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Staff Training Information Management System (mySTIMsys)

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ABSTRACT

This innovation is triggered to upgrade and bring change to the current staff training information management for all staff at Politeknik Kuala Terengganu (PKT). Beforehand, the staff training information is managed manually where the files are used to keep all the documents pertaining training for professional development for every staff in the institution. Each staff has to keep the file individually and needs to update the information from time to time. It is very crucial for every staff to update the files because attending courses on training is a partial requirement in their job appraisal and evaluation. By having this innovation, the system is able to minimize the burden especially in managing the staff training information.
KEYWORDS: Staff, Training, Information, Management, System.

INTRODUCTION

This innovation manages to fulfil the institution's Key Performance Indicator (KPI) which has been set by the ministry of education. The KPI stated that every staff regardless of grade and position is required to attend a 10 day course on professional development in one calendar year. As such, the institutions must make sure this KPI is 100% achieved by the end of the year.

Besides, the innovation is solely complied with the MS ISO9001:2008, the standard set by Standards Industrial Research Institute of Malaysia (SIRIM) which responsible in monitoring and awarding the quality assurance of the products, processes and procedures to all Malaysian agencies. This innovation i.e. a system which is capable to manage all the staff training information, the management process of handling the record is very much easier, reliable, accurate and faster. Most importantly, it manages to enshrine significant benefits to the institution.

PROBLEM STATEMENT

The major source of the problem lies in the process of getting the data and information i.e. the Staff Training Information File (STIF) from each and every staff on time. There is an officer who is responsible to manage, coordinate and monitor all the files. At the same time, the coordinator is appointed for each department in order to assist the officer. The collection of files is done manually where the officer and the coordinators in charge have to go and meet every staff to get the files. The flow chart in Figure 1 explains clearly of the process.

Some of the issues highlighted from this manual process are as follows:

i. The delay in delivery of STIF due to the failure in updating the training information
ii. Some of the staff only returned the STIF at the end of the year
iii. Incomplete documents
iv. Failure of the supervisor/head of the department in verifying the effectiveness of course evaluation form
v. Uneconomical
vi. Time consuming especially in hunting all the STIFs.

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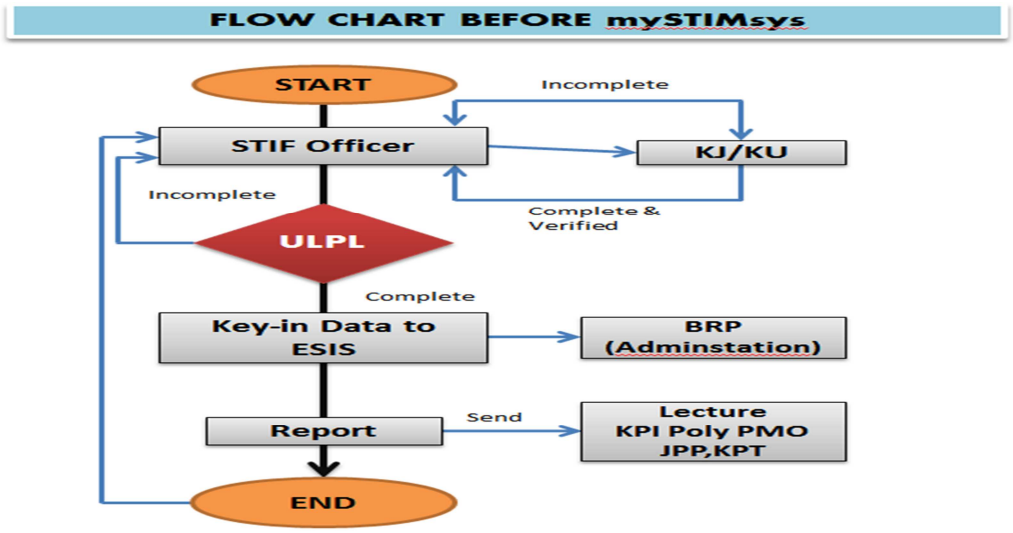

Figure 1: Standard operating procedure

A strategic planning for the project has been developed where the implementation of the project is wholly based on the Plan, Do, Check and Action (PDCA) [3] which is detailed by Figure 2.

