

PROPOSAL OF A CAPABILITY MATURITY MODEL FOR HEALTH AND PRODUCTIVITY MANAGEMENT

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ABSTRACT

Currently, as society progresses, it faces a challenge of increased social security expenses. It is important for companies to promote health, in order to suppress the growth of social security expenses. Considering this, Number of the companies that start Health and Productivity Management (HPM) is increasing. To help individuals who are responsible for HPM, we propose the following two items. The first is a capability maturity model for health and productivity management (CMM-HPM) and the second is a guideline to utilize the CMM-HPM in accordance³ with the objectives. The validity of the CMM-HPM and the guidelines were evaluated for 41 companies. The 41 companies are selected from companies listed in “Health and Productivity Management (HPM) Stock Selection” examples of efficiently conducting HPM in previous research, and the “Corporate case study on HPM activities” by Japan Economic Organization Federation. The results confirm the validity of the CMM-HPM and the guideline.

Keywords: Capability Maturity Model, Health and Productivity Management

BACKGROUND

Currently, as society progresses, the aging population is increasing. It faces a challenge of increased social security expenses. It is important to maintain health continuously from young and healthy state.

Also, physical and psychological diseases caused by long hour work are increasing in Japan. In addition to the medical expenses borne by the company, it is a very serious problem for the company because it is put responsibility from the society. Therefore, it is important for companies to promote health, in order to suppress the growth of social security expenses and the risk. Considering this, the Ministry of Economy, Trade and Industry(METI) initiated the “Health and Productivity Management (HPM) Stock Selection” and the “Certified Health and

Productivity Management Organization Recognition program” since 2015. According to METI, HPM stock selection is a program that recognizes value in terms of enterprise health and productivity management, and introducing it as an attractive investment option for investors who prioritize the improvement of corporate value from a long-term perspective.

METI and the TSE selected:

1. Enterprises ranking in the top 20% of all the enterprises that answered the Survey on Health and Productivity Management in terms of scores based on the overall rating system;
2. Enterprises whose ROE (return on equity) is not lower than 8% or the past three-year average in their industry;
3. Enterprises that have not committed any serious legal violations.

However, as Health and Productivity Management is relatively new perspective, individuals within a company, who are responsible for HPM are struggling to identify the problems to design and conduct HPM activities.

PROPOSAL

We propose the following two items. The first is a capability maturity model for health and productivity management (CMM-HPM) and the second is a guideline to utilize the CMM-HPM in accordance³ with the objectives.

2-1 Development of the CMM-HPM

The purpose of this research is to establish a system that enables business managers in charge of HPM to comprehend the overall picture, clarify issues, make specific efforts, and improve HPM activities.

In order to realize the above purpose, we extracted 19 evaluation criteria, based on the “HPM superior corporation certification” announced by the Ministry of Economy, Trade and Industry.

We defined 19 criteria as follows:

- No.1: Clearly state that it tackles HPM
- No.2: Every stakeholder can view the content of the statement about HPM
- No.3: There is a person in charge for each workplace
- No.4: Periodic medical examination is thorough
- No.5: To make effort to improve periodic medical examination rate
- No.6: Implementation of stress check

- No.7: There are measures to improve employee's health literacy
- No.8: Employees are thoroughly informed of measures to improve their health literacy
- No.9: There are measures to make work and family life compatible
- No.10: There are measures to encourage communication among employees
- No.11: Health guidance for employees with health risk is thorough
- No.12: There are measures to improve employee's eating habits
- No.13: There are measures to encourage fitness
- No.14: There are measures to encourage smoking cessation
- No.15: There are measures to prevent infectious diseases
- No.16: There are measures to keep appropriate working hours
- No.17: Establishment of consultation center on mental health
- No.18: Employees are thoroughly informed of consultation center
- No.19: There are measures to support mental health disorder

Further, we defined each level of 19 criteria as follows:

Level 1 is the "Initial Level" in which the HPM activities are not performed or are performed temporarily. There is no evidence to confirm that these activities were continuously conducted.

Level 2 is the "Managed Level" in which a specific person leads the HPM activities. These activities can continue as long as the specific person remains in the respective position.

