UNIVERSITY of GREENWICH

Alliance with FPT Education

ĐẠI HỌC GREENWICH (VIỆT NAM)

Liên kết với Tổ chức Giáo dục FPT

ASSIGNMENT 2

MANAGING A SUCCESSFUL COMPUTING PROJECT

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CLASS: GCD0824

TECHER: NGO NGOC TRI

ASSIGNMENT 2 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number and title	Unit 06: Managing a Successful Computing Project		
Submission date		**Date Received 1st submission**	
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Student Name	TRAN QUANG HUY	**Student ID**	GCD18457
Class	GCD0824	**Assessor name**	NGO NGOC TRI
Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	

Grading grid

P5	P6	P7	M3	M4	D2

☼ Summative Feedback:	☼ Resubmission Feedback:	
Grade:	**Assessor Signature:**	**Date:**
IV Signature:		

Contents

TABLE OF TALBES

TABLE OF FIGURES

INTRODUCTION

The purpose of this paper is based on assignment 1 managing a successful computing project to gain an understanding of project management and to give a brief overview of the methodology that underpins most formally run projects. Many organizations do not employ full time Project Managers and it is common to pull together a project team to address a specific need. While most people are not formally skilled in project methodology, taking a role in a project team can be an excellent learning opportunity and can enhance a person's career profile.

A project is generally initiated by a perceived need in an organization. Being a one-off undertaking, it will have a start and an end, constraints of budgets, time and resources and involves a purpose-built team. Project teams are made up of many different team members, for example, end users/customers (of a product or service), representatives from Information Technology (IT), project leader, business analysts, trainers, the project sponsor and other stakeholders.

Project management is the discipline of managing all the different resources and aspects of the project in such a way that the resources will deliver all the output that is required to complete the project within the defined scope, time, and cost constraints. These are agreed upon in the project initiation stage and by the time the project begins all stakeholders and team members will have clear understanding and acceptance of the process, methodology and expected outcomes. A good project manager utilizes a formal process that can be audited and used as a blue print for the project, and this is achieved by employing a project management methodology.

PART I. REVIEW PROJECT

1. Project charter

1. General Project Information				
Project Name:	**Virtual Assistant for order in restaurant (ORAI)**			
Executive Sponsors:	**Tran Quang Huy - Head of R&D department**			
Department Sponsor:	**R&D**			
Impact of project:	Technology solutions to help order food at restaurants			
2. Project Team				
	Name	**Department**	**Telephone**	**E-mail**
Project Manager:	Tran Quang Huy	R&D	0795541090	Supermido1996@gmail.com
Team Members:	Huynh Thai hieu	R&D	01215541090	Thaihieuhuynh1752@gmail.com
	Nguyen Ha Kieu My	R&D	0702477602	kieumynguyenha@gmail.com
	Duong Minh Phuc	R&D	0795584151	duongminhphuc@gmail.com
	Le Thanh Dat	R&D	0487512641	thanhdatle@gmail.com
	Le Hanh Dung	R&D	0354845121	hanhdungle@gmail.com
	Nguyen Quang Ngoc	Marketing	9823913121	ngocnguyenquang@gmail.com
3. Stakeholders				
Le Tan Thanh Thinh – CEO of company				
R&D department				
HR department				
Tran restaurant				
Business department				
4. Project Scope Statement				
Project Purpose / Business Justification				
This project – ORAI helps support customers in ordering food at restaurants, thereby reducing customers' waiting time and more attentive service.				

Objectives (in business terms)
- Reduce the waiting time about 2-5 mins. - Bring new experiences to customers. - The business and introducing food will be more efficient.
Deliverables
- Improving customer service: service time, handling exact requirements, ... - Apply AI into service, easily compete with other markets
Scope
- Applicable to medium and large restaurants. - Technology: Face detection/ recognition (CNN Network), Gender and age classification, Recommend product, Rasa core (NLP English, Vietnamese), Java
Project Milestones
- Initiate**: 31/07/2019* ***- Planning**: 08/08/2019* ***- Execute: • *NLP: 18/08/2019* • *Module: 28/08/2019* • *UX/UI: 04/09/2019* ***- Close:** 08/09/2019*

Major Known Risks (including significant Assumptions)

Risk	Risk Rating (Hi, Med, Lo)
Slow progress	High
Team member's attitude & abilities	Medium
Out of budget	High
Technical problems	High

Constraints

- Limit budget for implement project.
- Working between departments is difficult.

External Dependencies

There is an agreement between the stakeholder and project team

5. Communication Strategy

- Update progress to team leader every day.
- Team leader report to project manager every week.
- Keep track on milestones

6. Sign-off

	Name	Signature	Date (MM/DD/YYYY)
Executive Sponsor			
Department Sponsor			
Project Manager	Tran Quang Huy	***Huy***	

7. Notes

Table 1: Project charter

2. Project aims

This project Virtual Assistant for order in restaurant (**ORAI**) aims to:

- Applying new technology fields to operate the system in restaurants
- Solving problems in customer service such as receiving orders, handling correctly
- Reduce waiting time of customers
- The restaurants that the project targets are medium and large restaurants

3. Project Objectives

- Reduce the time when customers wait to serve to order or change the order
- Increase the accuracy of customer requirements when ordering
- Gathering more information about customers

PART II. TOOLS, TECHNIQUES AND METHODOLOGIES

1. Data gathering tools and techniques

Different data collection strategies include Case Studies, Usage data, Checklists, Observation, Interviews, Focus Groups, Surveys, and Document analysis.

Primary data is the data which is collected for the first time by the researcher. It will be the original data and will be relevant to the research topic. The ways used by researchers to collect the primary data include Interviews, Questionnaire, Focus Groups, and Observations. (humansofdata, n.d.)

List of Tools for Different Data Collection Technique:

Data Collection Techniques	Tools Used
Case Studies	Notebook, Excel
Usage Data	Suma
Checklist	Microsoft Project, Team Gannt, Trello
Interviews	Cell phone
Focus Groups	Learning Space Tool Kit
Surveys	Google form

Table 2: List of tools for different data collection techniques

Any research is only as good as the data that drives it, so choosing the right technique of data collection can make all the difference. In this article, we will look at four different data collection techniques – observation, questionnaire, interview and focus group discussion – and evaluate their suitability under different circumstances.

1.1. Observation

Seeing is believing, they say. Making direct observations of simplistic phenomena can be a very quick and effective way of collecting data with minimal intrusion. Establishing the right mechanism for making the observation is all ORAI project need.

Advantages	Disadvantages
Non-responsive sample subjects are a non-issue when you're simply making direct observation	More complex observations that ask observers to interpret something (e.g. how many cars are driving dangerously) require more complex training and are prone to bias.
If the observation is simple and doesn't require interpretation (e.g. the number of cars driving through an intersection per hour), this model doesn't require a very extensive and well-tailored training regime for the survey workforce.	Analysis may rely heavily on experts who must know what to observe and how to interpret the observations once the data collection is done.
Infrastructure requirement and preparation time are minimal for simple observations.	There is the possibility of missing out on the complete picture due to the lack of direct interaction with sample subjects.

