UTM

UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING

SECD2523 & SECD2613

JOINT PROJECT

PHASE 1 - PROJECT PROPOSAL & PLANNING

Course Code: SECD2523 & SECD2613

Section: 08

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1.0 INTRODUCTION

In the old days, companies would have to spend numerous amounts of time and man forces to handle recruitment by using manual administration. The recruitment process that needs to be done are recruiting, resume screening, interviewing, offering the job and record keeping. In order to save those resources, all the manual administration must be digitized. Digitalizing the recruitment process nowadays is very important as it brings many benefits to the company itself such as lower hiring costs and increased employee productivity as the human resource department can invest the time saved to train new and existing employees. Our team was given the responsibility by Technocom System Sdn. Bhd., to digitalize their whole recruitment process.

2.0 BACKGROUND STUDY

The organisation named Technocom Systems Sdn Bhd, is situated in Johor Bahru, Malaysia, and was founded in 1984. The company's main industry involves industrial products while it's sub industry is electrical components. The organisation manufactures diodes, transistors and other similar semiconductor devices. Electronics manufacturing, original design manufacturing, and e-fulfillment services are also all provided by the company. The company has exceeded client expectations with world-class, one-stop solutions.

3.0 PROBLEM STATEMENT

Manual recruitment process used by Technocom System Sdn. Bhd. are time consuming and require a lot of man force for manual administration such as sending, forwarding and record keeping.

4.0 PROPOSED SOLUTIONS

In order to meet the requirements set by Technocom System Sdn. Bhd. in digitizing their recruitment process, listed below are the expected deliverables.

- Traceability by having an audit trail to ensure compliance.
  The e-recruitment system will have an audit trail as all the data are passed through online platforms such as email and stored in the database. This will allow traceability as the information is more accurate, readily accessible and usable anytime without any hustle when compared to manual process.
- Reduce man hours needed for the administration job.
  In the digitized recruitment system, less man hours are needed to send, forward files and forms. Not just that, since all the data is stored and organized in the database, there is no need for manual file organizing which takes a lot of time.
- Rechannel the existing man force time's to other tasks.
  The time saved from processing, organizing and storing the data can be used for other tasks thus increasing the employee efficiency.
- Analyze the recruitment team efficiencies.
  With the help of digitalized system, the data stored can be benefited to measure the efficiency of recruitment team in terms submittal efficiency, interview

efficiency and offer efficiency. The aspects that we can look into are quality, speed and cost spent when recruiting new employees.

4.1 FEASIBILITY STUDY

- **Technical Feasibility**

  The project is feasible within the limits of current technology. The technical requirement of the proposed project is that using software which should be a powerful designing software (such as Adobe XD or Oracle APEX) to design a relational database schema, working query (DML) based on the DDL design of the project and develop the prototype that can create high fidelity design. The students should be able to master the techniques of using the designing software at the end, which is a technical capability that is sufficient to support the project requirements.

- **Operational Feasibility**

  The proposed system should be able to solve the problems, and takes advantage of the opportunities identified during scope definition of the project by utilizing the use of DBMS which is an efficient set of programs that allows access, retrieval, integration and use of that data of E-recruitment system by considering appropriate security measures. If the system is developed, it will be used in a very long term of benefits due to its good social acceptability and ability to reduce issues like manpower problems, labour objections, organizational conflicts and policies.

- **Economical Feasibility**

Estimated Costs:	Estimated Benefits:
Hardware RM 15,000 Software RM 6,000 Salary RM 25,000 per year Maintenance RM 2000 per year	Increased productivity RM 1500 per week Reduced advertising costs RM 1000 per month
Assumptions:	
Discount rate 10% Sensitivity factor (cost) 1.1 Sensitivity factor (benefit) 0.9 Annual change (costs) 7% Annual change (benefit) 5%	

The expected costs of the project are hardware, software, salary, and maintenance. The hardware requirements for the DBMS and the Administration Server are 4 cores, 2 500 MHz CPU, 8 GB RAM, 300GB Hard drive with RAID and 1 Gbit Network Adapter. Besides, the cost of one-time licenses of operating system and DBMS software like Microsoft SQL or Oracle Database is required to allow users to create databases as well as store, manipulate and manage data in an existing database environment. The salary

costs of data administrators and database administrators who work with database software should be also considered. The expense of maintenance is necessary to keep the database clean and well organized so that it will not lose functionality.

The proposed benefits are increased productivity and reduced advertising costs. The system can increase productivity by making the recruitment process more automatic, efficient, flexible, and timesaving. Moreover, advertising usually costs just a couple of hundred ringgits. When comparing this cost of advertising to that of print or recruitment agencies that could cost you thousands of ringgits, the real financial advantages of e-recruitment become clear by reducing advertising costs.