However, there is no evidence to confirm that these activities would be continuously conducted after the person moves to another position. Level 3 is the "Defined Level" in which the activities are defined in the company rules and/or processes. These activities are expected to be continuously conducted, considering that the rules and/or processes do not change. Level 4 is the "Quantitatively Managed Level" in which the performance of the activities is measured and managed, based on the measured data. Level 5 is the "Optimizing Level" in which processes or activities can be improved, based on the analysis of the measured data.

In order to develop the CMM-HPM, we divided the 19 evaluation items into five levels. Figure 1 shows the configuration image of the CMM-HPM.

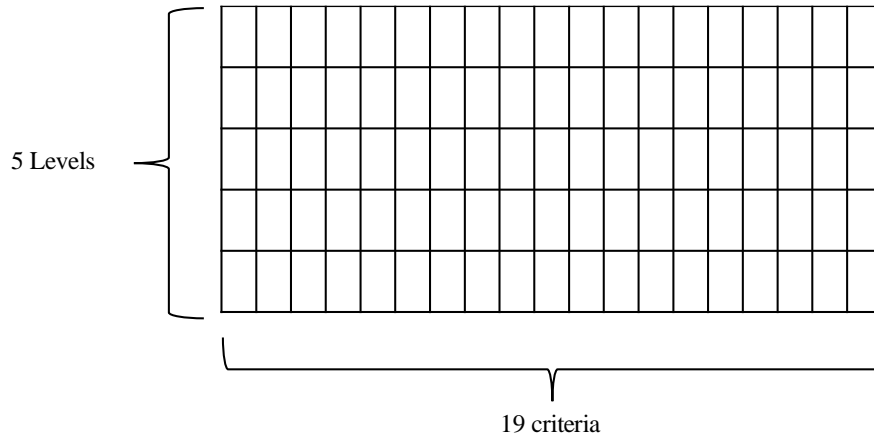


Figure 1. Configuration Image of the CMM-HPM

We can identify the level of each criteria of a company to evaluate the maturity level of HPM activities. Figure 2 shows the example image of the identification of the level of each criteria.

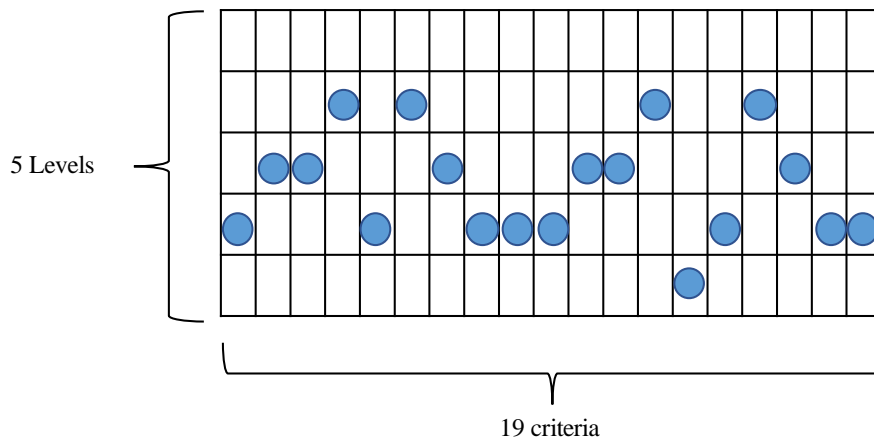


Figure 2. Image of the identification of the level of each criteria

Once the levels of criteria are identified, we can recognize that which criteria is relatively low compared to other criteria and consider the next target to improve HPM activities. Figure 3 show the example that lowest level maturity activity is identified and next target is set for the improvement of HPM activities.

