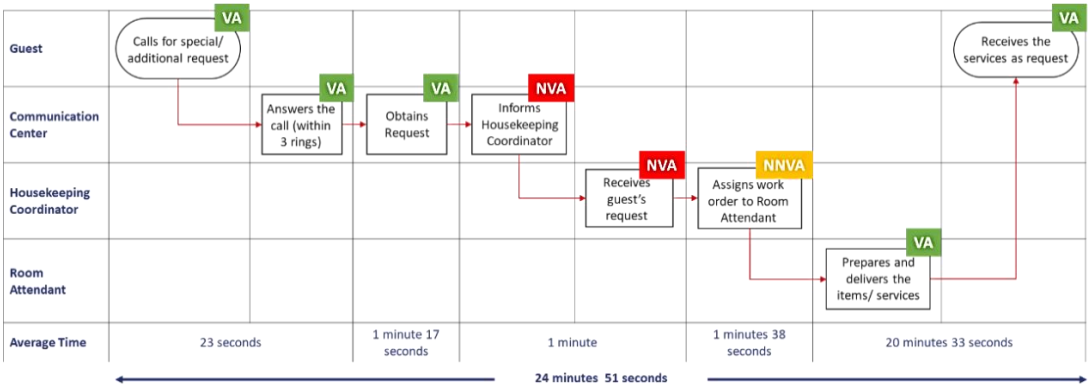

Figure 5 Lean thinking with the 'deliver as request' process by Housekeeping

Value-added (VA) activities are the essential parts that related to the guest who be aimed to fulfill the service touchpoint. So, those VA activities should remain. However, the first three steps of VA activities can be simplified to more efficiency by connecting the guest with the hotel operations platform. It is the hotel limitation of developing IT infrastructure as well as the guest's behavior that gets used to the traditional calling.

The ECRS technique will be applicable to the Non-Value Added (NVA) and Necessary but Non-Value Added (NNVA) activity. Therefore, three activities are revisited as following.

- Inform Housekeeping Coordinator (NVA) and Receive guest's request (NVA). These sequences are created to link between Communication Center and Housekeeping Coordinator to transfer the message of the work order. However, there is no value from these interactions. Not only no value-added, but there is a potential to create human error between these sequences also. Therefore, these two processes are perceived that they can be eliminated or replaced by the system to shorten the interaction without effect to the result.

- Assign work order to Room Attendant (NNVA). Instead of the work order is assigned by the Housekeeping Coordinator, it can be rearranged to be the control of the IT system. As it is still considered a necessary process, but the method to use is not created any value. So, the technique to arrange the process to be smoother is quite an exciting option.

As Room Service has no representative of the team to receive the call on a daily basis like Housekeeping Coordinator position, the work order is directly sent to Room Service from Communication Center. It results in only a few Non-value added activities as illustrates in Figure 6.

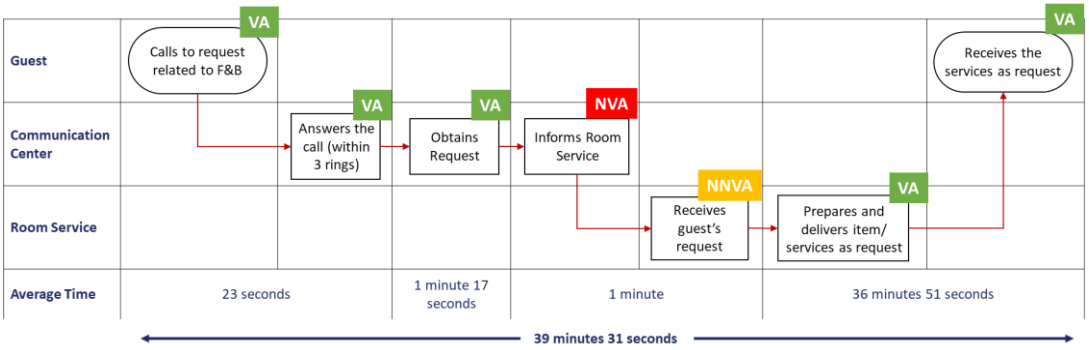

Figure 6 Lean thinking with the 'deliver as request' process by Room Service

Most of the activities are classified by Value added (VA) which will be remained to exist in the process. For the Non-Value added (NVA) and Necessary but Non-Value added (NNVA) activities are managed as the following options.

- Inform Room Service (NVA). This process helps the work order that is requested by the guest sending to the Room Service through the Communication Center. It creates no value-added as it can be eliminated when there is another substitute replaced.

- Receive the guest's request (NNVA). It is still a necessary activity as if no one receives the work order, how the team can know what the coming guest's request is. However, the process can simplify by changing the way to receive the work order from by calling into text form via the IT system.

The above content is summarized into table form as creates in Table 2.

Table 2

Summary of NVA and NNVA activities with ECRS concept

Activities	Lean Thinking	ECRS Concept			
		Eliminate	Combine	Rearrange	Simplify
Housekeeping					
Inform Housekeeping Coordinator	NVA	√			
Receive guest's request	NVA	√			
Assign work order to Room Attendant	NNVA			√	
Room Service					
Inform Room Service	NVA	√			
Receive guest's request	NNVA				√

Results

The new process flow is designed as depicted in Figure 7. The change is no touchpoint with Housekeeping Coordinator and having the IT system carried out for the new hotel operations platform.

The new IT system is an online web based and mobile application to support the major hotel operations such as Front Office, Housekeeping, Engineering, and Call Center. Due to the various features of software application, it provides solutions for hotel operations, which consist of Housekeeping workflows, a task dispatch, guest preference, defect reporting, including incident log.

In this context, only task dispatch feature will be used to support the new improvement plan.