- **Cost Benefits Analysis - Costs:**

Costs	Year 0	Year 1	Year 2	Year 3	Year 4
Development Costs -Hardware -Software	 16500 6600				
Total	23100				
Production Costs -Salary -Maintenance		 27500 2200	 29425 2354	 31485 2519	 33689 2695
Annual Prod. Costs (Present Value)		29700 27000	31779 26264	34004 25548	36384 24851
Accumulated Costs		50100	76364	101912	126763

- **Cost Benefits Analysis – Benefits, Gain/Loss, Profitability Index:**

Benefits	Year 0	Year 1	Year 2	Year 3	Year 4
-Increased productivity -Reduced advertising costs		70200 10800	73710 11340	77396 11907	81265 12502
Annual Benefits (Present Value)		81000 73636	85050 70289	89303 67095	93767 64044
Accumulated Benefits (Present Value)		73636	143925	211020	275064
Gain or Loss		23536	67561	109108	148301
Profitability Index	6.42				

Profitability index = 6.42, showing that it is a good investment within 4 years because its index is more than one. Therefore, we can conclude that the system is economically feasible, and the project should proceed further. The traditional methods of recruitment require far too much paperwork and time.

Consequently, from the job posting to the employment, the effectiveness of the e-recruitment can be seen as it could be the solution to streamline the entire process.

5.0 OBJECTIVES

Main objective of this project is to digitalize the whole recruitment process. That includes sending forms, feedback through email and database record keeping.

6.0 SCOPE OF THE PROJECT

To proceed with the projects, we have identified the scope which is the limit for this project. This scope will help us to define the required data structure, the entities including the number and type, and also the focus for this project. The new digitized system for this job application requires the involvement of Job Applicant, Hiring Panel, and HR-Talent Acquisition. The scope of the system includes:

- Submitting the detail of the job applicant for the job application through online application
- Verifying the job application form online
- Arranging interview details such as date, time, and attendance once a job applicant is selected after the verification.
- Providing feedback of the job applicant based on several criteria and the decision to accept, reject or KIV.
- Providing an offer letter to the job applicant if they accept the job offer.
- Keeping the record in a database for all the job applicants that agree to work with the company.

7.0 SYSTEM BOUNDARIES

The figure below is the proposed system boundary for the task that consists of data needed in the database.

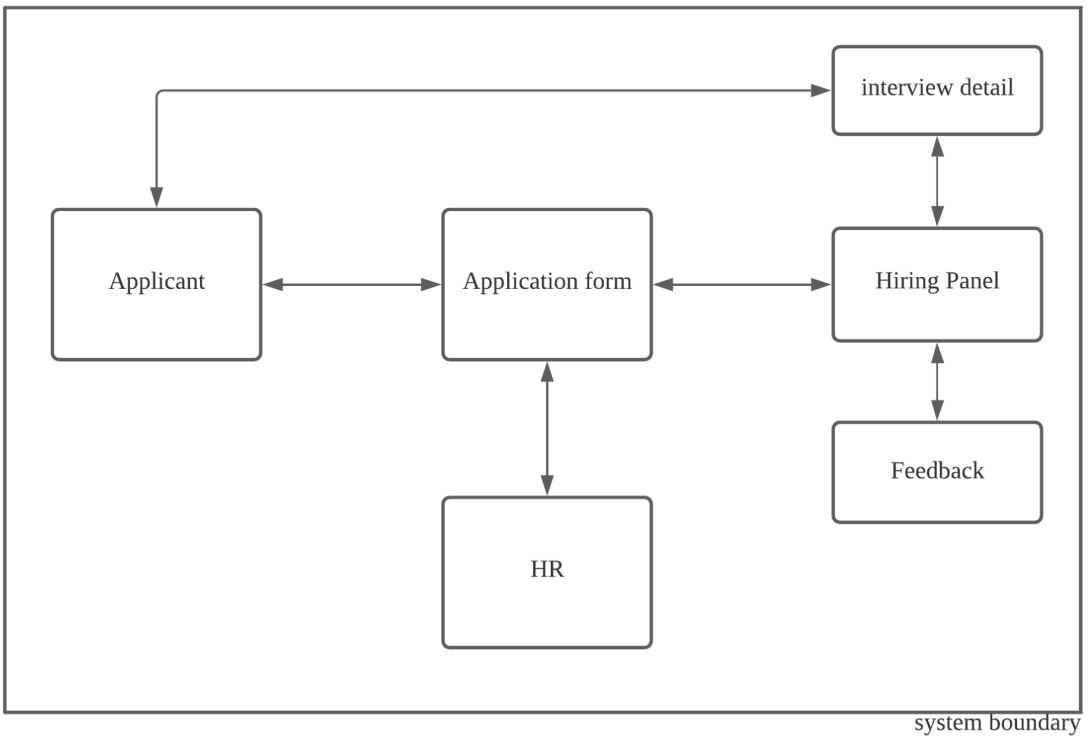

Figure 1: Proposed system boundary.