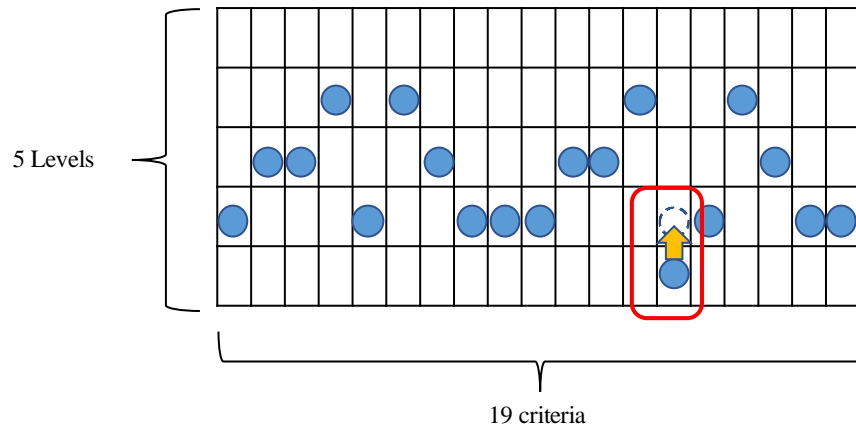


Figure 3. Image of the identification of the improvement point and next target

2-2 Developing guidelines to utilize the CMM-HPM

Using the CMM-HPM, it is possible to identify the current status of HPM activities. However, it is not easy to decide the starting point of the 19 evaluation items of the CMM-HPM. Therefore, we developed guidelines that state the starting point of the CMM-HPM, according to the purpose of the HPM. The guidelines were prepared by analyzing cases of 41 companies that selected health management stocks between 2015 and 2017. As a document, we handled only the HPM stock issues released by the Ministry of Economy, Trade and Industry and the released materials published by HP of each selected company.

As a result of analyzing the companies that conducted HPM, it was identified that there are three major patterns of HPM objectives. The three patterns are “improving productivity,” “creating a safe workplace,” and “matching with the business”.

In order to clarify which of the 19 items of CMM should be prioritized, we conducted a system analysis for each objective and created causal-loops and analyzed the relationship between the health factors and the purposes of HPM. Figure 4 shows the causal-loop diagram of “improving productivity”. Figure 5 shows the causal-loop diagram of “matching with the business”. Figure 6 shows the causal-loop diagram of “creating a safe workplace”.

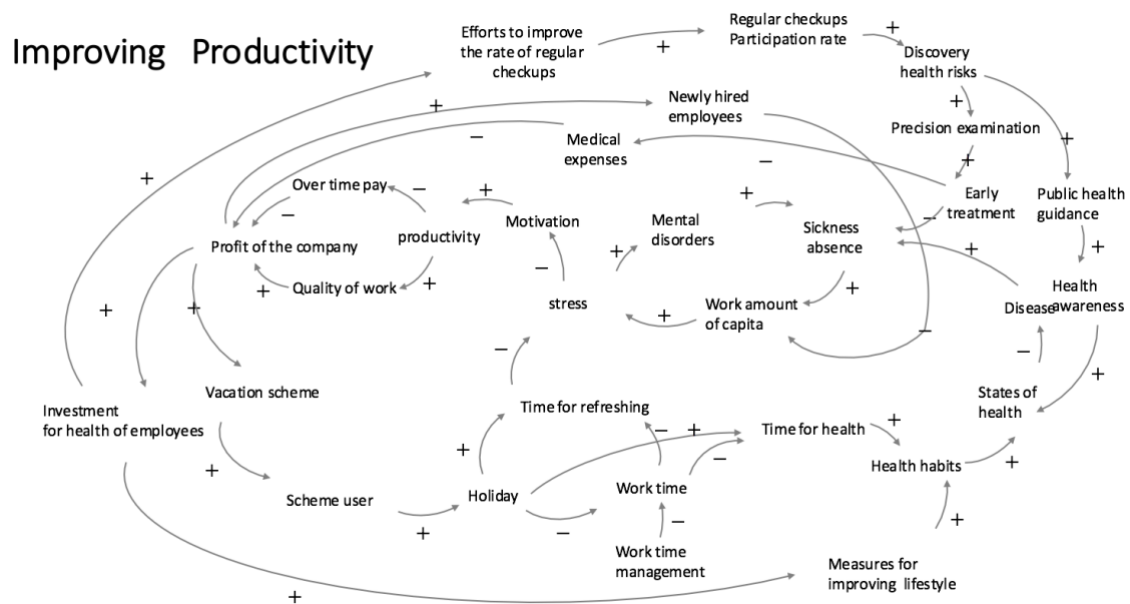


Figure 4. the causal-loop diagram of “improving productivity”

