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Tanti Octavia

Creating Value Stream Mapping for Process Improvement on
Human Resource Function : an Industrial Case Study

Asst.Prof. Supaporn Kiattisin, PhD.
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The 3rd Technology Innovation Management and Engineering Science International Conference (TIMES-iCON2018) will be held in Bangkok, Thailand, December 12-14, 2018. The TIMES-iCON2018 will be the most comprehensive conference focused on management, innovation technology and information technology covering the research areas of the digital economy, digital society, digital healthcare, digital organization, digital country, digital government and digital transformation. **All accepted papers are expected to be included in IEEE Xplore and indexed by EI.** Also selected papers are encouraged to extend and publish in ITMSOC journal or Journal of Global Business Review.

The TIMES-iCON2018 will be held in Bangkok, Thailand, on December 12-14, 2018. Bangkok is a capital city in Thailand. It is a center for tourists who will go and connect to other city. Bangkok is the city integrated between the part of old and new city which many interested places for the tourisms such as Wat Phra Kaew, The Grand Palace, Sanam Luang, Chao Phraya River, Khao San Road, Bangkok Chinatown Yaowarat, Chatuchak Market, Train Night Market Ratchada etc. The organizing committee is pleased to invite all researchers to attend the conference. The topics for regular sessions include, but are not limited to, the followings:

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- Behavioral Sciences and Communication Studies
- Other related fields
- Thai Track

Keynote Speaker

5G and Digital Transformation**Dr. Pheeradej Na Nan**

Board Committee of Ph.D. Program, Information Technology Management (ITM), Faculty of Engineering, Mahidol University

Abstract: Nowadays, digital transformation reshapes our life and the customer journey in every industry. The fifth generation (5G) mobile network is about to accelerate this digital transformation.

Innovative digital services will require great demand from the next generation mobile network. To meet this demand, 5G use cases are generally classified into three categories: enhanced mobile broadband (eMBB) supporting extremely-high resolution video that beyond the current connection speed; massive machine type communication (mMTC) which will be required in connecting low speed with massive number of the Internet of Things (IoTs); and finally ultra-reliable low latency communication (URLLC) for efficient facilitation of latency-sensitive applications (such as autonomous vehicles, remote surgery, public safety and manufacturing robot).

5G is able to bring forth a unique network that can deliver all these varied requirements. This necessity is changing network architecture and allows for cooperation with advanced network paradigms such as network slicing, control-and-user plane separation, edge computing and virtualization of radio and core elements. With the introduction of a multitude of new complexities, many network elements that need to work together can do so with the aid of 5G technology.

Digital native enterprise is an organization that's capable of developing its operations and business innovation at a faster rate than a traditional enterprise is capable of. As the future of business landscape continues to change, it will be essential for organizations to transform into a digital native enterprise by using platform technologies and streamlining their business processes to become an excellent digital enterprise in this coming 5G era.

In this keynote session, we will have a discussion about opportunities and challenges for an enterprise to digitally transform their business through 5G technology. If an organization delays its digital transformation, the business opportunity might be lost.

Biography: Dr. Pheeradej Na Nan

- - Board Committee of Ph.D. Program, Information Technology Management (ITM), Faculty of Engineering, Mahidol University
- - Honorary Counsel, CIO World and Business Magazine
- - Contributing Editor, Strategy and Marketing Magazine
- - Invited Digital Technology Speaker in listed companies
- - Technology Columnist on Digital Technology and Strategy (more than 600 published articles)

PROFESSIONAL EXPERIENCE Selected Invited Talk and Columns on Digital Technology

- - Invited Speaker, "5G Strategy for Thailand," Chulalongkorn University, 2018
- - Invited Speaker, "Disruptive Technology: AI, IoT, Big Data, Blockchain and 5G," National Engineering 2018
- - Invited Speaker, "Digital Transformation Strategy," Suthichai Live, 2018
- - Invited Speaker, "Trends in Wireless Intelligent Connectivity for Digital Society," The 5th International Workshop on Smart Wireless Communications (SmartCom 2018), The Institute of Electronics, Information and Communication Engineers (IEICE)
- - Invited Speaker, "5G and Digital Transformation," The Annual Seminar: IT Trends 2019, Dec. 2018
- - Invited Speaker, "Disruptive Technology: IoT, Big Data and Artificial Intelligence," National Engineering 2018, Nov. 2018.
- - Invited Speaker, "Digital Transformation for Private and Government Sectors," 2018
- - Invited Speaker, "Digital Transformation for Graduate students," 2018