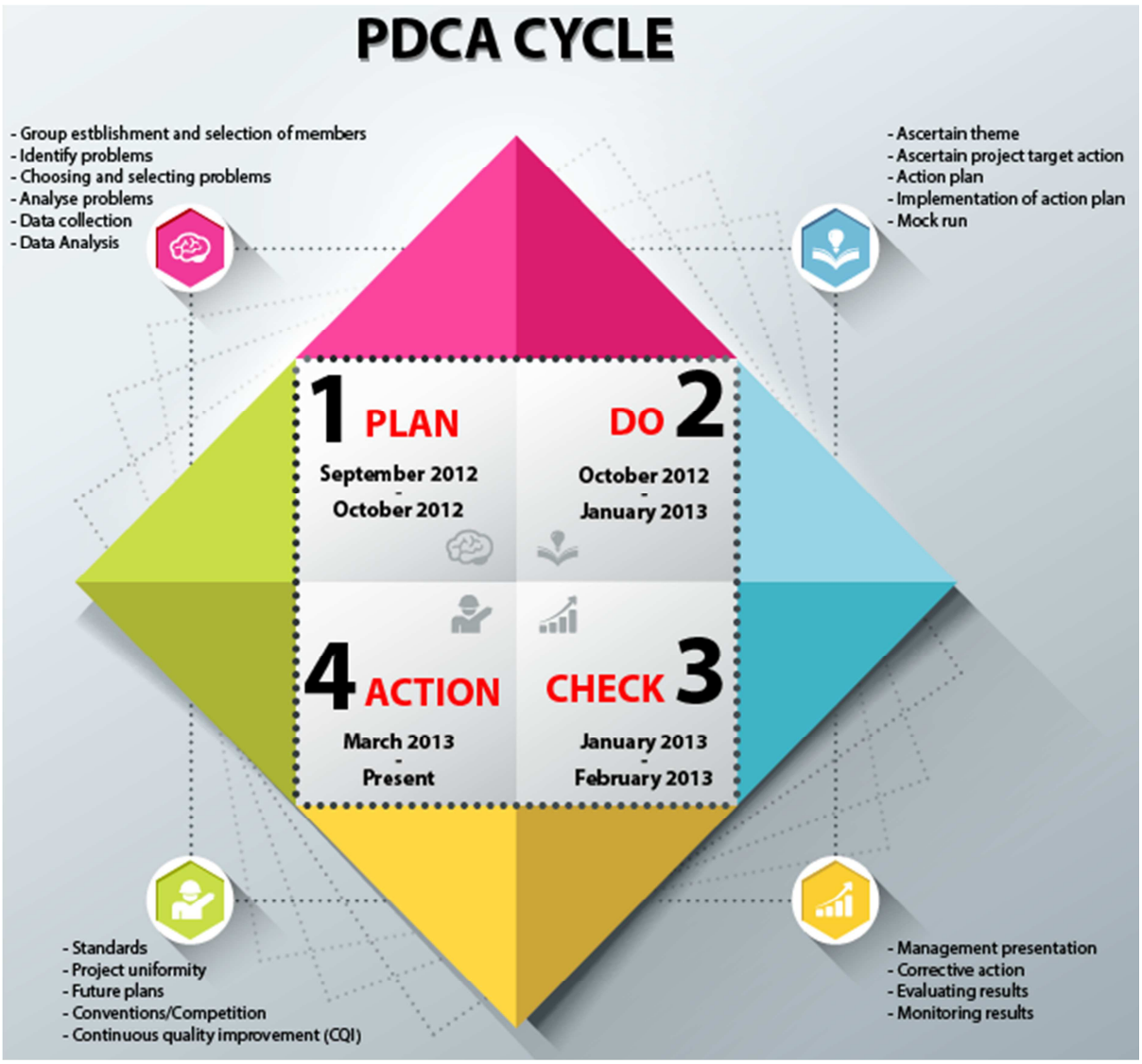

Figure 2: PDCA chart

METHODOLOGY

A system which is named as Staff Training Information Management System or mySTIMsys has been developed. This is a web-based system which enables users to update their training files online. Simultaneously, the evaluation of the effectiveness of the course can be done by the supervisor or head of department within the stipulated duration i.e. after 3 months of attending the course. As for the human resource department, they also would be able to update the staffs' service record book concurrently through online. Figure 3 shows the methodology and approaches in creating the solution.