Table 3: Advantages and Disadvantages about Observation

Making direct observations can be a good way of collecting simple information about mechanical, orderly tasks, like checking the number of manual interventions required in a day to keep an assembly line functioning smoothly.

Observing: Features of Effective Instruction

Intervention Instruction **The interventionist …**	**3** **Most of the time**	**2** **Some of the time**	**1** **Rarely**	**0** **Not at all**
1. Introduces the concepts and skills in **small steps**				
2. Explains concepts and skills in **clear and direct language**				
3. Models and demonstrates procedures with the use of **lots of examples**				
4. Checks initial practice items for correctness and provides immediate **feedback**				
5. Provides **many opportunities for practice** after initial presentation of task/skill				
6. Gives **individual and/or group opportunities to respond**				

1.2. Questionnaires

Questionnaires, as we consider them here, are stand-alone instruments of data collection that will be administered to the sample subjects either through mail, phone or online. They have long been one of the most popular data collection techniques.

Advantages	Disadvantages
Questionnaires give the researchers an opportunity to carefully structure and formulate the data collection plan with precision.	Questionnaires without human intervention (as we have taken them here) can be quite passive and miss out on some of the finer nuances, leaving the responses open to interpretation. Interviews and focus group discussions, as we shall see later, are instrumental in overcoming this shortfall of questionnaires.
Respondents can take these questionnaires at a convenient time and think about the answers at their own pace.	Response rates can be quite low. Questionnaires can be designed well by choosing the right question types to optimize response rates, but very little can be done to encourage the respondents without directly conversing with them.
The reach is theoretically limitless. The questionnaire can reach every corner of the globe if the medium allows for it.	

Table 4:: Advantages and Disadvantages about Questionaires

The survey can be carried out through directly-administered questionnaires when the sample subjects are relatively well-versed with the ideas being discussed and comfortable at making the right responses without assistance. A survey about newspaper reading habits, for example, would be perfect for ORAI project.

Virtual Assistant for order in restaurant (ORAI)

Thank you for using our system. We hope you had as much fun attending as we did organizing it.

We want to hear your feedback so we can keep improving our logistics and content. Please fill this quick survey and let us know your thoughts (your answers will be anonymous).

How satisfied were you with the system? *

	1	2	3	4	5	
Not very	○	○	○	○	○	Very much

How relevant and helpful do you think it was for your order? *

	1	2	3	4	5	
Not very	○	○	○	○	○	Very much

What were your key take aways from this system?

Short-answer text

How satisfied were you with the logistics? *

1 = Very disatisfied 5 = Very satisfied

1.3. Interviews

Conducting interviews can help you overcome most of the shortfalls of the previous two data collection techniques that we have discussed here by allowing you to build a deeper understanding of the thinking behind the respondents' answers.

Advantages	Disadvantages
Interviews help the researchers uncover rich, deep insight and learn information that they may have missed otherwise.	Reaching out to all respondents to conduct interviews is a massive, time-consuming exercise that leads to a major increase in the cost of conducting a survey.
The presence of an interviewer can give the respondents additional comfort while answering the questionnaire and ensure correct interpretation of the questions.	To ensure the effectiveness of the whole exercise, the interviewers must be well-trained in the necessary soft skills and the relevant subject matter.
The physical presence of a persistent, well-trained interviewer can significantly improve the response rate.	

Table 5: Advantages and Disadvantages about Interviews

Interviews are the most suitable technique for surveys that touch upon complex issues like healthcare and family welfare. The presence of an interviewer to help respondents interpret and understand the questions can be critical to the success of the survey.

1.4. Focus Groups Discussions

Focus group discussions take the interactive benefits of an interview to the next level by bringing a carefully chosen group together for a moderated discussion on the subject of the survey.

Advantages	Disadvantages
The presence of several relevant people together at the same time can encourage them to engage in a healthy discussion and help researchers uncover information that they may not have envisaged.	Finding groups of people who are relevant to the survey and persuading them to come together for the session at the same time can be a difficult task.
It helps the researchers corroborate the facts instantly; any inaccurate response will most likely be countered by other members of the focus group.	The presence of excessively loud members in the focus group can subdue the opinions of those who are less vocal.
It gives the researchers a chance to view both sides of the coin and build a balanced perspective on the matter.	The members of a focus group can often fall prey to group-think if one of them turns out to be remarkably persuasive and influential. This will bury the diversity of opinion that may have otherwise emerged. The moderator of a focus group discussion must be on guard to prevent this from happening.

Table 6: Advantages and Disadvantages about Focus Groups Discussions

Focus group discussions with the lecturers of a university can be a good way of collecting information on ways in which our ORAI system can be made more research-driven.

2. Data analyzing tools and techniques

Data analysis is the process of working on data with the purpose of arranging it correctly, explaining it, making it presentable, and finding a conclusion from that data.

It is done for finding useful information from data to make rational decisions.

As it is done for decision making, it is important to understand the sole purpose of data analysis. The main purpose of data analysis is interpretation, evaluation & organization of data and to make the data presentable.

There are two methods of data analysis:

- **Qualitative Analysis:** Qualitative Analysis is done through interviews and observations.
- **Quantitative Analysis:** Quantitative Analysis is done through surveys and experiments.

Several methods are available to analyze qualitative data. The methods that project used are:

- **Content analysis:** This is one of the most common methods to analyze qualitative data. It is used to analyze documented information in the form of texts, media, or even physical items. When to use this method depends on the research questions. Content analysis is usually used to analyze responses from interviewees.
- **Narrative analysis:** This method is used to analyze content from various sources, such as interviews of respondents, observations from the field, or surveys. It focuses on using the stories and experiences shared by people to answer the research questions. (humansofdata, n.d.)