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Creating Value Stream Mapping for Process Improvement on Human Resource Function: An Industrial Case Study(Conference Paper)([Open Access](#))

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Abstract

Continuous improvement is done on processes of human resource function at PT X which handles employees, the company's important assets using value stream mapping (VSM). There were four prioritized processes. Contact Centre was analyzed that medical status was inquired because of incomplete supporting documents so the list should be provided at medical claim application. Automatic tick for eligible family members for MBA can eliminate the questions. Talent review was improved with an integrated tool for 9-box, succession, movement, and data consolidation. Employee referral process was improved with consolidation of processes and weekly monitoring interview for backlog issue of hold candidates. Employee life cycle execution was improved with reducing number of validations and increasing number of system synchronization. Lead time efficiency obtained after mapping future state for employee contact centre, referral program, life cycle execution was 70%, 21% and 67%. Process time efficiency obtained for talent review was 32%. © 2018 IEEE.

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Creating Value Stream Mapping for Process Improvement on Human Resource Function: an Industrial Case Study

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Abstract—Continuous improvement is done on processes of human resource function at PT X which handles employees, the company's important assets using value stream mapping (VSM). There were four prioritized processes. Contact Centre was analyzed that medical status was inquired because of incomplete supporting documents so the list should be provided at medical claim application. Automatic tick for eligible family members for MBA can eliminate the questions. Talent review was improved with an integrated tool for 9-box, succession, movement, and data consolidation. Employee referral process was improved with consolidation of processes and weekly monitoring interview for backlog issue of hold candidates. Employee life cycle execution was improved with reducing number of validations and increasing number of system synchronization. Lead time efficiency obtained after mapping future state for employee contact centre, referral program, life cycle execution was 70%, 21% and 67%. Process time efficiency obtained for talent review was 32%.

IndexTerms—Continuous Improvement, Human Resource, Value Stream Mapping, Waste, Time Efficiency

I. INTRODUCTION

One of the leading manufacturers of consumer goods in Indonesia and also an affiliate of International Company aims to innovate and improve continuously to increase customer satisfaction. Continuous improvement at the company was not only done on production processes as the core business, but also on Human Resource (HR) function. This function has the task to find the right employee to be placed in an organization, develop and evaluate employees, and also provide welfare needs. The activities under the function are very important because they are closely related to human resources as the valuable assets of company. Based on the company's data in May 2016, HR must handle more than 30,346 employees spread across Indonesia.

The processes carried out by HR function at this company are very varied. There were four processes in HR that are prioritized to be improved. The four processes were employee contact center, talent review, employee referral program, and employee life cycle execution. Employee contact center is the process where HR handles each phone or email that occur every day. Talent review is a process where HR ensures that each individual employee has the right career path. The review

process is conducted through three stages, namely: sub-functions, functions and company. Thus, it takes a long time. Referral program is a process where HR recruits prospective employees through referrals from employees of the company. The number of applicants is very high and should be given certainty rapidly by the HR. Employee life cycle execution is the process where HR change positions, salaries, location of employee. This process involves many stakeholders including an affiliate from abroad. Lean concept is used to improve on these four processes. One of the Lean tools used as a method to see problem is value stream mapping (VSM). VSM is expected to describe the whole process and identify waste or issues. The result of VSM can provide improvement ideas that can make process to become more efficient and lean.