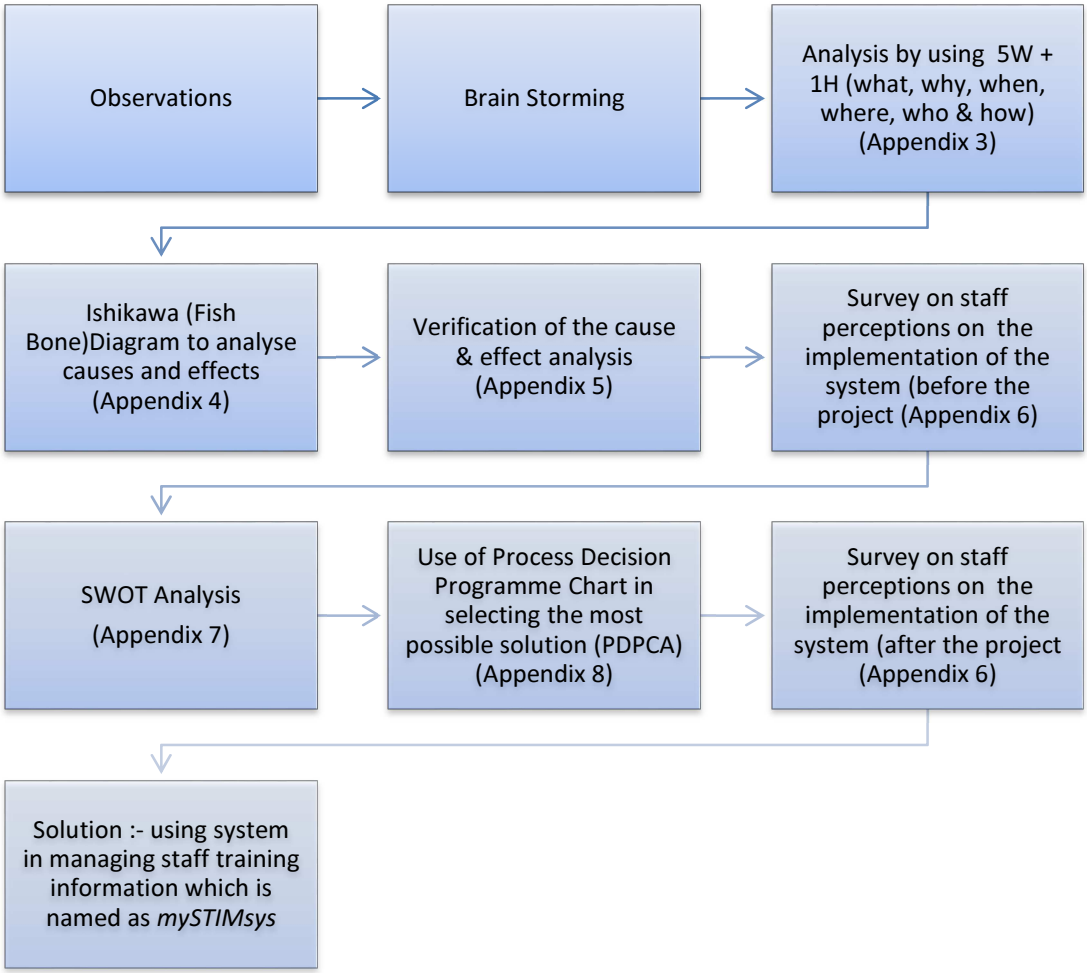

Figure 3: Methodology in creating solution

Development of System

Software

The system is developed based on the internet technology (web based) and open source code. Language used as user's interface is HyperText Markup Language (HTML) with support from Javascript and Cascading Style Sheets (CSS). The engine for the system uses PHP language and is integrated with MySQL, as source of database. All basic programming and language used is open source code because of its wide usage at global level. Besides that, the progress of the language usage itself is always updated and free [6].

One of the functions in the system is that the system is integrated with the Short Message Service (SMS) convenience. In order to successfully apply the function, GNU All Mobile Management Utilities (GAMMU) is being used and adapted into the system. GAMMU is also the open source code module, which enable hand phone to receive the message and send it to the user. Users can reach the system by using any internet browser in the market. Nevertheless, the system has been developed using Firefox search engine as it main choice.

Hardware

A server, the Intel Processor E3-1220(8M Cache, 3.10GHz) with the storage capacity 250GB and 16GB random access memory (RAM) is used to install this system. The above mentioned specification is capable to

support the operation of the system efficiently. As for the users, they can access to the system any time anywhere.