PART III. RESULTS OF RESEARCH

1. Quantitative research result Online survey

1.1. Respondents

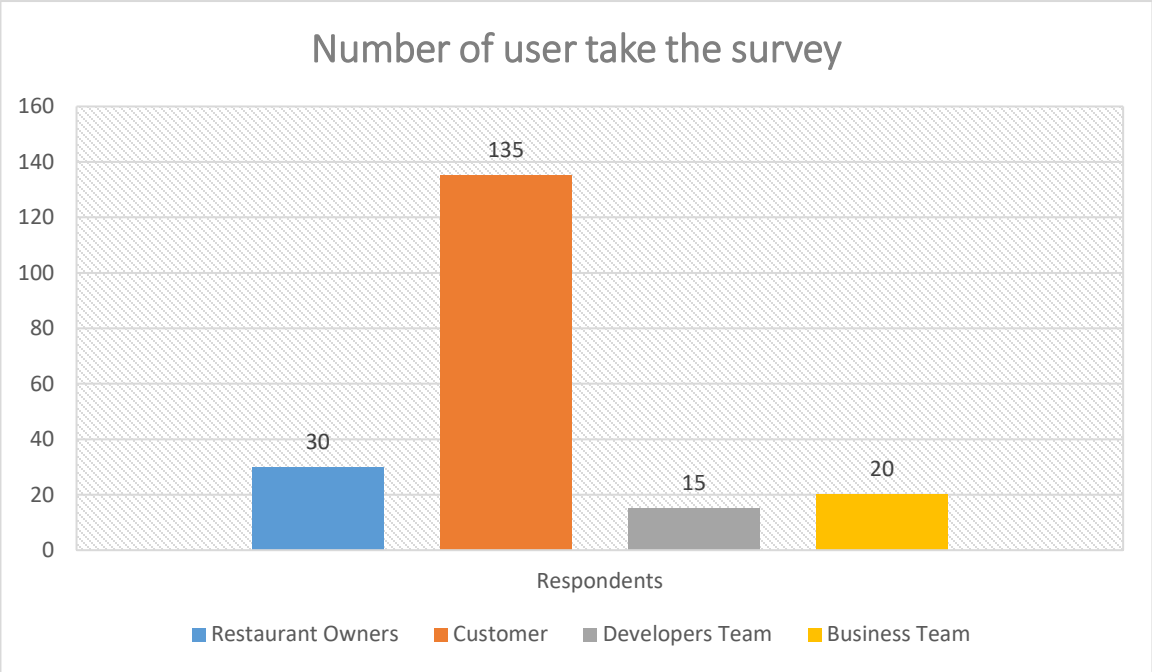

Figure 1: Number of user take the survey

Through the questionnaire sent to **200 users** who experienced the ORAI system, there were **194 users** who answered the questionnaire and had **190 questionnaires valid**. General statistics on the purpose achieved after using the question system are as follows:

This project is a comprehensive system that includes software and hardware. It is important to identify key stakeholders:

- **Restaurant Owners:** is the person that the question will target. This includes service and project technical. They will be asked primarily about access to the system and to limit their access.
- **Customers:** Online and off site. For customers, it is important to provide a smooth order product experience. This requires strong database and connectivity.
- **Developer team:** Will receive commission based on the number of copies sold. Contracts are completed before their products are available on the system, they talk less about how the software will work.
- **Business Team:** This team will make sure that ORAI project will successful at the end of develop.

From reviewing the needs of stakeholders, the questions therefore aim to attract stores. Comments on system security, frequency of access and the degree of authority that stores need to access system.

1.2. Satisfaction about the product

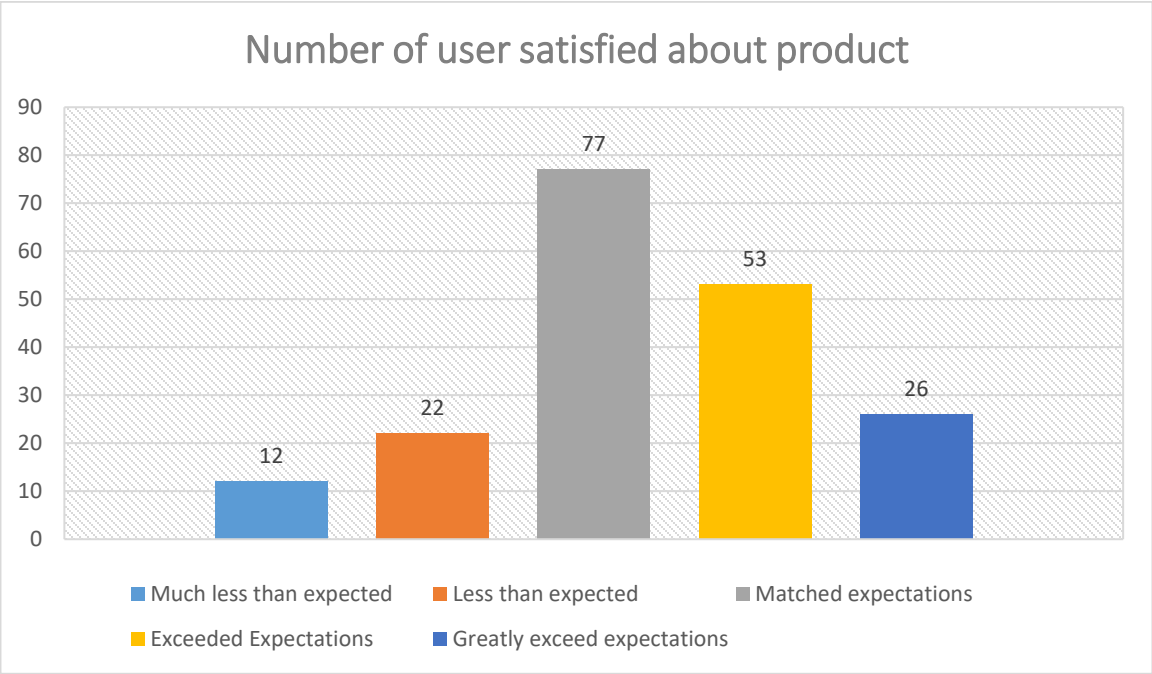

Figure 2: Number of user satisfied about product

Illustrates the satisfaction of participated employees about our current ORAI system. Neutral is the most selected one with 190 votes, next up is 12 votes for “Much less expected”, 22 votes for “Less than expected”, 77 votes for “Matched expectations”, 53 votes for “Exceeded Expectations” and 26 vote for “Matched expectations”.