Matching with the business

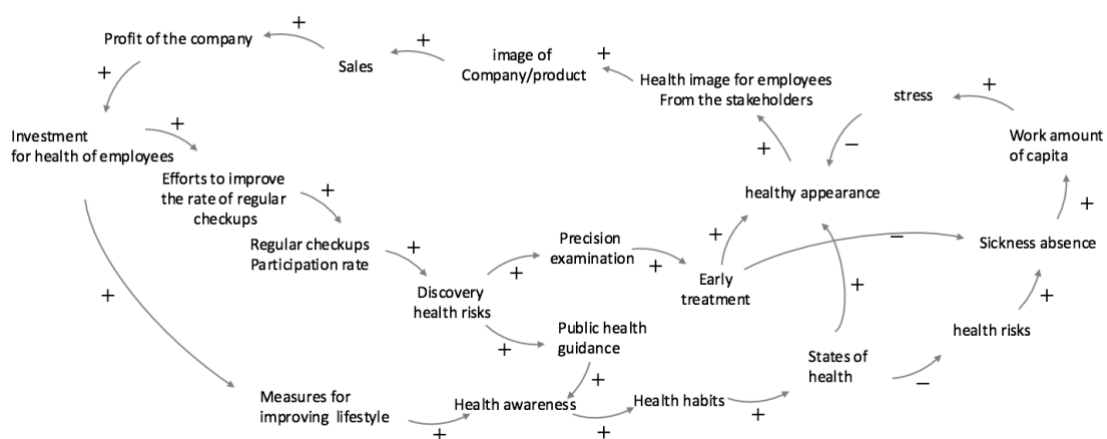


Figure 5. the causal-loop diagram of “matching with the business”

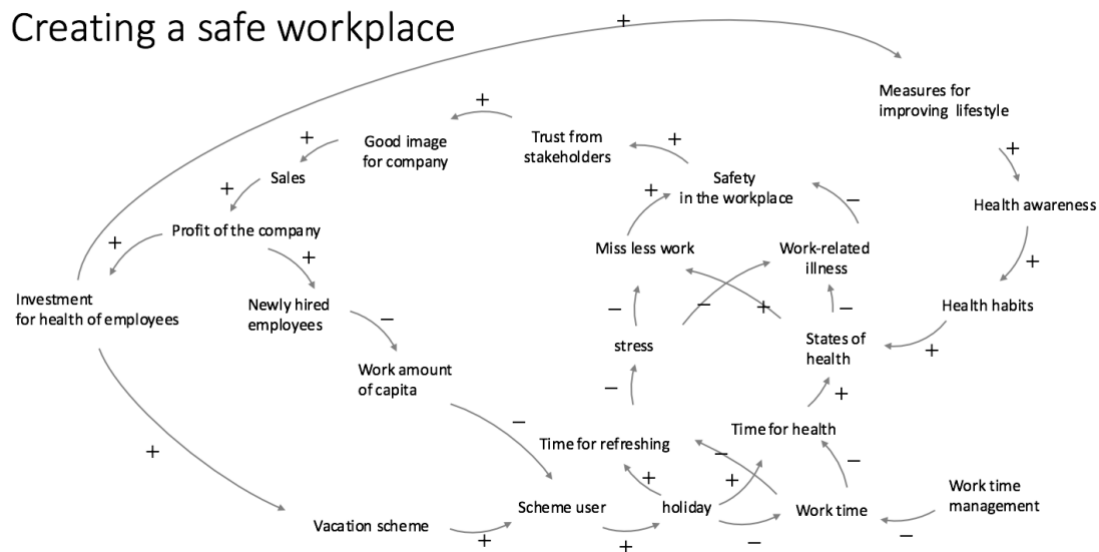


Figure 6. the causal-loop diagram of “creating a safe workplace”

Moreover, in order to meet the research objective, we developed guidelines to identify the most appropriate item of CMM-HPM to commence from, for the efficiency of the activities.

In each causal loop diagram, we identified important variables and created an evaluation index for quantitative measures based on related researches. This is for setting index's to measure how much the measures of HPM contribute to improvement of health and achievement of health management purpose. This guideline assists the person in charge to decide what kind of measures he should do and what index they should pay attention.