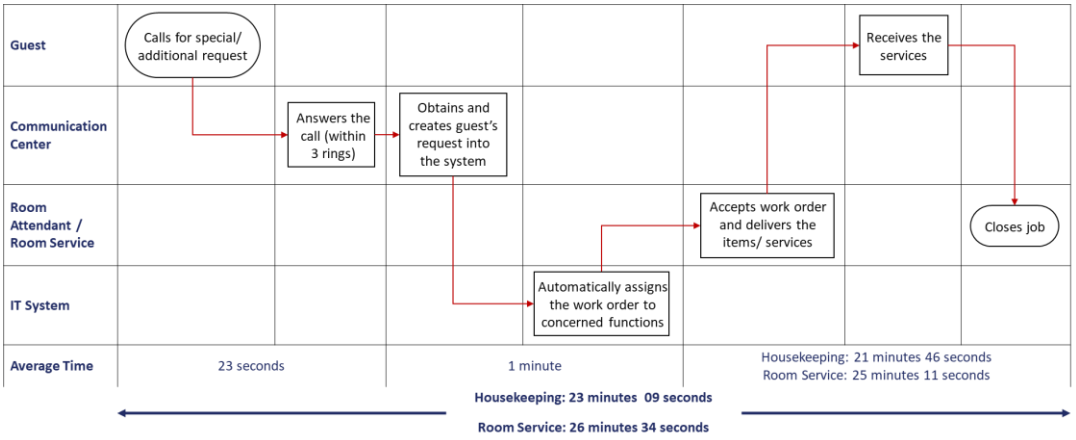

Figure 7 Improved process of 'deliver as request' process by Housekeeping and Room Service

The trial period is started from 01 June to 31 July 2019. The progress of this new improvement plan is observed a totally 10 days from 24 June to 03 July 2019. Also, there are 212 and 23 request's records for Housekeeping and Room Service respectively. The guest still has to call to the Communication Center for making a request. Then, the staff who is answering the call will assign the guest's request into the IT system with the details inside. The system will automatically match the request with the stand by staff in respective departments and assign directly by having Housekeeping Coordinator, for example, to monitor the request and the progress. Once the message is alert to the staff's device, the staff must accept the work order. In the meantime, timing in handling the work order is counting. The staff (Room Attendant or Room Service) can close a job when the guest is already received as request. As a result, there is no more manual work order assigned; the error to assign the task is reducing; including the time is controllable time which means each staff's productivity can be tracked from the system. The result of an improvement depicts in the following table.

Table 3

Comparison in Time consumption between before and after improvement

	Before improvement	After improvement	Differences in Time
Housekeeping	24:51 minutes	23:09 minutes	01:42 minutes
Room Service	39:31 minutes	26:34 minutes	12:57 minutes

Discussion

This business process improvement research has applied the concept of several related works of literature including Zellner (2011), Hung and Sung (2011), Jacobs et al. (2009), Shokri (2017), Labach (1991), Zhan (2016), and Kasemset et al. (2014). The hotel operations platform development including no touchpoint with the housekeeping coordinator and having the IT system carried out for the new hotel operations platform. The new IT system is an online web-based and mobile application to support the major hotel operations. During the trial period, it is found that time consumption has reduced to 1:42 minutes and 12:57 minutes for the housekeeping and room service respectively. Moreover, the total item requested in Housekeeping and Room service during June and July dropped from 652 requests to 587 requests for housekeeping and 186 requests to 115 requests for room service respectively.

Conclusion

After the hotel operations platform is carried out, the service delivery time of Housekeeping and Room Service for the 'deliver as request' process is expected to be within 15 minutes and 20 minutes, respectively. It is expected that having the timestamp of the service delivery will enhance the staff more productive and aware more about time management. Consequently, it is found that the overall housekeeping performance in June and July is still in the control range. On the other hand, Room Service needs more improvement in delivering the services to the guests upon request. The total item requested in Housekeeping and Room service during June and July dropped from 652 requests to 587 requests for housekeeping and 186 requests to 115 requests for room service respectively.

Suggestions

Firstly, the researcher has gained both broad and in-depth knowledge related to Business Process Improvement methodologies besides the fundamental one like PDCA. Moreover, the researcher is aware more about the selection of BPI tools and data collection techniques to match with the DMAIC method. For example, besides the general flowchart, the researcher can discover the method of the Swim Lane diagram. Also, the ECRS method to apply to the Lean thinking concept. In addition, the researcher can understand how to construct the proper IS project in terms of what should be consisted of, what is essential details, and develop the way of systematic thinking that can well apply in the career path. It is a good opportunity to have the appropriate quality tools in place, although these quality matters towards Corporate staff even or the hotel level are perceived as complicated things. Once the project run on after a few months, the working team can realize to its advantage that having suitable tools can lead them in the right direction and decision- making. For example, the Six Sigma method has been introduced to the corporate project's team members. In the beginning, it is a big issue for the

hotel people who have limited background on quality knowledge. However, it is gradually better when the project has run based on quality logic.

Secondly, the hotel operations have run smoother due to having the new IT system in place. Each work order has recorded to trace and track through the real-time system support, which helps to save the time for manual tracking and preventing the human error

Finally, this project can be a fundamental guideline when the focal hotel team wants to expand the scope of business improvement initiatives by using the same concept of quality improvement with other work processes in respective departments in the hotel.

Future research should focus on the full-range business process improvement along the customer journey, pre-arrival, arrival, in-stay, departure, and post-stay, to arrive at a better level of satisfaction. The improved business process shall be extended to all branches of the hotel chain to make a consistent service. Moreover, digital technology shall be applied according to the result from the analysis to advance guest experience during their stay.

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