The Development of Students Industrial Training Information System (FBM-STIS): Impact towards Process Efficiency

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Abstract

Faculty of Business and Management has developed Student Industrial Training Information System (FBM-STIS) to facilitate the faculty pertaining to student internship placement in line with Industrial Revolution 4.0 (IR 4.0) emerged worldwide. Internship is a must for most undergraduate programs and it is carried out in the final semester. Owing to the complexity of the process, FBM-STIS is hoped to provide ease and accurate information to the students and FBM administrative staff. FBM-STIS also enhances efficiency through the reduction of time for students to receive the Confirmation Letter (CL), and support Green Nation program through its paperless initiatives and reduction of carbon emission since students' physical presence is not needed at the faculty. Above all, it assists UiTM in its strategy to 'Jana and Jimat' in that, FBM-STIS is able to reduce operational cost. With the latest technologies, the study hopes the system match with the preferences of Generation Z who are more IT literate that favor simple and prompt process and feedback.

Keywords: Technology, FBM-STIS, IR4.0, Industrial Training, Gen Z

1. Introduction

Student Industrial Training Information System (FBM-STIS) was developed by Faculty of Business and Management, Universiti Teknologi MARA (UiTM) Puncak Alam Campus with the aims to enhance operation efficiency and to shorten the time needed to complete the overall industrial training application process. The introduction of this system is in-line with the government's initiative to embrace Industrial Revolution 4.0 (IR 4.0) that manifests itself in the way data changes, technology is automated and digitized, and what we now call the internet of things (IoT) (Morrar, Arman & Mousa, 2017). Generation Z (born after 1995) is defined as digital natives who do not like waiting for a response but demand instant information and communication (Ciliers, 2017). Whilst, the introduction of this system is best to equip their needs. The fast spread of mobile devices and wireless

networks within university campuses make it suitable for the implementation of any online educational & management system. It will enable university students to access needed materials and information more conveniently (Ahmad & Love, 2013).

In comparison with manual system, students were required to engage with high face-to-face contact at the Industrial Training Unit (FBM-ITU) counter for industrial placement application. This process somehow was time consuming where students had to find free time in between classes to submit forms and collected letters at the FBM-ITU counter, which only operated during office hour. With a high volume of FBM students, this situation leads to the stress for both parties; students and FBM-ITU staff where the staff needed to leave the workstation to entertain the students at the counter. This resulted in an increase in workload. To add, the long process and procedure of Industrial Training Application required 107 days to be completed and it caused workflow inefficiency. High operation costs also became one of the main issues that need to be highlighted.

Hence, the objectives of FBM-STIS are to reduce customer contact and increase the accuracy and efficiency of the process. In order to be aligned with "Jana and Jimat" strategy that was introduced by UiTM, FBM-ITU reduces the operational cost in terms of stationaries, cartridges and papers for printing and time. With aligning together to "Jana and Jimat Strategy, it helps UiTM to increase income generation by RM475 million and save RM30 million cost expenses (Mazuki, 2018). Therefore, FBM-STIS can help to increase the income generation by selling the concept and technology to other universities but also help reducing the cost that came from the previous manual process.

At the same time, this strategy does not only endorsing green environment concept through paperless application but also connected with SDG 12; responsible consumption and production. In SDG12, sustainable production and consumption intends to 'do more and better with less', which it translated into reducing resources used (United Nations Website, n.d.) in this study case. Consequently, the study believes with FBM-STIS, the faculty does not only save the money but also boosts the productivity of the FBM-ITU staff.

2. Student Industrial Training Information System (FBM-STIS)

FBM-STIS is a system that has been developed specifically for FBM undergraduate Semester 5 students who will undergo Industrial Training Program in Semester 6 for 24 weeks (Industrial Training Guidebook, 2020). Students are free to undergo this program in government or private sector organizations. The exposure to the real working environment will lead to a positive result of students' personal and professional development (Jaafar et al., 2017) and this becomes the main reason why it is compulsory for students to undergo this training program. At the end of each internship program, faculty will receive students' evaluation from the company that will help to guide the faculty to improve the character and professional skills among trainees (Jaafar et al., 2017). Thus, students also gain benefits by exposure to the latest knowledge in an increasingly competitive world (Mat et. al, 2010).

