The 6th International Seminar on Science and Technology (ISST) 2020
July 25th 2020, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

The Influence of Health Facilities Information System Application in The Business Process of Clinic Bunga Melati

Geby Firdana Puspa[1] and Raden Venantius Hari Ginardi[2]
[1]Department of Technology Management, Institut Teknologi Sepuluh Nopember, Surabaya
[2]Department of Information Technology, Institut Teknologi Sepuluh Nopember, Surabaya
e-mail: hari@its.ac.id

***Abstract*—In this competitive business era, Klinik Bunga Melati (KBM) has changed its business and management strategies 3 times in the last 2 years with the aim of adjusting internal and external conditions in the health sector and make KBM superior to other competitors. KBM expects the development of technology that can be applied efficiently and integrated between KBM internally. In 2018, KBM teamed up with the Badan Penyelenggara Jaminan Sosial (BPJS) Kesehatan. In this regard, BPJS provides a Health Facilities Information System (HFIS) with the aim of making it easier for health units to make claims. But the leader of the KBM considers HFIS not suitable to be implemented in the KBM Welirang Branch. The KBM Welirang Branch staff must do 2x recapitulation of patient medical records every day. There are quite a lot of variables in HFIS besides self-data, staff must also write data related to diagnosis, details of drugs used, drug costs, and doctor's fees. Based on the KBM leaders interview, this is considered to be very time-consuming and costly because HR has to work 2x more and patients need more time to get action. HOT-Fit method is considered suitable for this research because this model can provide an explanation and provide an evaluation of the application a system in the field of health services from human factors (human), technology (technology), organization (organization) and net benefits. The output of this research is an analysis of aspects that need to be improved and the match rate of HFIS implementation in the KBM Welirang.**

***Keywords*—Hot-Fit Model, Health Facilities Information System, Klinik Bunga Melati.**

I.INTRODUCTION

In this competitive business era, it is hoped that all forms of business will be able to keep up with technological developments, including business in healthcare. As stated in the forbest, it is known that the healthcare service business helps develop the economy of developing countries by 10% and is the largest growing business in the world. Bunga Melati Clinic (KBM) has developed into 6 clinical branches in Malang, East Java since 2007 with quality human resources and facilities and strategic location that makes it easy for patients to seek treatment. KBM has different facilities and services in each of its clinics. The KBM Center is located on Jl. Attorney General Suprapto, for the main clinic located on Jl. Pandjaitan, for the partnership clinic of Siekes Melati Kostrad, located on Jl. Raya Malang Surabaya, a specialist clinic located on Jl. Cakra Guna, the Rahmat seat partnership clinic is located on Jl. Tirto Mulyo, and KBM have just built a new specialist clinic on Jl. Welirang.

KBM has changed its business and management strategy 3 times in the last 2 years with the aim of adjusting internal and external conditions in the health sector and to make KBM superior to other competitors. Related to current business developments, KBM expects technological developments that can be applied efficiently and integrated between KBM internally. However, KBM found obstacles in the Management Information System (SIM) which is the main priority that is being sought for a solution this year, especially in the KBM Welirang Branch.

In connection with the development of the health unit, Indonesia also has a program from the government which we know as the Health Insurance Administering Agency (BPJS). Since 2014, BPJS has officially operated until now. In an effort to improve the quality of services that are better for patients and for health facilities, BPJS Health develops an Information Technology based system related to the increasing number of Indonesians using BPJS services. The BPJS Health information system is referred to as the Health Facilites Information System (HFIS). Each patient will be represented in alphanumeric code. BPJS Health seeks to socialize this HFIS to all hospitals, clinics, and health centers in Indonesia with the aim of making it easier for health units to make claims. But the problem now is that not all health units consider HFIS to facilitate the work of staff including KBM Welirang Branch.