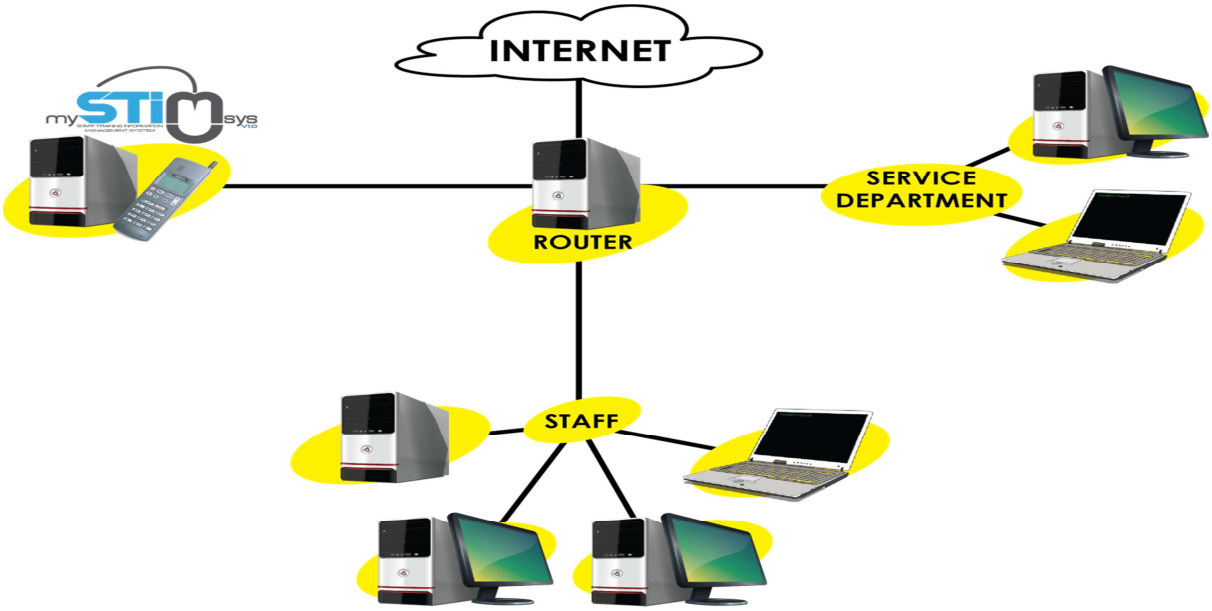

Figure 4: Diagram of network topology

Figure 5: Examples of interface of mySTIMsys

The system is specifically designed and customized by taking into considerations all the features which can rectify the aforementioned problem. They are:

- Online system
- Easy to access/reach
- Systematic
- Using SMS
- Via e-mail
- Save time and no space required
- System which can remind the clients to update the information on time
- Customer/Clients' oriented

The implementation of the system development is done in stages as explains in Figure 6.

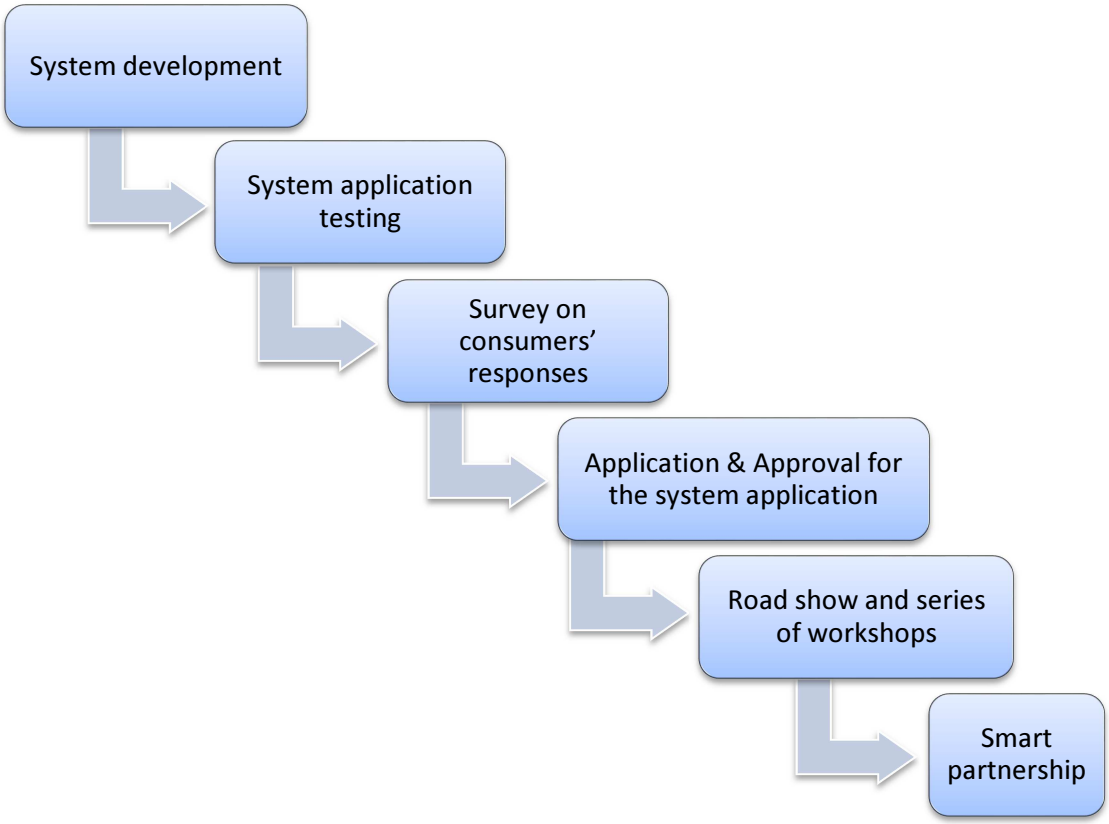

Figure 6: The stages in system development

The effectiveness as well as the benefits of the use of the system has been evaluated, measured and quantified on several bases. The study on the consumers' perception and satisfaction had been carried out using the questionnaires. A good design questionnaire will aid in increasing the willingness of respondents to complete the survey, as well as improving the accuracy of data collected [4, 5]. The data was analysed by using Statistical Package for the Social Sciences (SPSS) software.