2.1 FBM-STIS Users

2.1.1 Industrial Training Coordinator

Industrial Training Coordinator is responsible to conduct Industrial Training briefing at the beginning of the semester. The contents of the briefing include the processes of Industrial Training Application and FBM-STIS registration. The information that has been fill-up by students will be used to complete the process of Industrial Training Application. The coordinator will log in FBM-STIS via https://fbmis.uitm.edu.my/stis/staf_login.

2.1.2 Administration Staff

FBM-ITU staff is responsible to do the screening process of the students' information to generate the Application Letter. This step requires staff to check students information from UiTM database; *Student Information Management System (SIMS)* for verification purpose. Administration staff will be login FBM-STIS via https://fbmis.uitm.edu.my/stis/staf_login.

2.1.3 Students

To use the system, students are required to do online registration via https://fbmis.uitm.edu.my/stis/stud_login. Students need to fill-up the latest information in FBM-STIS in order to get the approval for application and confirmation letter. The information includes student's ID, name, phone number, email address, program code and student's current semester. Once the students receive the approval from Industrial Training Coordinator, they can print the Application and Confirmation Letters (AL and CL) by themselves and submit them to the respective companies.

3. Finding and Discussion

The objective of this paper is to inform the benefits of FBM-STIS implementation. This system help FBM in several aspects including cost and time saving, reduction of waiting time as well as improving workforce productivity.

3.1 Cost Saving

In the manual process, the cost of preparing the related documents such as application letter, confirmation letter and research permission letter, which include the cost of cartridge, faculty letterhead and A4 paper are approximately RM 4,740 per year. The costs were reduced to RM340 per year after the implementation of FBM-STIS at faculty. This helps in cost-saving initiative up to RM 4,400 that equivalent to 93% cost reduction.

		Manual Processes		**FBM-STIS**	
Items	**Price (RM)**	**Unit**	**Total (RM)**	**Unit**	**Total (RM)**
Cartridge HP Laserjet 1022	RM280	4	RM 1,120.00	1	RM 280.00
Faculty Letterhead	RM 0.25	14,000*	RM 3,500.00	0	0
A4 paper	RM 12	5	RM 60.00	5	RM 60.00
Grand Total			**RM 4,740.00**		**RM 340.00**

Fig. 1 Cost saving comparison

*Assuming 1000 students per semester
*1 student required 7 faculty letterheads

3.2 Time Saving (Whole Process of Industrial Training Application)

The FBM-STIS helps to reduce the application period from 107 days to 40 days that lead to the reduction of 67 days or 63%. This is because all processes are accessible online and it can be accessed anywhere and anytime. Students do not have to be physically presented at the FBM-ITU for submission of form and collection of related documents.

	MANUAL PROSES	**FBM-STIS**
Number of steps	9	7
Time needed	107 days	40 days
Method used	Manual System	Automated System

Fig. 2 Time saving comparison

3.3 Waiting Time and Frequency to go to FBM-ITU Counter

In the previous Industrial training application process, students are required to manually submit and collect necessary documents needed by hand at FBM-ITU counter located at level 16, FSK6. Overall, students required to come to the counter at least 5 times throughout the process with the waiting time of 10 working days for the document's processing time. With the requirement to submit and collect the documents manually at the counter, students had to rush and find time in between classes to complete the process. On the other hand, FMB-STIS makes it easy for the students to do all the submission of documents online at any time except for collecting logbook and blue card (1 time). The total waiting time is also reduced to only 6 working days using the FBM-STIS where students are empowered to print the AL and CL by themselves, thus giving them the experience in using the system.