II. RESEARCH METHOD

Lean is a business strategy that is based on the customer satisfaction by providing a quality product or service that suits needs in the right quantities and prices. Sayer and Williams [1] stated materials, equipment, manpower and time used should be at the minimum to achieve. The goal of lean is to build a culture of continuous improvement based on involvement and commitment of all the employees. Lean is also a management philosophy that provides improvement opportunities in terms of quality, cost and lead time. Moyano-Fuentes [2] mentioned the principles of Lean include customer value, value stream mapping, flow, pull, and perfection. Womak and Jones [3] defined the value stream as the set of all the "specific activities required to design, order, and provide a specific product, from concept to launch, order to delivery, and raw materials into the hands of the customer.

Value stream mapping (VSM) is one of lean tools for continuous improvement that describes the process for products and services. VSM helps to develop a common understanding of current process and highlights information for analysis. It defines vision of future process and serves as a goal for future lean activities. Therefore, the main purpose of VSM is to build same objective of every leaders and identifies possible areas for improvement and plans improvement activity.

Value Stream Mapping attempts to identify and eliminate waste in the process. Activities considered waste is a time-consuming activity, but does not add value to the resources of a product or service from the customer's perspective. Seven types of waste according to Lean can be shortened to TIMWOOD comprised of Transportation, Inventory, Motion, Waiting, Overproducing, Overprocessing and Defects. An example of waste in the office for transportation is moving document without changing it. An example of overprocessing waste is duplication of document [4].

In order to indicate the boundaries of VSM mapping, SIPOC charting should be applied. SIPOC stands for (S)upplier, (I)nput, (P)rocess, (O)utput, (C)ustomer. The first step in creating the SIPOC diagram is to make the process boxes. The second step is to determine the output and customer requesting the output. The third step is to determine the input and suppliers who supply these inputs. Supplier is the people, functions, and organizations supplying input [5].

VSM allows many improvement ideas to occur as waste or issues are identified. These improvement ideas need to be prioritized based on resources and time available ideas need to be prioritized based on resources and time available. Prioritization of improvement ideas use effect-effort matrix as seen on Fig. 1.

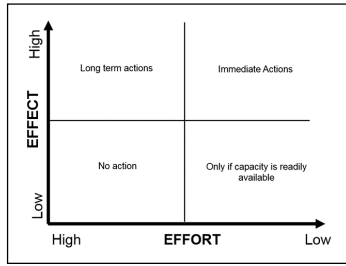


Fig. 1. Effect-Effort Matrix

Figure 1 helps to determine when the improvement idea will be carried out. If the effort needed is low with high effect, improvement idea should be carried out immediately. Improvements under category of high effort and effect are considered as long term actions. Improvements under category of low effort and effect can be done if the capacity is available. Some industrial problems have been solved using VSM. Saurin et al. [6] proposed framework to adopt lean practices in manufacturing cells using an automobile case. Chen et al.[7] attempted to improve the productivity using VSM and kaizen. Byfuglien et al improved Human Resource Management using Lean [8]. In addition, the application of Value stream mapping for administrative and office processes also have been done to eliminate office waste [9].

III. RESULT AND ANALYSIS

A. Employee Contact Center

Operational excellence is the department that acts as contact center for inquiries related to HR matters. There were about 3000 topics asked in contact center via both email and

phone monthly. Data shows that there are various topics about HR matters that need response from generalists.

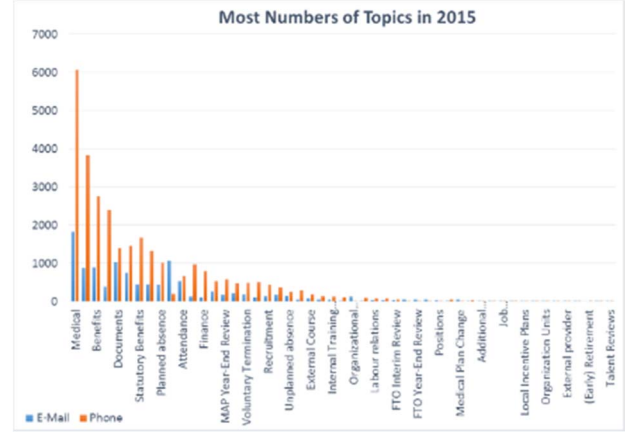


Fig. 2. Most Numbers of Topics Asked at Contact Center

It is shown in Fig. 2 that the most topic asked in the contact center is about medical. Based on generalist's information, the mostly asked medical subtopics were medical status and tick eligibility Medical Benefit Administration (MBA). These two subtopics were chosen to be mapped in VSM. SIPOC for medical status and MBA are shown in Table 1 and 2, respectively.