For now, KBM Welirang Branch uses a manual system by optimizing Microsoft Excel for the data collection process of patients either independent patients or BPJS Health patients. KBM Welirang Branch staff must do a 2x recapitulation of patient medical records every day. First of all, KBM Welirang Branch staff manually input internal data per day for independent patients and BPJS Health patients. After that, KBM Welirang Branch staff input BPJS Health patient data into HFIS to get the Reference Number, then the Reference Number is used to get the Participant Eligibility Letter (SEP) where the SEP is used by the KBM Welirang Branch to get the v-claim from BPJS Health. There are quite a lot of variables in HFIS besides self-data, staff must also write data related to diagnosis, details of drugs used, drug costs, to doctor's fees. Based on KBM CEO interview data, this is certainly very time-consuming and costly because HR has to work 2x more and patients need more time to get action. The CEO of KBM thinks that HFIS is not suitable with the business and environmental conditions in KBM Welirang

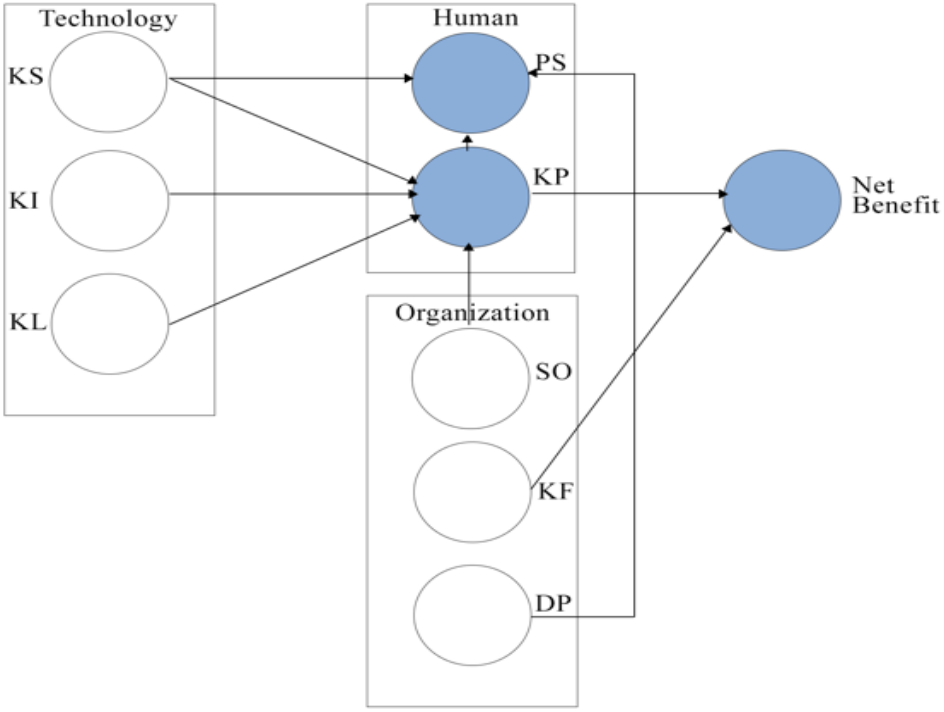

Figure 1. Inner Model.

Branch.

Based on the background above, it is necessary to do an analysis of the successful implementation of the HFIS information system at the Bunga Melati Clinic in the Welirang Branch using the Human Organization Technology (HOT) Fit method. Therefore, this study will measure the suitability of the application of the HFIS information system at the Bunga Melati Clinic in the Welirang Branch with the Hot-Fit method. Based on a number of previous studies, the HOT-Fit Model can be applied to the research title "The Influence of the Implementation of the Health Facilities Information System (HFIS) in the Business Process of Welirang Branch Melati Clinic" because Yusof (2006) argues that this evaluation model clarifies three important and fundamental components that are affect the successful adoption of information systems where the three components are mutually sustainable. HOT-Fit is considered suitable for this research because this model can provide an explanation and provide an evaluation of the application of a system in the field of health services from human factors, technology, organization and net benefit.The results of this study are in the form of an analysis of the suitability of the HFIS information system on KBM from human factors, organizational factors, and technological factors. In addition, the provision of recommendations will be given as a support for the system development plan in the KBM.