RESULTS AND DISCUSSION

Table 1: Profile of demographic

Demographic Characteristic	N	Percentage (%)
Group		
Management/Professional	86	**53.1**
Support staf	76	**46.9**
Gender		
Male	91	**56.2**
Female	71	**43.8**
Age		
20 – 30 years	36	**22.2**
31 – 40 years	73	**45.1**
41 – 50 years	47	**29.0**
51 years and above	6	**3.7**
How did you know regarding MySTIMsys		

PKT website	101	**62.3**
Email	16	**9.9**
Memo	20	**12.3**
Others	25	**15.4**
How often the use of MySTIMsys in a month		
Everyday	16	**9.9**
Once a week	12	**7.4**
Once a month	6	**3.7**
Accordance with the requirements	128	**79.0**
Your role as a MySTIMsys user		
Competency owner	131	**80.9**
Authorizer	25	**15.4**
Administrative assistant	4	**2.5**
System administrator	**2**	**1.2**

Table 2: Mean score interpretation

Mean Score	Interpretation
1.00 – 2.33	**Low**
2.34 – 3.67	**Moderate**
3.68 – 5.00	**High**

Table 3: Reliability test and mean interpretation

Subscale	CITC	Alpha Scores	Mean	Interpretation
Physical system				
There is no problem of accessing the system in department/unit	0.48	0.725	4.27	**High**
The information displayed is easy to understand	0.49		4.20	**High**
The system can be accessed when out of office	0.50		3.91	**High**
The graphic system is attractive	0.60		3.69	**High**
Overall Mean	-		4.02	**High**
System Usage				
System application is easy to use	0.74	0.93	4.09	**High**
The time management of updating a training file can be minimized by using the system	0.75		4.12	**High**
I do not feel burdened while updating training information by online	0.79		4.04	**High**
The paper usage can be minimized by using the system	0.82		4.41	**High**
Use of the online system facilitates the process of updating training information	0.86		4.27	**High**
Use of the online system facilitates training information endorsement	0.78		4.28	**High**
Use of the system could reduced the problems of disappearance of staff's information training form	0.84		4.33	**High**
Overall Mean	-		4.22	**High**
Overall Overview				
The program has been implemented smoothly	-	-	4.47	**High**

Reliability analysis had been conducted for the rest of the 11 items, and all items showed more than .3 corrected item-total correlation (CITC). Therefore, all items in the two subscales can be considered acceptable. The internal consistency of the two subscales was estimated by the Cronbach's Alpha reliability coefficient. Table 3 shows that the alphas were all well above .70. The items measuring physical system displayed acceptable ($\alpha = .725$). However, the system usage items are considered good ($\alpha = .93$). As such, the system is highly viable and recommended to be used in managing staff training information system.

Table 4: Comparing mean scores of system usage between group staff using independent samples t-test

Variable	Programme	No. of Samples (N)	Mean	Level of Significance, p
System usage	Management/Professional	86	4.19	0.577
	Support Staff	76	4.25	

Means of system usage for each management and support staffs are 4.19 and 4.25 respectively. In the mean difference is significant, independent sample t-test is utilized to answer this. The two tail significance for group staff indicates that $p = 0.577$, $p > 0.05$ and therefore it is not significance. There is no significance different between management and support staff utilizing the MySTIMsys application system.

Table 5: Correlation between mean scores of system usage and group staff

		Mean of System Usage	System Usage
Mean of System Usage	Pearson Correlation	1	.175(*)
	Sig. (1-tailed)	.	.013
	N	162	162

* Correlation is significant at the 0.05 level (1-tailed).

Pearson correlation, r = 0.175 and significant value, p = 0.013, p < 0.05. Therefore, there is low correlation between group staff and system usage. This means, group staff is not associated with the usage of the MySTIMsys. In other words, the system can be used by all level of staff in the institution.

Analysis on KPI

The KPI has been set up by the ministry where all staff must attend 10 days of training throughout the year. It is made compulsory. At the beginning of the year, the 10 days is divided into 4 quarter in a year. As such, for the 1st quarter (3 months), all staff must at least attend 3 days of training, 2nd quarter and 3rd quarter they must attend 3 days of training consecutively and 1 day of training for the 4th quarter. Hence, the officer and the coordinators in charge have to collect the STIF according to each quarter in order to update the data. The average percentage of those who send the files according to the quarter is only around 63% to 70% from 2010 to 2012. This shows that not all staff managed to adhere to the time frame in updating the training data and in the end the officers were left with the incomplete data and resulted in low achievement for the KPI index.

The system was implemented in the beginning of year 2013. The target has been set up for each quarter. The average target is 97% which is quite high as compared with the previous years. Due to some unforeseen and uncontrollable circumstances, it is quite difficult to reach 100% for every quarter. One of the reason is some female staff on maternity leave are normally in confinement for almost 3 months. The data in Table 6 shows the percentage of the files which were collected by the end of each quarter beginning from year 2010 to 2012, the targeted percentage and the actual data collection for the year 2013. The actual percentage at the end of 2013 is 98%. It is clearly shown that this system managed to resolve the management problem.