TABLE I. SIPOC DIAGRAM FOR MEDICAL STATUS

(S)upplier	(I)nput	(P)rocess	(O)utput	(C)ustomer
Employee	Medical Status Inquiries	Accept questions about medical status	Medical status information	Employee
HR Services Indonesia	Medical Status Records	Find out about the medical status by coordination with other department Answer questions about medical status and close ticket	Ticket data	HR Services Indonesia and HR Shared Services Center (SSC) Asia

TABLE II. SIPOC DIAGRAM FOR ELIGIBILITY MBA

(S)upplier	(I)nput	(P)rocess	(O)utput	(C)ustomer
Employee	Eligibility MBA Inquiries	Accept questions about eligibility MBA	Information on Eligibility MBA	Employee
HR Services Indonesia	MBA status of family members	Coordinate with other department to tick eligible MBA Answer questions about eligibility MBA and close	Ticket Data	HR Services Indonesia and HR Shared Services Center (SSC) Asia

B. Talent Review

Talent review (TR) is an annual process conducted by HR function of PT X. There are three important activities take place during talent review, namely 9-box calibration, career movement and succession. The processes from talent review which were chosen to be mapped were pre-post and the day of talent review. SIPOC diagram for talent review is shown in Table 3.

TABLE III. SIPOC DIAGRAM FOR TALENT REVIEW

(S)upplier	(I)ntput	(P)rocess	(O)utput	(C)ustomer
Head of Function and Subfunction of PT X	Request on succession and career movement for positions and employee within function	Conduct mini talent review (subfunction level)	Talent review results for positions and employees within function for next 3 years.	Head of Function and Subfunction of PT X
President Director and Regional Head	Request on succession and career movement for positions and employee within PT X	Conduct function talent review	Talent review results for positions and employees within company for next 3 years	President Director and Regional Head
Business Partner (BP) & HR Services Indonesia	Previous talent review data	Conduct PT X talent review		

C. Employee Referral Program

Employee referral program is conducted by talent acquisitions team. Every employee of PT X can participate to seek for the right candidates to fill the vacant positions. When the candidate successfully enters the company, the employee as referrer will receive certain amount of money as reward. This process were mapped into VSM. Detail SIPOC can be seen in Table 4.

TABLE IV. SIPOC DIAGRAM FOR EMPLOYEE REFERRAL PROGRAM

(S)upplier	(I)ntput	(P)rocess	(O)utput	(C)ustomer
Referrer	Candidate's CV and consent form	Accept referred candidate's CV	Reward	Referrer
PT X	A need of candidates to fill positions at PT X	Process referred candidate's CV Accept referred candidate and reward employee	Accepted candidate	PT X

D. Employee Life Cycle Execution

Employee life cycle execution is a process where employee goes through several job changes such as relocation, promotion, salary increase. This process is conducted by Complaints & Benefits Services Team. As the process variation is huge, the manager brainstormed and decided on domestic relocation with promotion to be mapped. SIPOC for employee life cycle execution can be seen in Table 5.

TABLE V. SIPOC DIAGRAM FOR EMPLOYEE LIFE CYCLE EXECUTION (DOMESTIC RELOCATION WITH PROMOTION)

(S)upplier	(I)ntput	(P)rocess	(O)utput	(C)ustomer
Manager	Request domestic relocation with promotion	Accept Request	Domestic relocation with promotion letter	Manager
HR Function PT X	HR Database	Execute the life cycle requested Generate relocation letter and fulfill the requirements	Updated HR Database	HR Function PT X

E. Current State Value Stream Mapping

After SIPOC diagrams were created, the four processes were then mapped into current state VSM can be seen in Fig. 3. The current flow of activities and time taken for each activity were described. The mapping was done together with manager, process doers, and customers.