As an indicator, it was classified into three stages. The index at the first stage is a behavior index (light blue in the figure) for measuring the implementation state of the measures themselves. The indicator of the second stage is a health indicator (yellow in the figure) for measuring the degree of health. The indicator of the last stage is a result indicator (red in the figure) that measures how much the purpose of health management has been achieved. Also, the black frame portion in the figure applies to the item of CMM-HPM. Therefore, the item of CMM-HPM which should be tackled with priority according to the purpose of health management became clear.

Figure 7 shows the causal-loop diagram of “improving productivity” with three levels of indicators. Figure 8 shows the causal-loop diagram of “matching with the business” with three levels of indicators. Figure 9 shows the causal-loop diagram of “creating a safe workplace” with three levels of indicators.

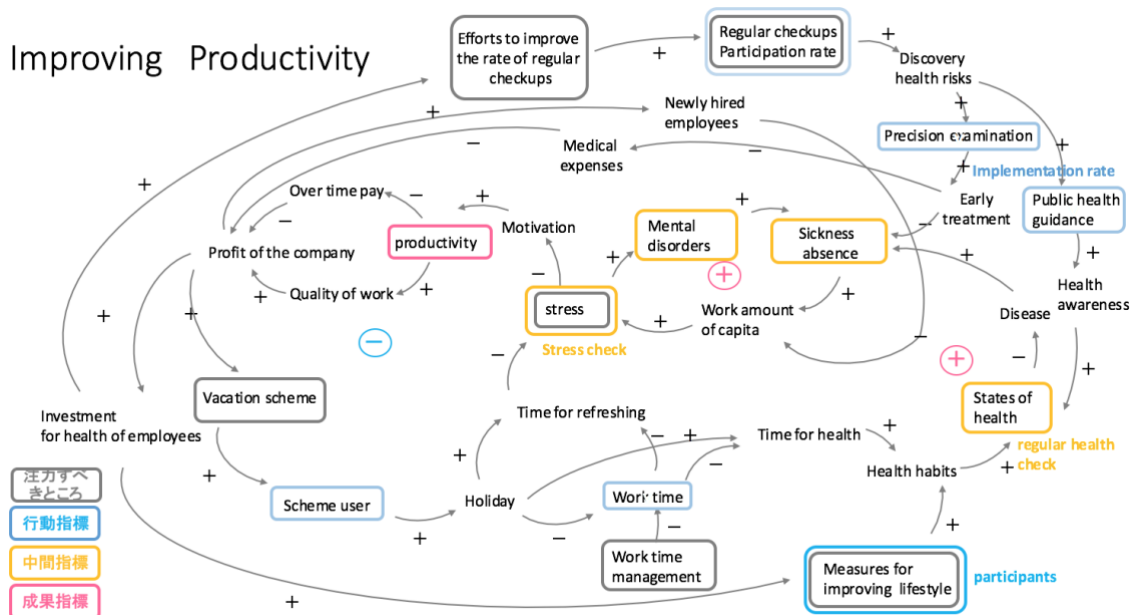
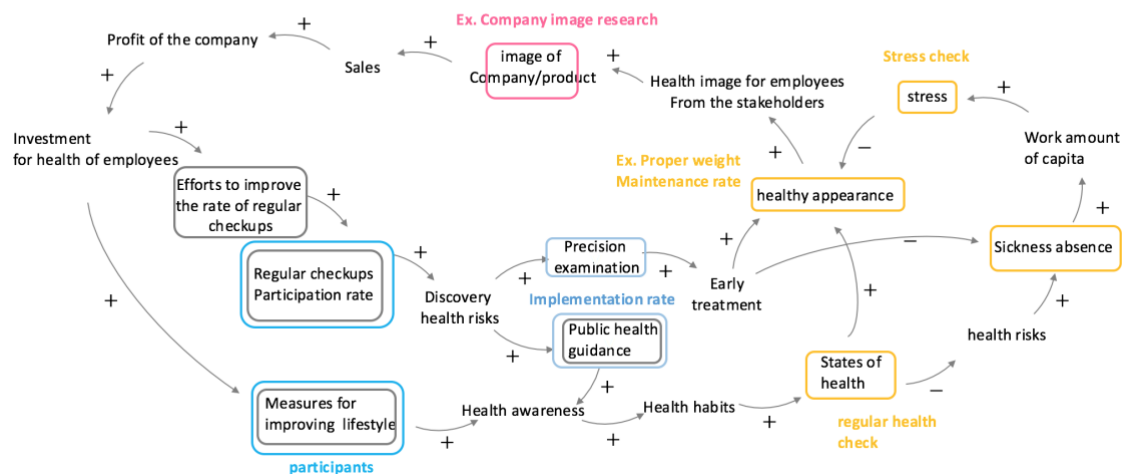