8.0 PROJECT PLANNING

- Human Resource

  The proposed system must have four (4) modules (minimum). Each student in the group will be responsible to design at least one module. This includes the analysis and design task of designing the module Data Flow Diagram (DFD) and Entity Relation (ER) design.

- Work Breakdown Structure (WBS)

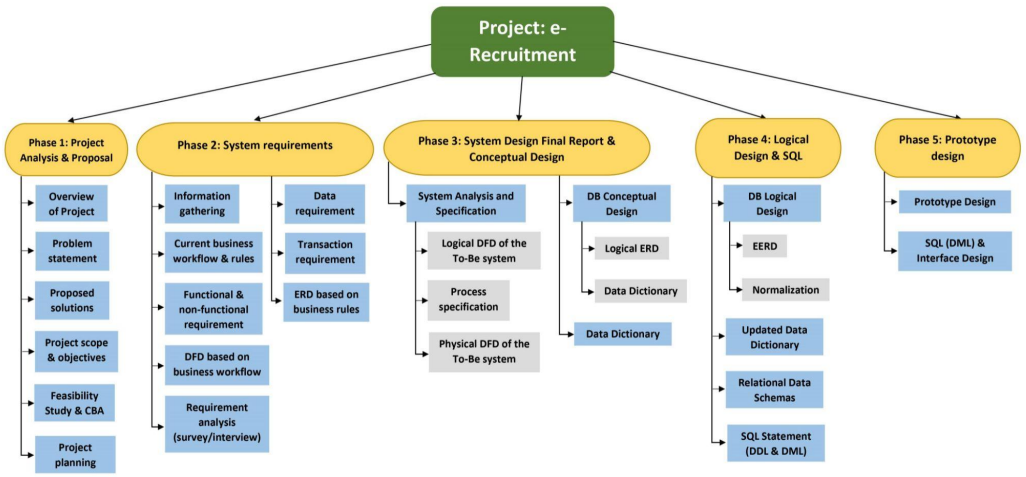

Figure 2: e-Recruitment work breakdown structure.

- Pert Chart

Index	Activity	Predecessor	Week
A	Phase 1: Project Analysis and Proposal	None	2
B	Phase 2: System Requirements	A	3
C	Phase 3: System Design Final Report and Conceptual Design	B	3
D	Phase 4: Logical Design and SQL	C	3
E	Phase 5: Prototype Design	D	3

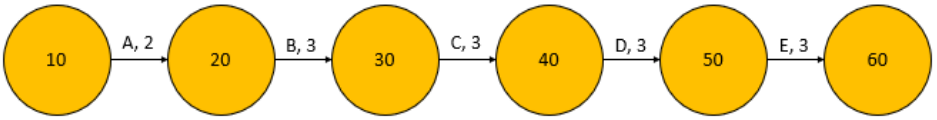

Figure 3: e-Recruitment Pert chart.

- Gantt Chart

TASK	DURATION (WEEK)	START	END	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Phase 1: Project Analysis and Proposal	2	7/11/2021	21/11/2021														
Phase 2: System Requirements	3	21/11/2021	12/12/2021														
Phase 3: System Design Final Report and Conceptual Design	3	12/12/2021	2/12/2021														
Phase 4: Logical Design and SQL	3	2/12/2021	23/12/2021														
Phase 5: Prototype Design	3	23/12/2021	13/1/2022														

Figure 4: e-Recruitment Gantt chart.

9.0 SUMMARY AND BENEFIT OF PROPOSED SYSTEM

In conclusion, the proposed system which is e-Recruitment for Technocom Systems Sdn Bhd with proposed solutions such as traceability by having an audit trail to ensure compliance, reducing man hours needed for the administration job, rechannel the existing man force time's to other tasks and can analyze the recruitment team efficiencies are feasible and should be moved forward. The proposed system is economically feasible as the profitability index = 6.42, showing that it is a good investment within 4 years. Moreover, this system will also follow the objective of this project which is to digitalize the whole recruitment process while at the same time eliminating the problem regarding the manual recruitment process namely time consuming and requires a lot of man force for manual administration.

More opportunities can be achieved and tasks can be done that can benefit the whole organization if this digitized system is implemented to remove the problems faced. All the information stored in the database can be easily accessed online by anyone according to their authorities. The organization will not have to spend their time and energy to sort all the records once the system is ready and operational. This will

provide more space for the company to grow and focus on their main tasks and goals as a company. Overall, this proposed system shall improve their workflow and increase the efficiencies for the entire organization.