ITEMS	MANUAL PROCESS		FBM-STIS	
	Details	**Frequency (time)**	**Details**	**Frequency (time)**
Submission of IPF	Waiting time – 5 working days	1	Waiting time – 3 working days	Online
Collection of AL		1		Online
Submission of ITI and CRL	Waiting time – 5 working days	1	Waiting time – 3 working days	Online
Collecting CL and Permission Letter		1		Online
Pickup Logbook and Blue Card	-	1	-	1
Total	**Waiting time – 10 working days**	**5**	**Waiting time – 6 working days**	**1**
Waiting time reduction: 10 days – 6 days = 4 days @ 40% **Reduction of Frequency to go to FBM-ITU counter : from 5 times to 1time** = 80%				

Fig. 3 Waiting time and frequency to go to FBM-ITU counter

3.4 Workforce Saving

FBM-ITU is currently having one (1) administrative staff to handle and support all the necessary processes related to students' industrial training application, which includes letters preparation, filling up data on confirmation for reporting and attending to the request at the counter. With the manual system, the time required to perform all these tasks is 62 days. With the total numbers of 1000++ students for every semester going to industrial training, these workloads led to stress and inefficiency in the operation. With FBM-STIS, the workload of administrative staff decreases significantly to only 2 days. With this system, all the data will be filled up by students themselves and the clerical staff only needs to make data verification online. Furthermore, this system also helps to reduce the need for students to come to the counter and like so, reducing staff workload and stress level.

ITEMS	TIME NEEDED FOR MANUAL PROCESS		TIME NEEDED AFTER STIS IMPLEMENTATION	
	Details	**Time**	**Details**	**Time**
Letters preparation	• 5 AL • 1 CL • 1 Research Permission Letter = 7000 letters On average, letter preparation took 3 minutes (includes printing) to complete.	7000 letters x 3 minutes = **21,000 minutes (A)**	Na	-
Filling up data on confirmation for reporting	Average time taken to fill up student data on internship is 1.5 minutes.	1000 students x 1.5 minutes = **1,500 minutes (B)**	**Data verification (application)** Average time taken to verify student's application data = 0.5 minutes **Data verification (confirmation)** Average time taken to verify student's confirmation data = 0.5 minutes	**Data verification (application)** 1000 students x 0.5 minutes = **500 minutes (A)** **Data verification (confirmation)** 1000 students x 0.5 minutes = **500 minutes (B)**

Attending to the request at the counter	Attending to the request at the counter = 15 times daily Average time taken for a process at the counter = 5 minutes Average working days per month = 24 days Number of months per internship cycle = 4 months	15 times daily x 5 minutes per request x 24 days per month x 4 months per internship cycle = **7,200 minutes (C)**	Na	-
Total		**A + B + C =** 21,000 + 1,500 + 7,200 = 29,700 minutes of labour hour @ 495 hours = 62 days		**A + B = 500 + 500** = 1,000 minutes of labour hour @ 16.7 hours = 2 days
Reduction time of operation: 62 days – 2 days = 60 days @ 97% **Man power reduction: Improve work productivity (administrative staff become more efficient and effective in performing work commitment with reduction of stress level)				

Fig. 3 Saving workforce

4. Conclusion

As a conclusion, FBM-STIS helps to reduce the workload of administrative staff by reducing the frontline contact with the students and numbers of documentation prepared because the easy access of the system; FBM-STIS can be accessed anytime and anywhere. Hence, the implementation of the system also solves the issues of the overdue process of application and confirmation letters where FBM-STIS may improve staff productivity where the staff can concentrate more on the job rather than entertaining the students at the counter. Moreover, this system contributes to the reduction of frequency of students to visit FBM-ITU up to 80% where students only need to pick-up the blue card and logbook after they print the confirmation letter from FBM-STIS. This system also aligned with SDG 12; Responsible Consumption and Production where its reduces the usage and cost of buying paper and cartridge up to RM 4,400, which equals to 93% of cost reduction per year. Hence, it can reach SDG 12.7 goal target, where it promotes sustainable public procurement practices with national policies and priorities (United Nations Website, n.d.). Moreover, this system is not only beneficial to staff but also to the students as they can get to experience the online applications by helping them to be independent and efficient in their own task. All of this lead to the efficiency of administrative work since the information can be retrieved automatically from the online system and analytical task can be performed effectively.

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