Figure 7. the causal-loop diagram of “improving productivity” with indicators

Matching with the business



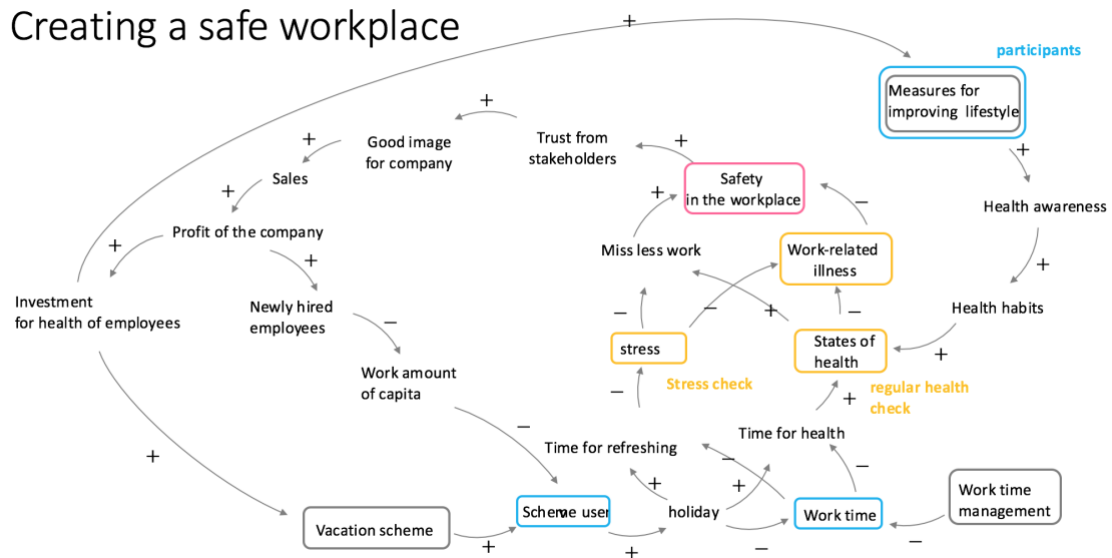


Figure 9. the causal-loop diagram of “creating a safe workplace” with indicators

Evaluation

The validity of the CMM-HPM and the guidelines are evaluated through 41 companies case studies.

We checked following 3 things:

1. Whether there missing or duplicated items in the CMM-HPM criteria
2. Whether the level setting of each item is appropriate or not
3. Whether the guidelines are appropriate

41 companies are selected from companies listed in the “Health and Productivity Stock Selection”, examples of efficiently conducting HPM in previous research, and the “Corporate Case Study on HPM Activities” by the Japan Economic Organization Federation. As a document, we handled only the HPM stock issues released by the Ministry of Economy, Trade and Industry and the released materials published by HP of each selected company.

Table 1. show the evaluation results of companies which were selected as good HPM companies from 2015 to 2017. Table 2 show the evaluation results of companies which were selected as good HPM companies from 2015 and 2016. Table 3 show the evaluation results of companies which were selected as good HPM companies from 2016 and 2017. Table 4 show the evaluation results of companies which were selected as good HPM companies in 2017. Table 5 show the

evaluation results of companies which were selected as good HPM companies in 2016. Table 6 show the evaluation results of companies which were selected as good HPM companies in 2015.