Table 6: Statistics on STIF collection for 2010 to 2013

Year	Number of Staff	1st Quarter (Jan-Mac)	2nd Quarter (Apr-Jun)	3rd Quarter (Jul-Aug)	4th Quarter (Sep-Dec)	Average (%)
2010	158	70 (44.3%)	85 (53.8%)	112 (70.9%)	143 (90.5%)	65
2011	159	79 (49.7%)	91 (57.2%)	121 (76.1%)	154 (96.9%)	70
2012	161	68 (42.2%)	90 (55.9%)	101 (62.7%)	147 (91.3%)	63
Target 2013	163	155 (95.1%)	157 (96.3%)	159 (97.5%)	160 (98.2%)	97
Actual 2013	163	160 (98.2%)	159 (97.5%)	161 (98.8%)	161 (98.8%)	98

The Standard Operating Procedure (SOP)

A standard operating procedures manual is a written document that lists the instructions, step-by-step, on how to complete a job task or how to handle a specific situation when it arises in the workplace [3]. The thought process behind a standard operating procedures manual is that consistent results will occur as long as everyone follows the steps. The flow chart in Figure 7 describes the SOP for the STIF which is practically used by all staff.

There is significant changes occur in the work process (Refer to Figure 7a) when the system has been applied whereby some of the procedures (denote in the red column in the Figure 7b) had been bypassed. As such, the procedure it is now shorten and definitely it contributes to some quantifiable benefits to the institution.

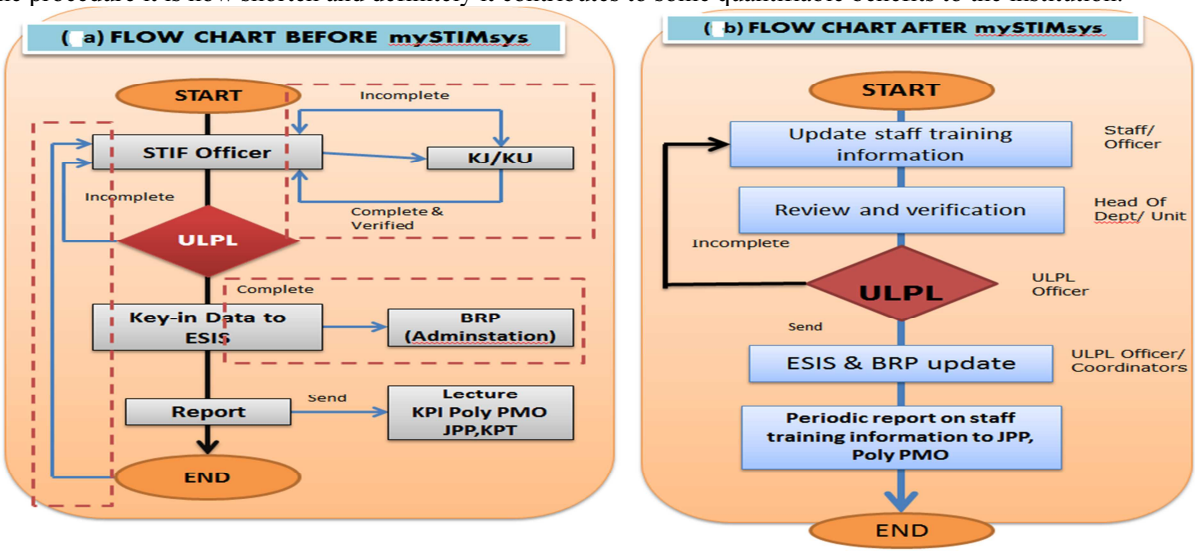

Figure 7: Comparison of flow chart on SOP before and after implementing system

Time Saving Analysis

The analysis in terms of time has been carried out in order to testify that the innovation managed to save the operational time. From Table 7, the result shows that there is a significant difference when comparison is made between the time used in STIF and time taken when mySTIMsys is used whereby it took about 8 days of completing the task to 13 minutes only.

Table 7: Time saving analysis

Time		
Before project (STIF)	**After Project (mySTIMsys)**	**Time Saved**
Time taken to send the file to ULPL -5 working days (2400 minutes)	Officer/ Staff key in data via online -5 minutes	2395 minutes
Time taken to process the information at ULPL -3 working days (540 minutes)	Processing information and verification via online by the officer	532 minutes
Total of 8 days	Total of 13 minutes	From 8 days to 13 minutes only

Cost Benefit Analysis

In term of cost, the use of the system manages to save about RM 2,630.74. Prior to this, there was quite some amount of funds allocated for the purchase of the files and papers every year. Table 8 explains clearly the comparison of the cost incurred when using the STIF and mySTIMsys. This accounting figure has been testified by PKT Finance Department.