9.1 REFLECTION

- **Reflection on Workshop 1**

  In workshop 1, the topic 'Project Management' was presented by Mr. Azmi Kamis, an IT Officer from UTMDigital. During the workshop, the speaker mostly explained about what is agile methodology, difference between SDLC and agile methodology, benefit of agile methodology, workflow of scrum method, the use of development tools and many more. Agile methodology is a style of project management that divides a project into phases. It necessitates ongoing engagement with stakeholders as well as continual development at each stage. The main difference between SDLC and agile methodology is agile is more suited for small scaled projects. Moreover, agile follows a continuous cycle with dynamic changes in requirements while SDLC follows sequential stages with no changes after initial stage. Not just that, SDLC requires close project manager involvement while agile requires close customer involvement.

  Benefits of agile methodology are increased product quality, faster development, better customer satisfaction and enabling continuous improvement. In agile methodology, the processes that are gone through are planning and feasibility study, analysis, design, development, testing, deployment and loop back to analysis for the next cycle. After all the requirements are met, the product will go through release and maintenance. During one cycle, the team will go through sprint backlog, sprint planning, daily stand-up, sprint refinement, showcase, retrospective and incremental output. In order to make this project successful, there are many development tools that can be used such as ClickUp, Taiga, GitLab, Runner, SourceTree, Microsoft Visual Studio, Oracle, MySQL and many more. For instance, ClickUp software was used by the UTMDigital team to plan and track the progress of the project. The workshop ended with a question and answer session where students can ask more questions to the speaker for better understanding.

- **Reflection on Workshop 2**

  "User Requirement" is the topic discussed in workshop 2 and was delivered by Ts. Haslinda Rasip, chief technology officer & co-founder of Dropee. Many concepts and ideas were explained during the session. To begin with, one of the key points that the speaker talked about was that in order to understand the user requirements, we need to understand what is supposed to be built and the reason to build it. She highlighted that as a developer, we are only the expert in developing the solution and not the expert in users problems. What she means by this is that a proper way of gathering information from the users is

important and should keep any assumptions regarding the users experience to the minimum. In the gathering requirements process, the speaker divides it into three separate processes which are requirements elicitation, requirements documentation, and requirements understanding. In detail, requirements elicitation means gathering information from relevant stakeholders to understand users needs from a business perspective. While requirements documentation involves documenting information gathered in the form of user stories and features specification so that anyone who is involved in the project team is able to access the information to a better understanding. Lastly, requirement understanding is making sure that everyone involved in the project is on the same page about what the team is trying to build.

"Why user requirements are important" is also one of the important details that were explained during the session. The speaker emphasized that users can only explain what they want limited to their own knowledge and it is our job as an expert in providing the solution to come up and give alternatives that may be a better solution in order to decide the direction of the project moving forward. In order to be successful in gathering users' requirements, the speaker gave 10 useful tips and insights. Those tips were establish project goals and objective early, document everything including all the finding and activity, understand the project development approach, talk to the right stakeholders and users, do not make assumptions about the requirements, get confirmations regarding any changes or decision from higher ups by documenting and presenting in a clear and imaginable way to achieve their full understanding, practice active listening, focus on business requirements about what to develop instead of how to develop, and prioritize our product features. User requirements can be a long and overwhelming process and it is common to be misguided along the way. Overall, it is recommended to always stay focused on the right set of priorities that match the actual requirements.

- **Reflection on Workshop 3**

  On 13 November 2021, a workshop "Data Management & Analytics" was held and delivered by Mr Aris bin Ariffin who is one of the persons in charge of the UTM Database system. In this workshop, we have learned a lot of things for the environment in database systems and applications. To be a Database administrator, there are a few job scopes that need to be known such as selecting software and hardware required by database to run, managing database infrastructure, maintaining security of the database, designing database scheme, deciding the database backup and restore policy, designing authorization checks and validation procedure, and monitoring database performance. Besides, several tools can be used to monitor the database performance to ensure the database runs smoothly. Students also got to know the database system applied in UTM environments such as Oracle and MySQL

and also the importance of setting up a recovery center in case of any unwanted incident.

As to ensure the system development is working successfully, the schema design of the database needs to be understood fully to avoid any interruption, mistake, or performance issue in the system. There are steps that should be followed by system developers when designing the database schema. The steps are to make sure the schema design for the application system adheres to the policy. Firstly, the system developers have to prepare the system requirement specification. Next is to prepare the table structure and RED based on the system requirement before for every module in the application system. After that, a data dictionary needs to be prepared. After those steps have been done by system developers, database admin will evaluate the ERD and data dictionary to follow the policy, creating the related database objects, and deploy in the development database to ensure the system development runs smoothly. System developers have to make sure all the application and database is being tested. Once it has been tested and approved, it can be deployed in the production database and keep monitoring the performance to be running smoothly. The workshop ended with a Q & A session in which students can get the chance to ask Mr Aris the question regarding the job and about the UTM Database system.