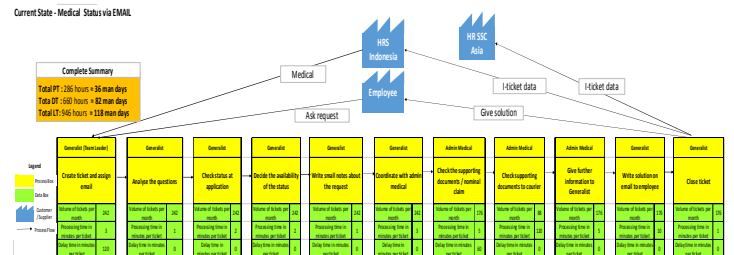


Fig. 3. Current state of Medical status via email

F. Evaluation

Waste, problems or issues identification process was carried out during current state mapping. The identification process was done in the following manners:

- Discuss each activity to identify waste or issues together with HR team in a meeting room.
- Observe certain process that was demonstrated by the process doer to identify waste or issues.
- Evaluation and improvements ideas on these processes have been agreed by HR team.

Several issues identified from medical status process are:

Improvement suggestions which emerged during the evaluation process were expected to improve HR processes.

Process improvement was based on time efficiency obtained. Parameters used are processing time, delay time and lead time. Summary of time efficiency obtained by four processes can be seen on Table 6.

TABLE VI. SIPOC COMPARISON OF CURRENT AND FUTURE STATE VSM

Parameter	Processing time	Delay Time	Lead Time
<i>Medical Status</i>			
Current (working days)	36	82	118
Future (working days)	17	33	50
Savings (working days)	19	49	68
Savings (%)	53	60	58
<i>Eligibility MBA</i>			
Current (working days)	2	30	32
Future (working days)	0	0	0
Savings (working days)	2	30	32
Savings (%)	100	100	100

TABLE VII. SIPOC COMPARISON OF CURRENT AND FUTURE STATE VSM (CONTINUED)

Parameter	Processing time	Delay Time	Lead Time
<i>Talent Review</i>			
Current (working days)	795	-	-
Future (working days)	541	-	-
Savings (working days)	254	-	-
Savings (%)	32	-	-
<i>Employee Referral Program</i>			
Current (working days)	2	51	53
Future (working days)	1	41	42
Savings (working days)	1	10	11
Savings (%)	50	20	21
<i>Employee Life Cycle Execution</i>			
Current (working days)	171	354	525
Future (working days)	105	66	171
Savings (working days)	66	288	354
Savings (%)	39	81	67

Table 6 shows the savings of four processes in terms of processing time is more than 30%. The savings in terms of delay time is more than 15%. The savings in terms of lead time is more than 20%. These savings benefit the company by speeding up the processes, reducing overtime, optimizing time for value added activities and satisfying the customers.

I. CONCLUSION

The four processes were employee contact center, talent review, employee referral program, and employee life cycle execution in HR analyzed with VSM. Contact centre process has high variation so medical status and eligibility MBA were the mapping scopes selected. Issue found was the question was asked by the employee because of long time taken to claim medical benefit. This was caused due to incomplete supporting documents needed. The improvement idea suggested was to add a feature of list of supporting documents needed when submitting the claim form. Eligibility MBA question was analyzed and found that there was a need to have an automatic tick system for eligible MBA. Talent review process is an annual process that involves many people and takes time. Waste identified was long preparation time because it was required to coordinate between MOD and BP as the facilitators and also motion to consolidate data. The improvement idea was to create standard for both stakeholders and also invent on a practical talent review tool which integrates 9-box, succession, movement and talent review result.

Employee referral process was analyzed and found that there was backlog issue of hold candidates. Employee life cycle execution process which was analyzed was domestic relocation with promotion. Waste identified was defect as manager used wrong form and got confused to fill at application C. The improvement idea was to make a guideline on how to use application C in the form of macro-tool. Another waste found was overprocessing for validation so there was a need to reduce number of validations.

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