Table 8: Cost benefit analysis

Cost			
	Before project (STIF)	**After Project (mySTIMsys)**	**Cost Saved**
Hard Cover File	RM 6.00 per unit x 161 staff = RM 966.00	RM 0.00 per unit x 161 staff = RM 0.00	RM 966.00
Forms	RM 10.50 per set x 161 staff = RM 1,690.50	RM 0.00 per set x 161 staff = RM 0. 00	RM 1,690.50
SMS	None	RM 0.16 per SMS x 161 staff = RM 25.76	
Total	RM 2,656.50	RM 25.75	Saving of RM 2,630.74

Utilisation of Man Power

Obviously, when the system is implemented the need for the officers to handle the operation is lessen. In this case, only one officer is designated to handle the whole process. Table 9 tabulates the testimony from the PKT Administration Department that confirmed the findings.

Table 9: Utilisation of man power

Man Power			
	Before project (STIF)	**After Project (mySTIMsys)**	**Cost Saved**
Person(s) in charge	5	1	From 4 to 1 only

By and large, the implementation of this innovation i.e. mySTIMsys manages to capture and solve many elements in the issue of management. Ultimately, the productivity can be increased and the delivery system is at the optimum level where the use of man power can be channeled strategically.

Intangible Benefits

Some of the benefits derived from the system are;

- Speed up the process of updating the information
- Make sure that the information is updated within the stipulated time
- Enhance the evaluation and monitoring of the staff training information management
- Lessen the burden of the person in charge

The Impact of the Innovation

Transfer of Knowledge and Technology

The change of the system from a manual handling process to the use of information technology enhances the new insight of managing the tasks at the most efficient level [1]. At this juncture, it also denotes that the institution is always keeping up with the advancement of technology especially in managing data and information. As such, the system more or less managed to educate and impart some knowledge and skills in the information technology among the community in the institution.

Besides, by standardizing and expanding the use of the system to other organisations and counterparts such as Politeknik Hulu Terengganu and Perbadanan Memajukan Iktisad Negeri Terengganu, this innovation can also benefit other agencies.

Group Performances

The survey has been carried out in order to find out some changes in each group member especially in terms of their commitments, understanding of the innovation process, creativity, thinking skills and level of confidence. The comparisons of these attributes are made before and after the project. The outcomes are quite positive where everyone expresses the pleasure that one gets from the task itself and the sense of satisfaction in completing or even working on a task. Figure 8 and 9 show the development of the group members' performance and the learning which has taken place.

No.	Attributes	Name							Average Level of Progression
		SUZ	HAZ	AZM	MAR	ZUL	SAF	ROH	
1.	Commitment	3	4	4	3	3	3	3	3.3
		4	5	5	4	4	4	4	4.2
2.	Understanding of Innovation	2	3	4	3	3	2	2	2.7
		4	4	5	4	4	4	4	4.1
3.	Creativity	3	3	3	3	3	4	3	3.1
		4	4	4	4	4	5	4	4.1
4.	Confidence	4	3	4	3	3	3	3	3.3
		5	4	5	4	4	4	4	4.2
5.	Job Satisfaction	3	3	3	3	3	3	3	3.0
		4	4	4	4	4	4	4	4.0