II. METHODS

Quantitative research methods are a method used to answer research problems related to data in the form of numbers and statistical programs [1]. This research uses descriptive quantitative research methods by conducting surveys and collecting primary data through interviews with guidance on distributing questionnaires to users of information systems as respondents. In this study, the object and material of the research are the users of the Health Facilites Information System of the Badan Penyelenggara Jaminan Sosial (BPJS) Kesehatan at the Bunga Melati Clinic (KBM) Welirang Branch. The making of the questionnaire is based on the HOT-Fit Model method, where the identification of research variables is carried out through the literature study process in previous research as the basis for the preliminary survey to obtain relevant variables to be modeled and analyzed. The following will identify the variables needed in research. The variables in this study consisted of two types namely endogenous variables and exogenous variables.

From Figure 1 and Table 1 is determined that there are three endogenous variables namely System Use (PS), User Satisfaction (KP), and Net Benefit (Benefits) which are influenced by six exogenous variables namely System Quality (KS), Information Quality (KI), Service Quality (KL), Organizational Structure (SO), Facility Conditions (KF), and Leadership Support (DP) [2]. This study uses the Hot-Fit model developed by Yusof et al, with several modifications to assess the successful implementation of the HFIS information system. One way is to eliminate organizational environment variables (organization environment). Because these variables are considered too broad so researchers replace the organizational environment variables with facilitating conditions and top management support [2].

Table 1.
Indicator Variable

Variabel Laten	Indikator Variabel	Kode
System Quality	Users can understand the workflw of the HFIS	KS1
	Data confidentially	KS2
	HFIS can be accessed both in dekstop and mobile	KS3
	HFIS rarely experiences errors	KS4
Information Quality	Output matches with input	KI1
	Output matches with the real data	KI2
	Output is precise and accurte	KI3
	Output is complete and detailed	KI4
	Output is easy to read	KI5
Service Quality	Manual book	KL1
	Fast and responsive service from HFIS server	KL2
	HFIS can not be accessed outside KBM	KL3
System Use	Simplifies the process of finding data	PS1
	Help the user's daily work	PS2
	Help in decision making	PS3
	Users have expertise in using HFIS	PS4
	User's work depends on HFIS	PS5
User Satisfication	Users are satisfied with the use of HFIS	KP1
	Users are satisfied with the user interface of HFIS	KP2
	Easy to use	KP3
	No need to develop & improve	KP4
Organization Structure	HFIS is applied as a health service improvement strategy in collaboration with the BPJS Kesehatan	SO1
	HFIS can help coordinate between BPJS Kesehatan and KBM	SO2
	Management provides infrasturcture to support implementation of HFIS	SO3
Facilitating Condition	KBM provides software that supports the use of HFIS	KF1
	BPJS provides hardware that supports the use of HFIS	KF2
	BPJS provides the officer in charge and provides assistance in the event of problem with HFIS	KF3
Top Management	Leader considers HFIS is efficient for KBM	DP1
	Leader considers HFIS is improving the performance of KBM Staff	DP2
Net Benefit	HFIS lightens daily work tasks	M1
	HFIS improves work efficiency	M2
	HFIS helps achieve goals effectively	M3
	HFIS can improve communication between BPJS Kesehatan and KBM	M4
	HFIS can support vision and mission of the organization	M5

III.RESULTS AND DISCUSSION

A.*Variation Test*

In statistics, the standard deviation is a measure used to measure the amount of variation or the distribution of a number of data values. The lower the standard deviation, the closer it is to the average. Meanwhile, if the higher the standard deviation, the wider the variation of the data range.

After knowing the mean per indicator in the HFIS questionnaire research data in Table 2, then proceed to the validity test stage. Standard deviations can be calculated with the following formula:

$$S = \sqrt{\frac{\sum y^2 - \frac{(\sum y)^2}{n}}{n-1}} \quad (1)$$

$$= \sqrt{\frac{526{,}076 - \frac{131{,}570^2}{33}}{33-1}} = \sqrt{\frac{526{,}076 - 524{,}57}{32}} = \sqrt{\frac{1{,}511}{32}}$$

$$= \sqrt{0{,}05} = 0{,}217$$

The standard deviation result is 0.217 and includes a low value. It can be said that the range of questionnaire data variants is not too far apart.