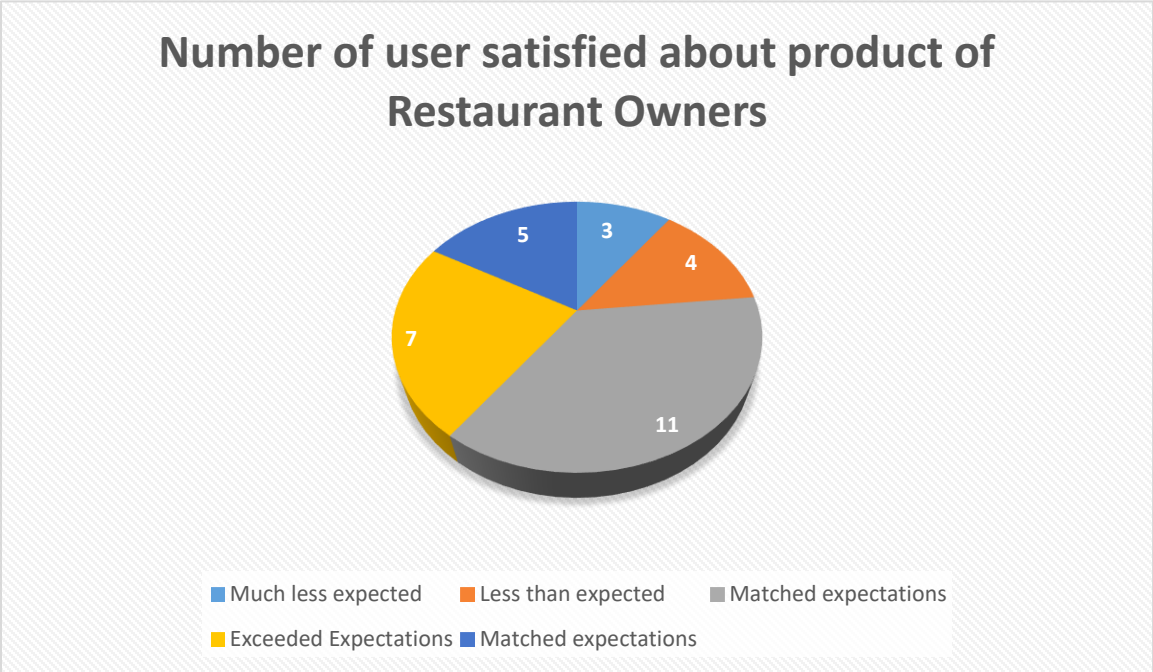

Figure 3: Number of user satisfied about product of Restaurant Owners

About number of user satisfied product of restaurant owners there are 3 votes for Much Less than expected, 4 votes for less than expected, 11 votes for Matched expectations, 7 votes for Exceeded Expectations and 5 votes for matched expectations.

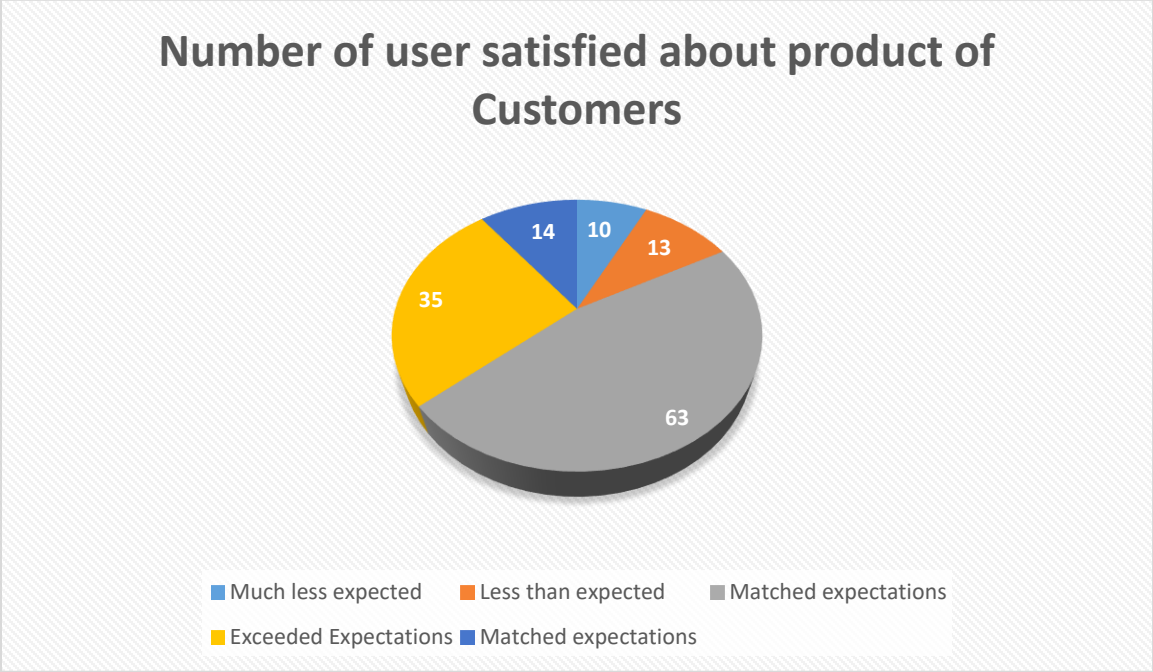

Figure 4: Number of user satisfied about product of Customers

About number of user satisfied product of customers there are 10 votes for Much Less than expected, 14 votes for less than expected, 63 votes for Matched expectations, 34 votes for Exceeded Expectations and 14 votes for matched expectations.

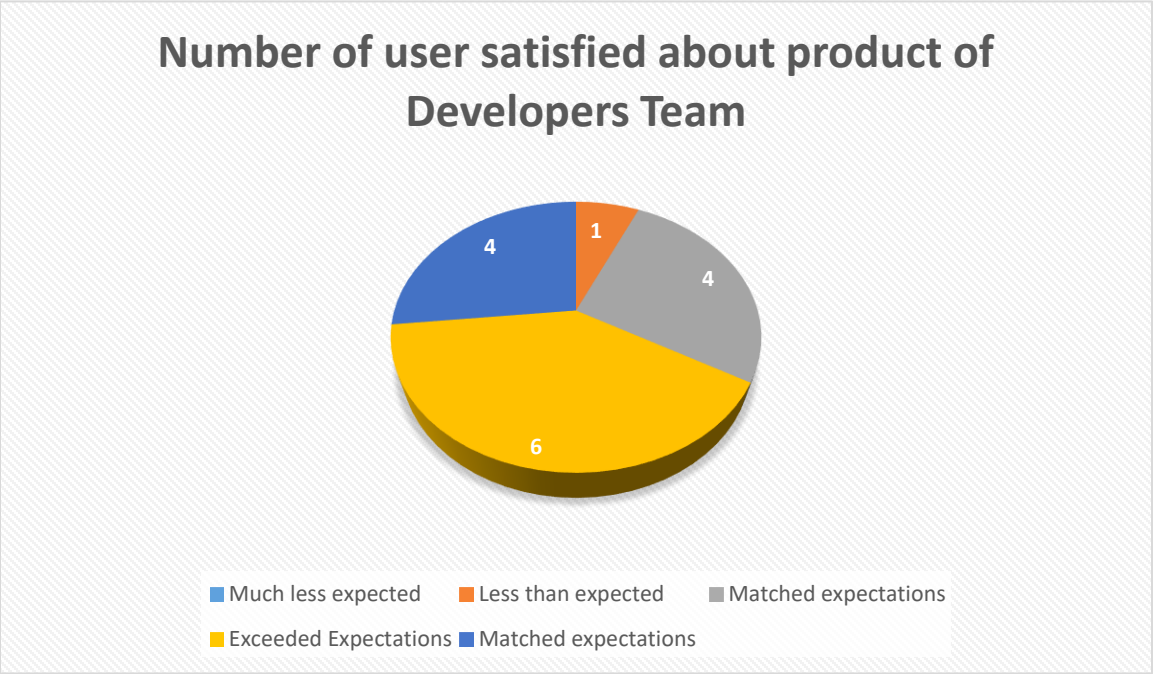

Figure 5: Number of user satisfied about product of Developers Team

In developer Team, About number of user satisfied of product there are 1 vote for Less than expected, 4 votes for Matched expectations, 6 votes for exceeded Expectations and 4 votes for matched expectations.