Table 1. the evaluation results of companies which were selected as good HPM companies from 2015 to 2017

2015.2017	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	No.17	No.18	No.19
Lawson	2	2		5		5	3			3	5	5	5				3		
Kao	2	2	3		5		3	2	4		5	4	4	5	3				
TERUMO	2	2	3	5	5		3					3	4	3	3				
TOTO	3	2		5	5		3				5	3	5	3		5	3or5		?
Koe Steel	3	2	3		4		3				3		3	3	3		3		
Dawia Se	3	2			4	4	3		3			3	4	3	3	3	3		
TOKYU	2	2		5	3	5	3			3	3	3	4		3		3	3	
JAL	3	2	3		5		3			3	3		5	5			3		
SCSK	3	2		5	3	4	4		5		4	3	4	5	3	5	3		

Table 2. the evaluation results of companies which were selected as good HPM companies from 2015 and 2016

2015.202	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	No.17	No.18	No.19
ASAHI	3	2	3			4	3		5		1or2		5			4			
KONICA	2	2		5		5	4	4	4		3	3	3	4		5			3
Tonen ge	2	2			3		3	3	4		3					4			3
Bridgesto	2	2	3		3	3	3		5		3	3		3		5	3		3
Kawasaki	3	2			5		3		4		3	3	3		3	5	3		3

Table 3. the evaluation results of companies which were selected as good HPM companies from 2016 and 2017

2016.202	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	No.17	No.18	No.19
LIFULL	3	2				5	3			3							3		
Wacoal	2	2			5		3					3		5		5			
SHIONOG	2	2		4			3				4	3	4	5	3		3	2	
Rinnai	3	2			3	3	3			3	3	3	3				3		
TOPPAN	2	2			3	3	3		3	3	3	3	3	5	3	4	3	3	
ITOCHU	2	2			3	3				3or4		3		3		5	3	3	
Tokyo Me	2	2			3	5	3				3	3	3	5			3		3

Table 4. the evaluation results of companies which were selected as good HPM companies in 2017

2017 only	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	No.17	No.18	No.19
Tokyo Ga	3	2		5			3						3	4					
DAIKYO	3	2				3	3				3	3	3	3					
DENSO	3	2	3	5	3	4	3				5		3	5	3		3		3
Daiwa ho	3	2	3	5	5	3	3		5		3					5	3		3
Ajinomoti	3	2			4	3			3		4	3			3	4	3		3
Bando ch	3	2		5		5	3			3	3		3						
SATO HD	2	2	3	5		4				3		3		5					
BROTHER	2	2			3	3	5				3	4	4	5	3				3

Table 5. the evaluation results of companies which were selected as good HPM companies in 2016

2016 only	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	No.17	No.18	No.19
Sumitomo	2	2	3						4					3		5	3		3
IHI	3	2				5			4		3	3	3	4		4	3		3
RICHO LE	3	2		5	4		3		3				3			5	3		
FUJI	3	2		5	3		3		3						3				

Table 6. the evaluation results of companies which were selected as good HPM companies in 2015

2015 only	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	No.17	No.18	No.19
TORAY	3	2	3		3	5	3		5	3	5	3	3	3	3	5			
ROHTO	2	2			3							3	3	3	3				
ASICS	3	2		5	3	3	3				3		3	3		4	3		
Hiroshima	2	2		5	3	5	3		3		3	3				5	3		
Marubeni	2	2		5	3	3	3		4		3	3		3	3	5	3		3
The Bank	2	2					3				3								3
Daiichi Sankyo	3	2			4		3		4		4		3	5		4	3		

As a result, We were able to visualize the difference in the level of health management efforts between companies that selected third-year brands and other companies. Companies selected for 3 consecutive years have higher levels of No. 11 - 14 than other companies. Not only did the company organize various systems, he found a tendency to actively intervene in lifestyle habits of employees and to improve their health .

In addition, in the previous chapter, the case analysis revealed the purpose for 41 companies to tackle health management. Then, we investigated what kinds of health measures are effective for achieving the purpose, and proposed items to be prioritized in the CMM-HPM. In order to evaluate the validity of this proposal, we checked the difference between the items whose level is actually high in each company and the items we proposed. As a result, the items we proposed covered the items that are high maturity level in each company. The results confirm the validity of the CMM-HPM and the guidelines.

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