B. *Hypotesis Testing*

From the Table 3 it can be seen that the hypothesis is rejected or accepted by looking at the value of t statistics compared to t table, in hypothesis testing the significance level is 95%. the value of t table with a significance level of 95% is 1.796. Based on the results of the t-test, then the hypothesis test can be determined in this study:

1. H1 : System quality (KS) has a significant positive effect on system use (PS).The t-statistic result KS> PS has a calculated value of 2.132. T-count value is greater than t-table, then H1 is accepted or there is a positive effect of KS on PS.
2. H2 : System quality (KS) has a significant positive effect on user satisfaction (KP). The t-statistic result KS> KP has a calculated value of 2.132. T-count value is greater than t-table, then H2 is accepted or there is a positive effect of KS on the KP.
3. H3 : System quality (KS) has a significant positive effect on organizational structure (SO). The t-statistic result KS> SO has a calculated value of 2.353. The value of t-count is greater than t-table, then H3 is accepted or there is a positive effect of KS on SO
4. H4 : Information quality (KI) has a significant positive effect on system use (PS). The results of t-statistic KI> PS have a calculated value of 1.859. The value of t-count is greater than t-table, then H4 is accepted or there is a positive effect of IC on PS

Table 2.
Indicator Data Table

Indikator	Y	Y^2
KS1	3,910	15,288
KS2	4,540	20,612
KS3	4,180	17,472
KS4	3,450	11,903
KI1	4,270	18,233
KI2	4,180	17,472
KI3	4,270	18,233
KI4	4,270	18,233
KI5	3,900	15,210
KL1	3,810	14,516
KL2	3,730	13,913
KL3	3,550	12,603
PS1	3,910	15,288
PS2	3,910	15,288
PS3	4,270	18,233
PS4	3,910	15,288
PS5	3,820	14,592
KP1	4,090	16,728
KP2	3,820	14,592
KP3	4,000	16,000
KP4	3,820	14,592
SO1	4,000	16,000
SO2	4,090	16,728
SO3	4,090	16,728
KF1	4,090	16,728
KF2	4,090	16,728
KF3	4,000	16,000
DP1	4,090	16,728
M1	3,810	14,516
M2	3,900	15,210
M3	3,900	15,210
M4	3,900	15,210
M5	4,000	16,000
Total	131,570	526,076

5. H5 : Information quality (KI) has a significant positive effect on user satisfaction (KP). T-statistic results KI> KP has a t-value of 1.895. The value of t-count is greater than t-table, then H5 is accepted or there is a positive influence of IC on KP.
6. H6 : Information quality (KI) has a significant positive effect on organizational structure (SO). The result of t-statistic KI> SO has a calculated value of 2,015. T-count value is greater than t-table, then H6 is accepted or there is a positive influence of KI on SO.
7. H7 : Quality of service (KL) has a significant positive effect on system use (PS). The t-statistic result KL> PS has a calculated value of 2,015. T-count value is greater than t-table, then H7 is accepted or there is a positive influence of KL on PS
8. H8 : Quality of service (KL) has a significant positive effect on user satisfaction (KP). T-statistic results KL> KP has a calculated value of 2.132. The value of t-count is greater than t-table, then H8 is accepted or there is a positive influence of KL on the KP.
9. H9 : Service quality (KL) has a significant positive effect on organizational structure (SO). The t-statistic result KL> SO has a calculated value of 2.353. The value of t-count is greater than t-table, then H9 is accepted or there is a positive influence of KL on SO.
10. H10 : Organizational structure (SO) has a significant positive effect on user satisfaction (KP). The result of t-statistic SO> KP has a t-value of 2.132. The value of t-count is greater than t-table, then H10 is accepted or there is a positive influence of SO on KP.