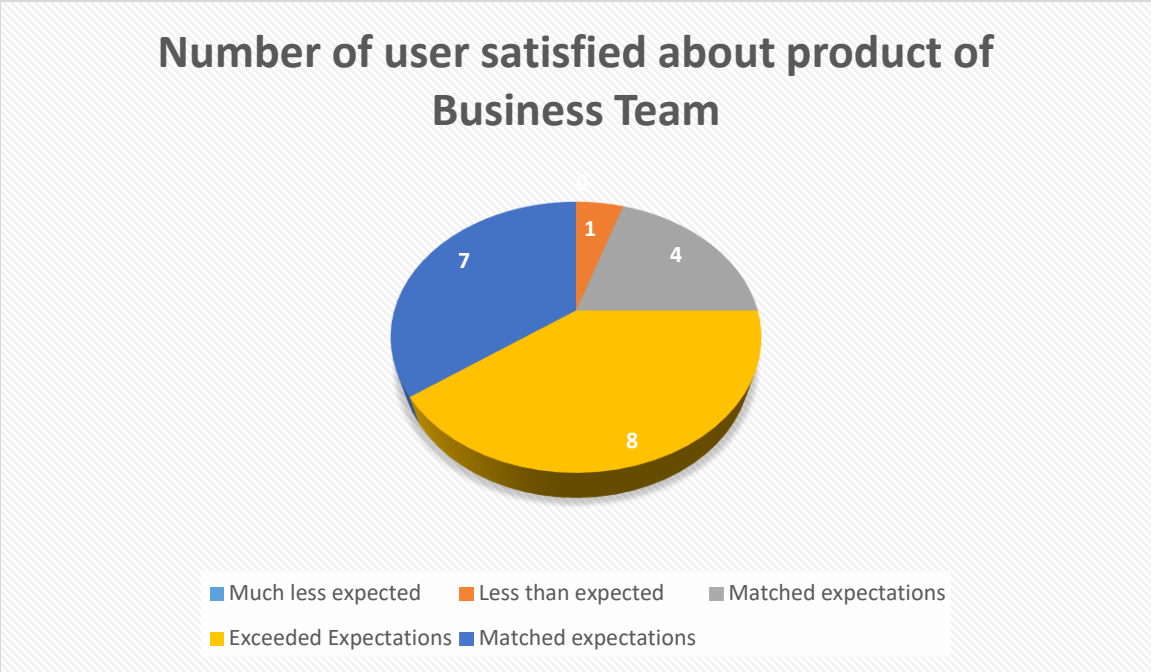

Figure 6: Number of user satisfied about product of Business Team

1.3. ORAI's function

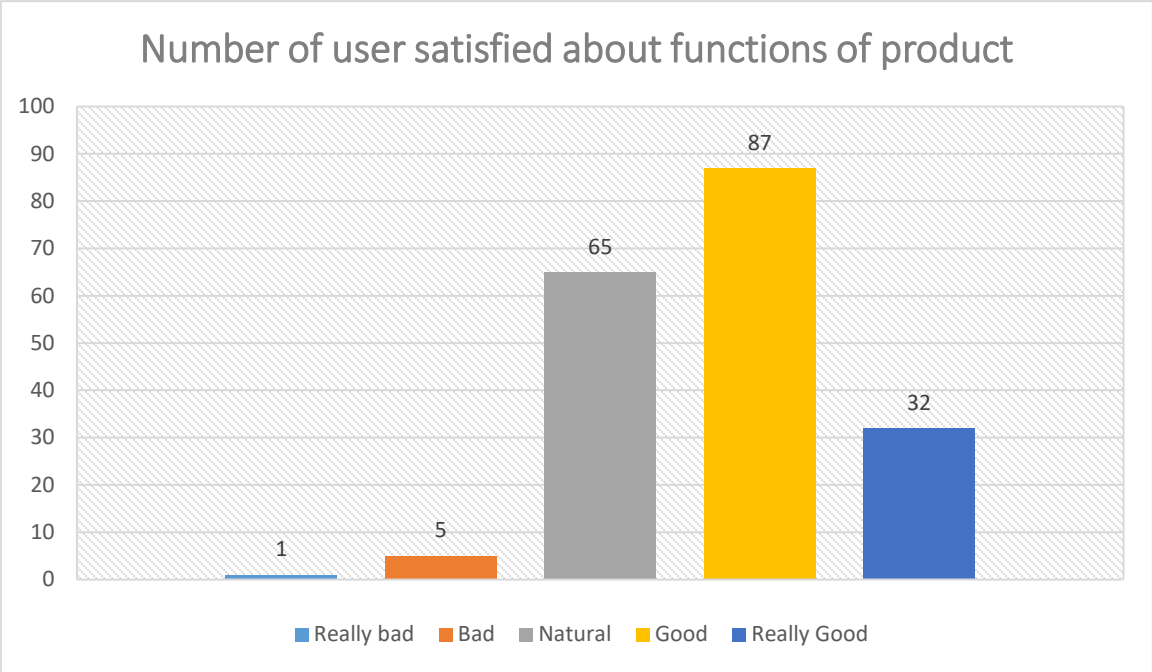

Figure 7: Number of user satisfied about functions of project

About the number of user satisfied about all of funtions of ORAI system, there are 1 vote for Really Bad, 5 vote for Bad, 65 votes for Natural, 87 votes for Good and 32 votes for Really Good.

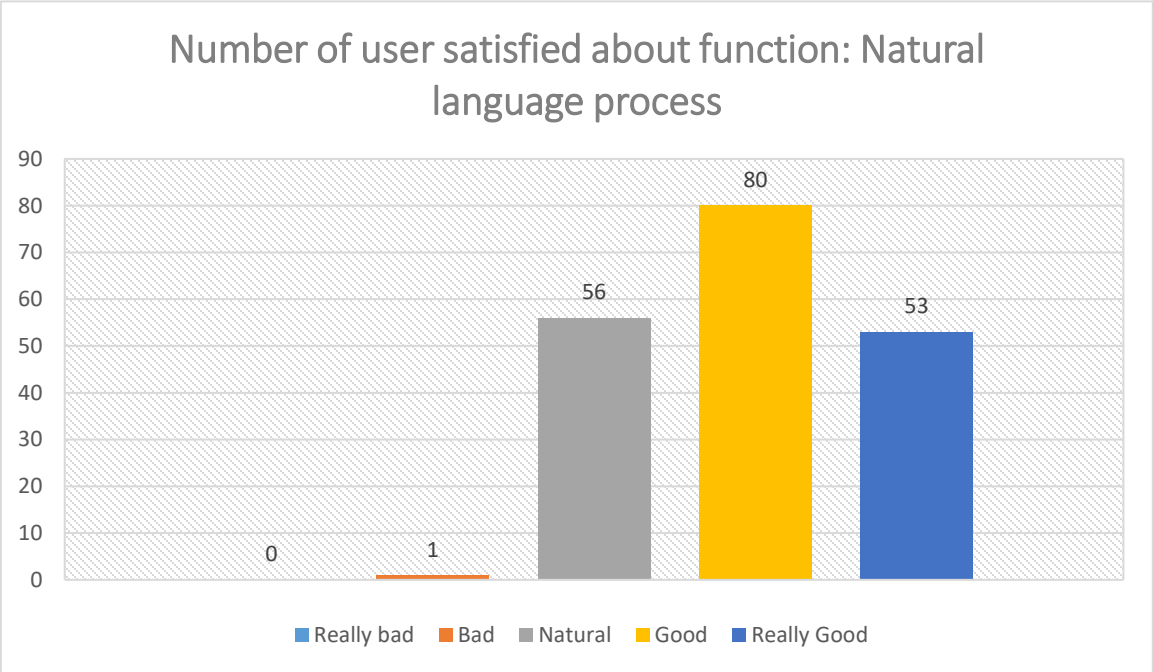

Figure 8: Number of user satisfied about function: Natural language process

About the functions Natural languge process (NLP), there are 0 vote for Really Bad, 1 vote for Bad, 56 votes for Natural, 80 votes for Good and 53 votes for Really Good.

