### Nurturing Process - Capstone Project1 – Part -1/3 V2D2- August 2024

Aakash Agrawal SH\_09\_Akash Batch (10<sup>th</sup> Aug)

#### Case Study: Online Agriculture Products Store

### Q1. BPM Process - Identify Business Process Model for Online Agriculture Store – (Goal, Inputs, Resources, Outputs, Activities, Value created to the end Customer)

**A1.** Collection of activities that are required to get desired output from a specific input is called Business Process Model (BPM).

**Goal:** to facilitate farmers to buy seeds, pesticides, and fertilizers from anywhere through internet connectivity.

Input: Manufacturing companies (fertilizers, seeds, pesticides) and farmers.

Resources: Mobile, internet, laptop

**Output**: New application able to accept the product (fertilizers, seeds, pesticides) details from the manufacturers and should be able to display them to the Farmers.

Activities: UI/UX designing, Performance testing

Value: User friendly, Anytime

Q2. SWOT Analysis- Mr. Karthik is doing SWOT analysis before he accepts this project. What aspects he should consider as Strengths, as Weaknesses, as Opportunities, as Threats.

A2. The aspects he should consider as

Strengths: a) Farmers can shop online anytime.

b) Variety of Products in one application.

Weakness: a) Limited technical knowledge of farmers in rural areas.

b) Verification of the products physically not possible while online shopping.

**Opportunities:** a) Increasing government efforts in promoting digitisation in rural areas.

b) Adding features like product demonstrations.

Threats: a) High competition from local agriculture suppliers as farmers trust them.

b) Demand depends on weather conditions which can affect the sales.

# Q3. Feasibility Study - Mr Karthik is trying to do feasibility study on doing this project in Technology (Java), Please help him with points (HW SW Trained Resources Budget Time frame) to consider in Feasibility Study.

**A3.** Feasibility Study means possibility of doing a particular project within three constraints like Technology, Budget and Time. Technology has three parts – Hardware, Software and Trained Resources. Within these three constraints if one is able to work then you say it's feasible.

### Technology:

- Hardware: Servers
- Software: Network Operating System
- Trained Resources: Mr Vandanam is Project Manager, Ms. Juhi is Senior Java Developer, Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo are Java Developers. Network Admin is Mr Mike and DB Admin is John. Mr Jason and Ms Alekya are the Tester. Finally, I am a BA.
- Technology is efficient in order to complete the Project

### Budget:

- Allocated 2 CR
- Budget is enough to complete the project.

#### <u>Time:</u>

- Allotted 18 months
- Time is sufficient to complete the project.

## Q4. Gap Analysis - Mr Karthik must submit Gap Analysis to Mr Henry to convince to initiate this project. What points (compare AS-IS existing process with TO-BE future Process) to showcase in the GAP Analysis.

**A4.** GAP Analysis means understanding the business process and then identify the problem areas, limitation areas or improvement areas. Then come up with IT Solution and come up with benefits list then we call it as GAP Analysis.

<u>As- Is Process</u>: Farmers in remote area visit market to buy agriculture products but there is lack of agriculture products in the markets and Farmers face difficulties in buying such products.

<u>To- Be Process</u>: An online agriculture product store to facilitate remote area farmers to buy variety of agriculture products from anywhere. Through this Online Web / mobile Application, Farmers and Companies (Fertilizers, seeds and pesticides manufacturing Companies) can communicate directly with each other.

## Q5. Risk Analysis- List down different risk factors that may be involved (BA Risks And process/Project Risks)

**A5.** Risk can be an asset which can slow down the process of the project or sometimes cause a failure.

### <u>BA Risks</u>:

- Requirements not gathered properly.
- Requirements Document not properly completed.
- UML Diagram not prepared properly.

#### Process/Project Risks:

- New type of Project
- Limited technical Knowledge of Farmers, In the early days, it will be challenging to manage for the farmers.
- Trust issues as there is no physical verification of Products.

### Q6. Stakeholder Analysis- RACI Matrix. - Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers.

**A6.** RACI Matrix denotes R for Responsible, A for Accountable, C for Consulted, I for Informed. Please find below Stakeholder analysis (RACI Matrix) for this project:

Task	Requirement Gathering	Requirement Analysis	Develop -ment	Testing	UAT	Deployment & Impleme- ntation
Mr. Henry-	Ι	I	1	I	Ι	Ι
Mr. Pandu,						
Mr. Dooku						
Mr. Karthik	Ι	I	I	Ι	Ι	R
Mr	А	А	А	А	А	А
Vandanam						
Mr. Aakash	R	R	1	С	R	А
Agrawal						
, Ms. Juhi, Mr	I	I	R	С	С	I
Teyson, Ms						
Lucie, Mr						
Tucker, Mr						
Bravo						
Mr Jason and	С	С	С	R	R	С
Ms Alekya						
Peter, Kevin	С	С	1	1	I	I
and Ben						

### Q7. Business Case Document - Help Mr Karthik to prepare a business case document

**A7.** A Business Case is a package of analysis, information and recommendations. It helps in identifying key stakeholders who are affected by the problem.

A) Why is this project initiated?

 $\rightarrow$  This project is initiated to make an online agriculture product store to facilitate remote area farmers to buy agriculture products. Through this Online Web / mobile Application, Farmers and Companies (Fertilizers, seeds and pesticides manufacturing Companies) can communicate directly with each other.

B) What are the current problems?