1 - NOT SATISFIED
2 - SATISFIED
3 - MODERATE
4 - GOOD
5 - EXELLENCE

BEFORE

AFTER

SUZ - SUZANA
HAZ - HAZIMAN
AZM - AZMEE
MAR - MARZUKI
ZUL - ZULKIFLI
SAF - SAFIA
ROH – SITI ROHANI

Figure 8: Level of attitudes progression among group members

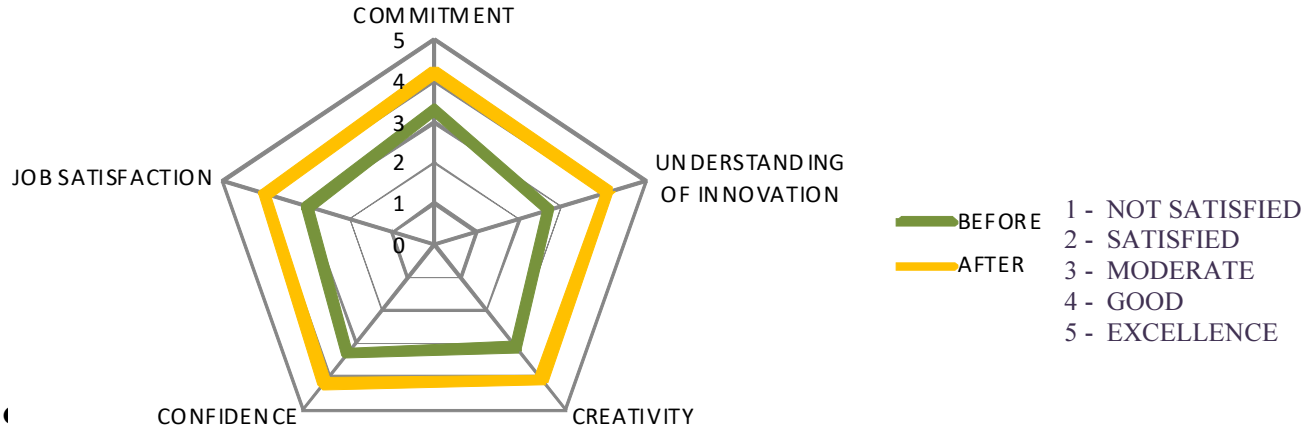

Figure 9: Chart on level of attitudes progression among group members

Apart from the success in minimizing the operational cost, the system brings the impact on the institution as a whole. It is also proven that by having the system the process and procedures can be speed up and human resources can be utilized economically. As a result, the whole process of the delivery system in the administration should become very efficient. On the other hand, as the institutions is governed and in compliance with the SIRIM standard i.e. MS ISO 9001:2008, the use of this system can strengthen and maintain this standard effectively. In short, the innovation enhances the level of productivity and performances of the institution. It is also in line with the initiative put up by the Malaysian government in the process of orienteering the communication and information technology in the public services.

Continuous Professional Development

Learning is a lifelong process [3]. The advancement in the knowledge and technology happens very fast and rapid. As such, being the educators and academicians, the lecturers must always be in the know and expert in their subject matters or expertise. The reason of the training is made compulsory to each staff especially the lecturer is to make sure that they are knowledgeable, competent and updated with new knowledge as well as to expose themselves to the education world in order to have a networking among the members in other organisations [2]. The innovation of the system which enables them to manage their training systematically is very pertinent and suitable in monitoring and upgrading the lecturers. Hence, the institution would be able to produce the competent and excellent graduates. Substantially, in strengthening the branding and establishing the Malaysia Department of Polytechnic as a national standard technical and vocational education provider.

Module Based System

The system is developed in a module where it can be customized according to the needs of the clients or situations. Likewise, it is flexible and suitable to any party whether it is local or international based organization.

The Availability of Infrastructure

The infrastructure especially in the field of information technology is available and ever ready provided by the authority since the information technology (IT) is one of the main agenda in the Malaysia Government Transformation Plan. Of late, it is believed that the information technology advancement is also been prioritized by other countries in the world. Hence, there should not be any constraint to other organisations to embark on the system.

Competitiveness and Marketability

This system possesses the high level of competitiveness and marketability especially in the government sector. Every ministry, department or sector must prepare their staff training plan as part of the professional continuous development. On that note, they must also have a standard system in managing the staff training information. As the system is designed and developed with the international standard features the software or hardware as well as the content, thus it would be able to cater the needs of the different requirements demanded by different organizations.

The Limitations

Where there is a will, there is a way. Despite of the limitations and the difficulties that have to be addressed during the initial stage of the implementation, they did not hinder the progress of the whole project. Table 10 explains some of the constraints and steps on how to overcome it.

Figure 10: Limitations of the project.

No.	Constraints / Limitations	Steps to Overcome
1.	Insufficient funds	Submit project proposal to the top management
2.	Lack of commitment	Motivating and aspiring each other
3.	Lack of understanding in process of innovation	Attending workshop and training on the subject matters
4.	Busy and occupied with the core business	- Discussion with the head of department/unit - Delegation of work/task
5.	Technical aspects of the system eg. Locating the suitable server	Negotiation and trial run method

CONCLUSION

Indeed, it is an undeniable fact that the innovation of the system enables the upgrade of the delivery system, efficiency of management and perhaps increases the quality of work and productivity. The endless need in the career and professionalism expansion and advancement of the public service, thus makes this system absolutely relevant and demonstrate high potential marketability. This project on innovation presents a high level impact especially to the PKT in many areas mainly in human resource management. Therefore, it is hoped that this creative innovation could be spread and applied by all the polytechnics, government agencies as well as the private sectors.

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REFERENCES

1. E. Dundon, 2007. The seeds of innovations: Cultivating the synergy that fosters new ideas. Prentice Hall of India.
2. P. Trott, 2008. Innovation management and new product development. Pearson Education.
3. Ralph D. Stacey, 2007. Strategic management and organisational dynamics: The challenge of complexity to ways of thinking about organisations. Pearson Education.
4. R. Panneerselvam, 2004. Research methodology. PHI Learning Pvt. Ltd.
5. Robert A. Peterson, 2000. Constructing effective questionnaires. Sage Publications.
6. R. Nixon, 2012. Learning PHP, MySQL, JavaScript, and CSS: A step-by-step guide to creating dynamic websites. O'Reilly Media, Inc.