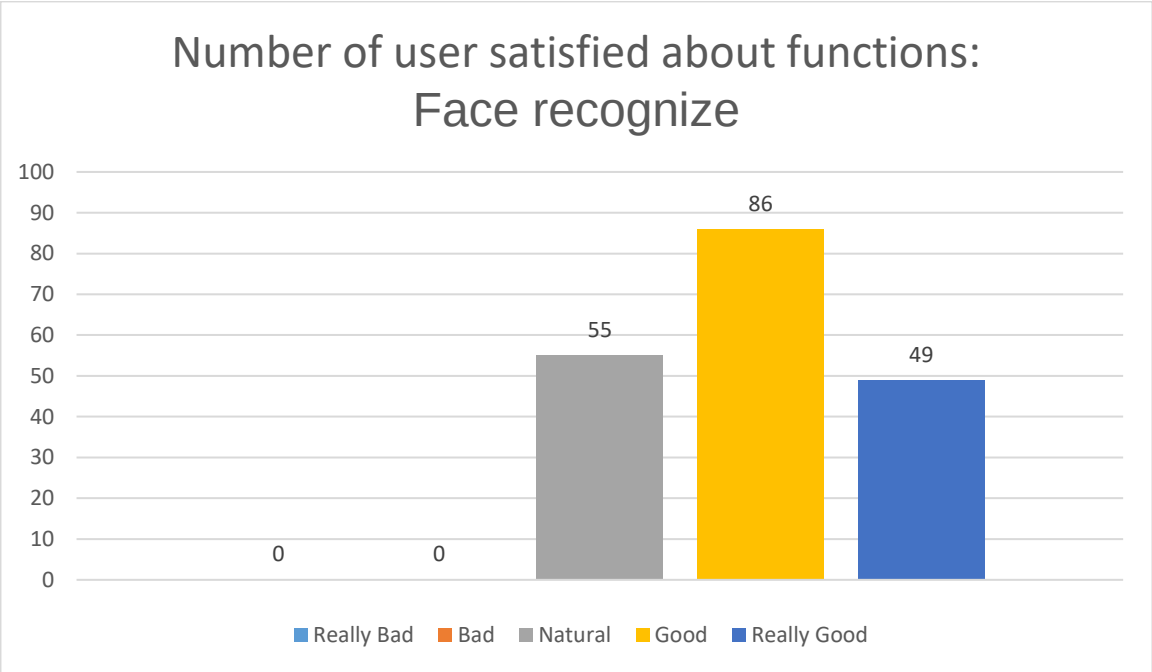

Figure 9: Number of user satisfied about functions: Face recognize

About the functions face regognize, there are 0 vote for Really Bad, 0 vote for Bad, 55 votes for Natural, 86 votes for Good and 49 votes for Really Good.

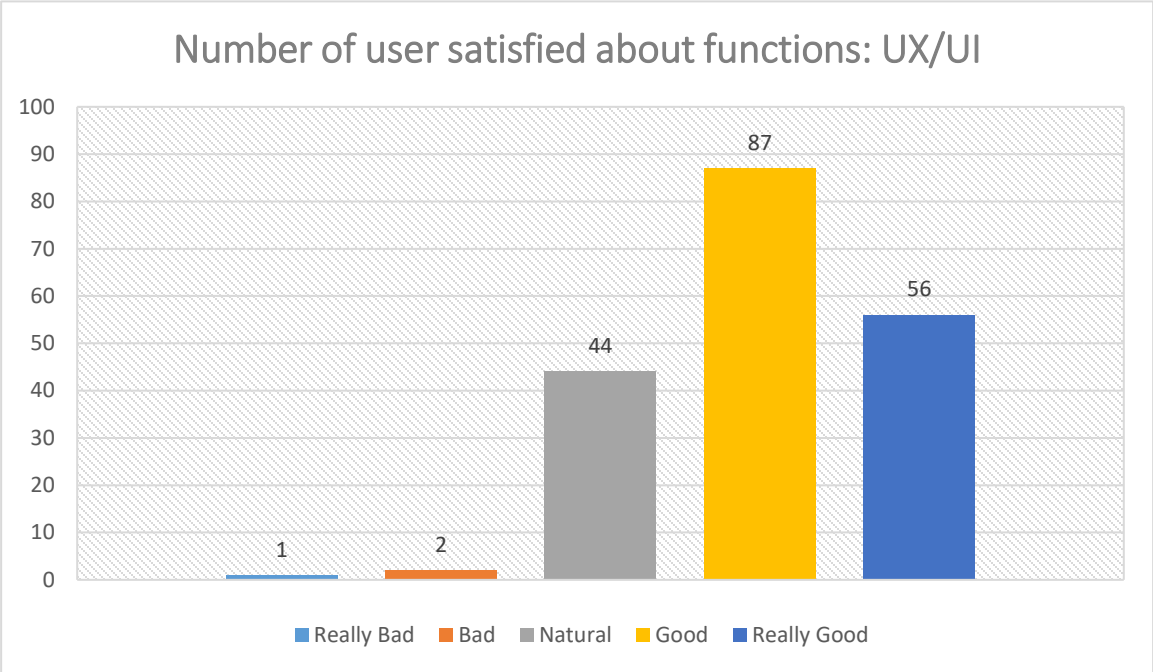

Figure 10: Number of user satisfied about functions: UX/UI

About the functions UX/UI, there are 1 vote for Really Bad, 2 votes for Bad, 44 votes for Natural, 87 votes for Good and 56 votes for Really Good.