Table 3.
T-Test Results

No	Hypothesis	Nilai
1	KS > PS	2,131846786
2	KS > KP	2,131846786
3	KS > SO	2,353363435
4	KI > PS	1,859548038
5	KI > KP	1,894578605
6	KI > SO	2,015048373
7	KL > PS	2,015048373
8	KL > KP	2,131846786
9	KL > SO	2,353363435
10	SO > KP	2,131846786
11	KP > PS	1,894578605
12	DP > PS	2,015048373
13	KP > M	2,131846786
14	KF > M	2,015048373

11. H11 : User satisfaction (KP) has a significant positive effect on system usage (PS). The t-statistic KP> PS has a calculated value of 1.895. T-count value is greater than t-table, then H11 is accepted or there is a positive influence of KP on PS.
12. H12 : Leadership support (DP) has a significant positive effect on the use of the system (PS). The result of t-statistic DP> PS has a calculated value of 2,015. T-count value is greater than t-table, then H12 is accepted or there is a positive influence of DP on PS.
13. H13 : User satisfaction (KP) has a significant positive effect on benefits (M). The t-statistic KP> M has a calculated value of 2.132. T-count value is greater than t-table, then H13 is accepted or there is a positive influence of KP on M.
14. H14 : Facility conditions (KF) have a significant positive effect on benefits (M). The result of t-statistic KF> M has a calculated value of 2,015. T-count value is greater than t-table, then H14 is accepted or there is a positive influence of KP on M.

IV. CONCLUSION

With the HOT-Fit Model approach consisting of System Quality, Information Quality, Service Quality, System Usage, User Satisfaction, Organizational Structure, Facility Conditions, Leadership Support, and Benefits, it can be seen the success rate of HFIS system implementation at Bunga Melati Malang Branch, Welirang Branch . Based on the results of the study, it can be concluded as follows: (1)Human factors on the use of the HFIS system at the KBM Welirang Branch can be seen from several variables, including: (a)The quality of the HFIS is quite good, this can be shown from the percentage value of each indicator on the System Use (PS) variable showing a positive response, but it still needs to be developed on all indicators because 27.27 of the respondents' answers are Disagreeing; (b) The results of the questionnaire on the use of the system by KBM staff showed that KBM staff were more receptive to the existence of HFIS automation because it was in accordance with staff needs; (c) The User Satisfaction Variable (KP) has given a positive response even though the Hi-Tech System indicator (KP4) looks 45.45% in the Disagreeing column. KP4 is related to the needs of

developing the HFIS system; (d) H13 shows user satisfaction (KP) significantly positive effect on benefits (M); (2) Organizational factors (organization) on the use of the HFIS system at the KBM Welirang Branch can be seen from several variables, including: (a) The Organizational System Variable shows a positive response mainly from the Coordination and Infrastructure indicators, although an increase in the Service Strategy indicator is needed; (b) Provision of Technicians (KF3) still needs to be improved, bearing in mind the Facility Condition indicator also influences the Benefits of using the HFIS system in accordance with H14; (c) The condition of the facility supports the benefits of HFIS for the Bunga Melati Clinic in the Welirang Branch; (d) Leadership Support gave good results on the Use of the HFIS System at Malang Melati Bunga Clinic, Welirang Branch; (3) Technological factors (technology) on the use of the HFIS system in KBM Welirang Branch can be seen from several variables, including: (a) System Quality Variable (KS) can be expressed quite well especially on the Data Security indicator (KS2). However, for other indicators such as the Easy to Understand indicator (KS1), the Ease of Access indicator (KS3) still needs improvement, especially in the System Functional Indicator (KS4) which has a high enough percentage in the Disagree column which is 54.54%; (b) The Information Quality Variable (KI) in the HFIS system is arguably good, this can be seen from the percentage value of each indicator reaching 90% showing positive results. The quality of information that is already good must be maintained but also needs to be improved in the Easy to Read indicator (KI5); (c) The Service Quality Variable (KL) can be expressed quite well but there is a need for development of the Manual Book Availability (KL1) indicator, the Responsive Service indicator (KL2), and the System Access indicator (KL3). Considering TOS influences User Satisfaction and Organizational Systems.

REFERENCES

[1] Wahidmurni, M.Pd, Dr., (2019) Pemapatan Metode Penelitian Kuantitatif, UNI Maulana Malik Ibrahim Malang

[2] Abda'u, Prih Diantono, (2018), Evaluasi Penerapan SIMRS Menggunakan Metode Hot-Fit Di RSUD Dr. Soedirman Kebumen, Jurnal Ilmiah Penelitian dan Penerapan Teknologi Sistem Informasi, UNP Kediri.