1.4. Compare between using ORAI system and “normal system” to order in restaurant

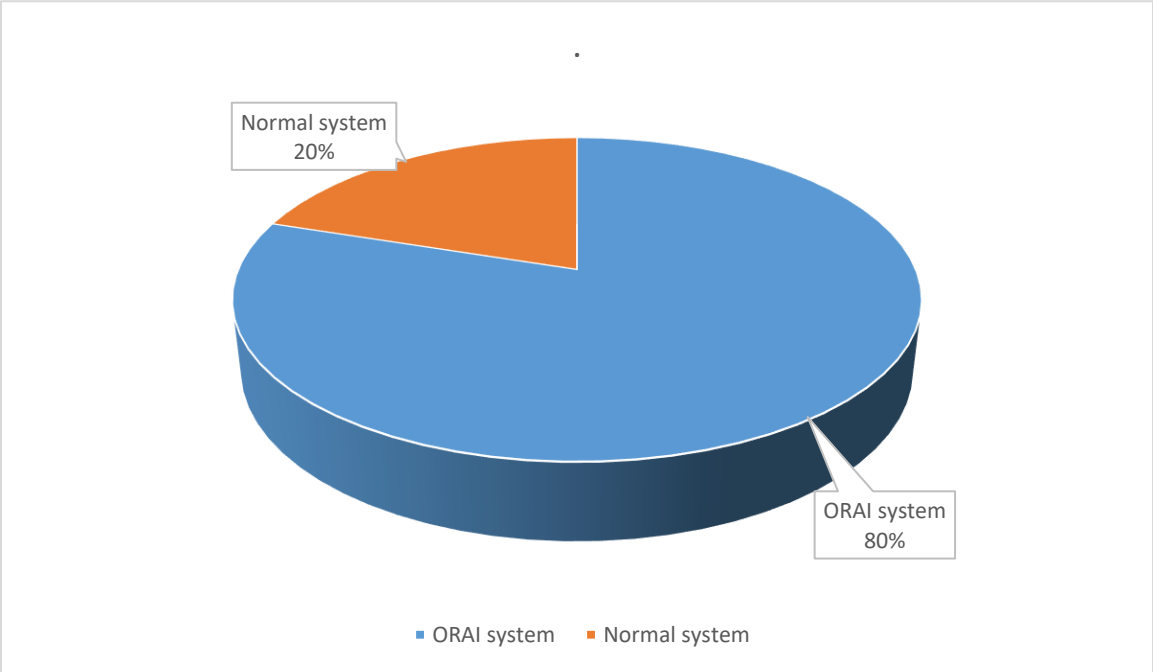

Figure 11: Compare between using ORAI system and "normal system"

“Normal system” is means if customer want to order food in restaurant, they must to call a waiter to service.

There are over 80% Participant's satisfaction vote for ORAI system more than “Normal system” 20%.

2. Qualitative research result meeting

A JAD is a challenging environment because it is a meeting or workshop that brings together people from a number of different disciplines. They could include business or product owners, systems analysts, enterprise architects, solution architects, software developers, and managerial staff. Each will come with their own points of view and may at times resort to lingo specific to their focus area.

The Business Analyst (BA) frequently stands front and center as the facilitator of a JAD and as the presenter of what the business needs, objectives, and requirements are. The BA may also further elicit requirements as needed.

After completing the **JAD meeting**, the perspective of relevant participants about current system can be documented as follow:

2.1. Report meeting of Business Team

Current ORAI system of our company can be considered as the top 10 best-company that works in this revenue of entire country, thanks to the effective and dynamic results we provided in this system.

- ORAI system requires so much time to process. However, in the end results, which is the suitable orders we suggested, are sometimes not as effective as they wanted.
- ORAI system is not compatible with some of the old and new devices on the market, but most of the ORAI has met most of today's popular devices and is easy for users to adapt.

2.2. Report meeting of all related team

ORAI system has been working so well based on efforts of 35 dedicated team members, as well as 5 part-time interns.

Current system cost monthly $5,000 in total to run which include: Human resource, financial purpose, other facilities incurred, etc.

The existing ORAI system can send requests to order multiple products continuously for a short time, shorten and record data as usual about 1 to 3 minutes. The recorded data will be compared with the required data from the menu or restaurant information, this process of importing background data will take between 3 and 6 hours for each restaurant. After that, job proposals will be sent back to the stakeholders, if they agree, it will take 15 minutes to set up an appointment to set up the product.

ORAI system need to maintenance and regular operation every month.

2.3. PERSPECTIVE OF DEVELOPER TEAM

ORAI system has been working very well. However, based on their experience in applying AI technologies into the system, the efficiency of our system could be far more superior if we implement AI into it:

- Reduce the system's required human-resource by atomizing high-volume tasks such as input database & analyzing.
- Provide CV analysis and shorting function, therefore increase the performance by 20% and no disruption to the workflow.
- Provide automated chatbot to answer customers question.
- Provide the ability to do the order online by giving questions, recording the answer audio from customer and analyze it

However, the best amount of team member within the developer team should be at least 10 members (not to mention their expertise in fields of IT developer) in order to make the Project's development works effectively.

PART IV. DATA ANALYST

Data analysis is the process starts from collecting data until answer the question of "what the collected data want to tell us?"

Focusing into Customer Behavior Analytics, the process of this example starts from: collecting customer data using supermarket card data, smartphone app data, Geo-localization data … and it possible to add other sources of data like weather data.

Cleaning data, storing it, build first report/dashboards, are the steps after. Than it comes the major step: the step to build Analytic and predictive model that gives a clear idea about the costumer behavior and helps to answer "THE WHY?" question (example: why in every start of mount the X customer bay Y and Z products in same time?). (quora, nd)

This section will discuss about the data gathered through results described earlier:

- According to the result of Figure 1, over 190 people who did join our quantitative research, the restaurant owners about 30 that people wanted to find a requirement solution the most, next up is the customers about 135. Finally, Developers Team and Business team with 18% (35 peoples) that show what is the important function in ORAI system.

- Based on **Figure 2**, most of people are feeling the system is matched expectations (77 votes for Matched expectations option), whereas 34 others just feeling the system is also "bad" because they want to keep the normal way to order in restaurant. On the other hand, 79 people are really happy with this system and want to try to use it as soon as they can because the system is also greatefully and make them feel excited. This can be the reason why this project having the largest number of statified about ORAI system.

- The results displayed in **Figure 3,** The number of customer owners statified with this project is "good", This shows that the project is well impacting the operation of the restaurants, and these restaurants need to develop and apply AI into business in order to improve service quality. Beside that, the number of customers or developer team which also demonstrates that the development team's capabilities that the project has met meet customer requirements to better serve orders.

- According to the results gathered after the **JAD meeting** conference for the Qualitative research, our current system can be considered as working well based on human resource efforts. With the contribution of 35 dedicated team members of our company, current human-based system can provide a product to customers after at least 2 working-day. However, based on expert's experience, if our company allows to develop entire new AI-based system, such as this ORAI system, the customer suggest to have a document to tutorial in 3 minutes only.

If other business stakeholders are present, the discussion between them and the other JAD members may cause them to realize that additional business requirements need to be captured. The BA would elicit and capture those requirements. If technical requirements come to light, the BA may capture those if they have the necessary expertise, or else rely on a systems analyst to do so at the meeting.

A JAD is successful, and therefore the Business Analyst is successful, when there is a "meeting of the minds" among all of the individuals present with agreement on what kind of solution needs to be developed to fully address business needs, with all requirements put in writing to facilitate development.

PART V. CONCLUTIONS ABOUT RESEARCH

Important Information's Gathered After Conducting Quantitative and Qualitative Researches:

- Our company's revenue in terms of ORAI sytem is mostly based on how many restaurants using this system and how many users using this product to order in restaurant.
- Our company's current system has been providing the service acceptable rate. However, the rate of "bad" survice still being a problem at high ratio with 10%.
- Our company's customers require products that support users who can use products online without having to visit them, which can help reduce service time.
- Our company's works mainly based on efforts of 20 members, costing $5,000 each month to operate.

Values Gained After Conducting Quantitative and Qualitative Researches

After conducting Quantitative and Qualitative Researches, the values gained can be categorized as follows:

- Thoughts, opinions about current system has been acknowledged completely from every perspective: partner companies, candidate employees and members within current system itself. Thanks to those data, this Project: ORAI's objective and scope now can be modified to not only fit our company's business venture needs, but also fit to the needs from partner companies and restaurant owners.
- Professional experiences during the process of conducting those researches: meeting scheduling, invitations making, questionnaire making, results gathering and documenting.
- Reduce the distance between our company and our partners, participants by providing them the opportunity to describe their feelings about our system which showing them that our company do care about what they want.
- Statistics help us turn quantitative data into useful information to help with decision making. We can use statistics to summaries our data, describing patterns, relationships, and connections. Statistics can be descriptive or inferential.
- Descriptive statistics help us to summaries our data whereas inferential statistics are used to identify statistically significant differences between groups of data (such as intervention and control groups in a randomized control study).

PART VI. RECOMMENDATIONS

After conducting the Quantitative and Qualitative researches, the needs for our company in developing a new integrated system, which is the ORAI Project. Although the Project: ORAI's Management Plan documents has been made, some changes will be needed to deploy:

About the project objectives:

- Project objectives are specific and are considered lower-level statements. They describe results: specific, tangible deliverables that the project will produce. Progress towards an objective can usually be tracked with a project dashboard because objectives are often associated with metrics. (projectmanager, n.d.)

- Each Project objective criteria should be re-defined with fixing and detail values of improvement it will make compare to current system, since the Project's objectives described in the last Project Management Plan only describe the criteria but with no fixing value of improvement.

- Adding one new objective criteria: Improve the dynamism in interviewing process by provide online interviewing function. This objective hasn't issued in the last version of Project Management Plan, but after the meeting conference, this objective exists as one of the features that both candidate employees and partner companies wanted to have. By adding this new objective criteria, the Project schedule, WBS and mostly the Project budget will be affected. In order to allow this change, stakeholders of this Project need to have a meeting to make the decision. If this recommendation got approved, the project budget, team members, project schedule and WBS should all be redefined and documented in the Project Change Management section.

- Now, run it through SMART: is it specific, measurable, achievable, realistic and time-bound? If it meets these criteria, then it's an effective objective.

- Brand objectives such as brand image and brand awareness need to improve. The marketing for ORAI system is important to make this project successful.

About the project schedule, WBS, Team members and budget:

- In a WBS, the deliverable can be an object, a service, or an activity. By focusing on deliverables rather than methods, a work breakdown structure helps eliminate unnecessary work to get the intended result. A well-thought-out WBS aids in scheduling, estimating costs, and determining risk. It is usually a visual chart or diagram that spells out a project's timeline and process while capturing each task, subtask, and deliverable that will be created and executed throughout. It's often rendered as an outline, like a table of contents, but can be organized using tabs or other visual organizational systems. (smartsheet, n.d.)

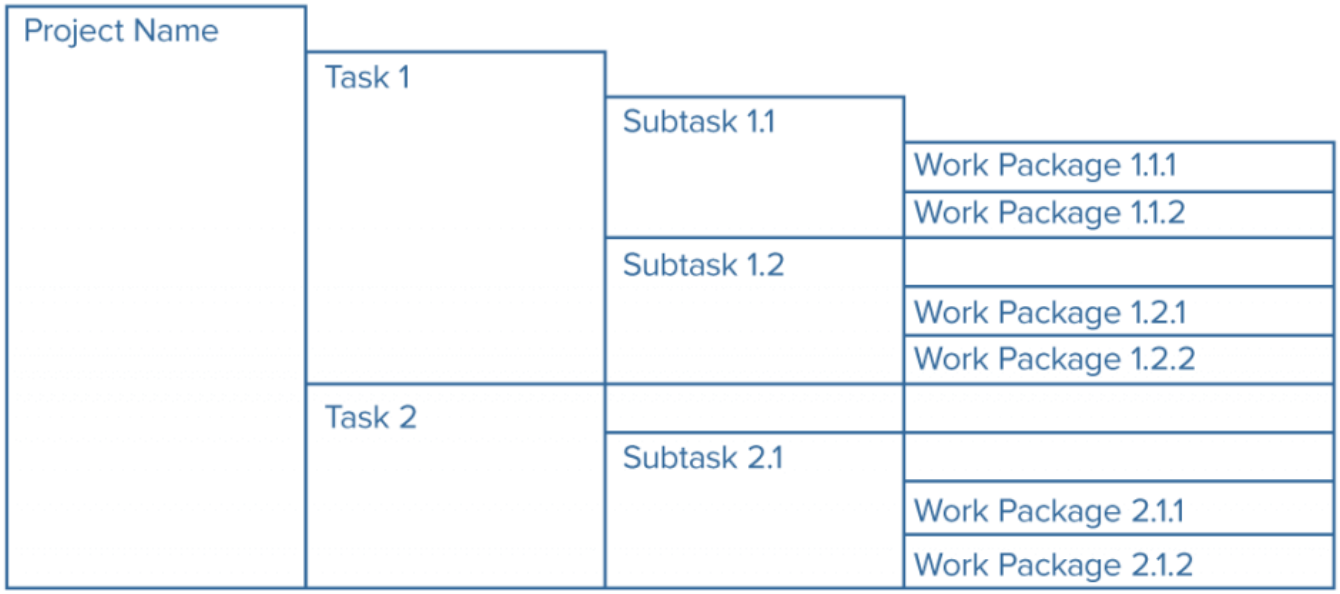

Figure 12: Organize project task using tabs

- In order to successfully accomplish the ORAI Project within the agreed time frame that got described in the Project Management Plan with the highest safety rate, considering opinions from experts (AI experts) after the meeting conference, the Developer Team of Project should recruit 5 more members. Our current Developer Team of this Project consist of 20 members in total, because of the high workload required, team members may need to use Crashing method in order to finish those defined task on-time (described in Project Schedule section in the Project Development Plan). This Crashing method may cause enormous negative impact on entire project if problems during it occurs, so recruiting 5 more quality members (as recommended by experts) should be the best method to protect the project's development processes. In order to allow this change, stakeholders of this Project and needs to have a meeting to make the decision. If this recommendation got approved, the project budget, as well as the project schedule should be redefined clearly and documented in the Project Change Management section.

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