 $\rightarrow$ The current problems are mentioned below:

- Farmers are facing difficulties in procuring fertilizers which are very important for farm.
- They are also facing problem in-case of buying seeds for farming certain crops.
- There is lack of pesticides which could help in greatly reducing pests in crops.
- C) With this project how many problems can be solved?

 $\rightarrow$  The Problems this project can be solved are mentioned below:

- Farmers can shop online anytime.
- Variety of Products in one application.

D) What are the resources required?

 $\rightarrow$  The resources required are:

- Trained Resources like Project Manager, Senior Java Developer, Java Developers, Network Admin, DB Admin, Tester and BA.
- Budget of 2CR.
- E) How much organizational change required to adopt this technology?

 $\rightarrow$  No organizational change required to adopt this technology.

F) Time Frame to recover ROI?

 $\rightarrow$  3-4 years' time frame to recover ROI as earlier it will take time win farmer's trust. But with the better reviews, High no. of framers is expected to join us in our journey.

G) How to identify stakeholders?

 $\rightarrow$  Stakeholders can be identified using RACI Matrix. Different Types of Stakeholders in this Project are:

- Business Stakeholders: Mr. Henry, Mr. Pandu, Mr. Dooku- these 3 are part of SOONY Company while Peter, Kevin and Ben are Mr. Henry's friends helping them by sharing the requirements.
- Project Stakeholders: Mr. Karthik, Mr Vandanam, Ms. Juhi, Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo, Mr Mike, John. Mr Jason, Ms Alekya and I as a **BA**. These are part of AP IT Solutions company working on the project
- 3<sup>rd</sup> Party Stakeholders: Government authorities
- Negative Stakeholders: Competitors.

Q8. Four SDLC Methodologies - The Committee of Mr. Henry, Mr Pandu, and Mr Dooku and Mr Karthik are having a discussion on Project Development Approach. Mr Karthik explained to Mr. Henry about SDLC. And four methodologies like Sequential, Iterative, Evolutionary and Agile. Please share your thoughts and clarity on Methodologies.

**A8**. The approach of the four SDLC methodologies with their characteristics is mentioned below: -

### i) Sequential:

- If it's sequential then entire project will be delivered at the end of the project duration.
- Waterfall Model follows Sequential Methodology
- Sequential approach has Stages like Requirements Gathering, Requirements analysis, Design, Development-Coding, Testing, Deployment and Implementation stage.

### ii) Iterative:

- If it's iterative, then the project will be split into multiple modules and module wise it will be delivered to the client like first the employee module is delivered, next attendance module then next payroll module and so on.
- RUP follows Iterative Methodology
- Iterative approach has also stage like Business modelling, Requirements Gathering, Analysis and Design, Implementation, Testing and Deployment.
- iii) Evolutionary:
- If it's evolutionary, the look and feel of the frame is first given and then slowly we keep adding the functionality to it. For instance, job portal, the candidate will look and feel the frame initially. In a job portal, the candidate will upload the profile and the company will search for the profile that will not be deviated but as the time passes so many features keeps on adding one after the other within that scope itself.
- Spiral Model follows Evolutionary approach.
- Evolutionary has also phases like Requirements gathering, Requirements validation, Design, Implementation, Testing, Integration, Deployment and Evaluation.
- iv) Agile:
- If it's Agile, there is continuous deliverables of executable software. The frequency of delivery would be from two weeks to max. two months. Mostly, it's two weeks hence agile is preferred.
- Scrum follows Agile methodology.
- In Agile, Individuals and Interactions are given more importance than processes and tools. Customer Collaboration and Responding to change is preferred over comprehensive documentation and following a plan.

Q9. Waterfall, RUP, Spiral and Scrum Models - They discussed models in SDLC like waterfall RUP Spiral and Scrum. You put forth your understanding on these models.

When the APT IT SOLUTIONS company got the project to make this online agriculture product store, there is a difference of opinion between a couple of SMEs and the project team regarding which methodology would be more suitable for this project. SMEs are

### stressing on using the V model and the project team is leaning more onto the side of waterfall model. As a business analyst, which

### A9. Waterfall Model:

- In waterfall model, first stage is requirements gathering stage. In this stage, Gathering Requirements from the client and the result is BRD (Business Requirement Document.
- Next is Requirements analysis stage where Functional specification (Functional Requirements) and Supplementary support document (Non – Functional Requirements) are prepared. These two documents are merged to form SRS (Software Requirements Specification). Once sign off received from client, Requirement traceability Matrix (RTM).
- Next is Design Stage where High level design document/Application design document and solution document will be prepared.
- Next is Development- coding stage where Programmers and Developers will prepare Low level Design Document or the component Design Document and the application itself.
- Next is Testing stage where testers will prepare the Test documents and the result is Application with less errors.
- Next is Deployment and Implementation stage where Deployment means moving the code from Development environment to Production and Implementation means running the code for the first time in Production. It is taken care by release engineers.
- Waterfall Model completes at Implementation stage.
- The reason behind waterfall model is water flows from top to bottom, it cannot go up. In the same way, these stages should be implemented one after the other.

### **RUP Model:**

- Understanding the client business process is first stage here and we call it business modelling.
- Next step is Requirements gathering stage
- Next is Analysis and Design stage since same resources are going to do it hence club together.
- Next is Implementation stage instead of coding as they want to be suitable for any project like a networking project, DB project, testing project so sometimes it's writing queries, doing testing, configuring the network.
- Last stage is Testing and Deployment.
- In RUP, each stage is divided into four phases: a) Inception which means we discuss with the client and we agree upon deliverables. b) Elaboration means we discuss within the team and we agree upon the deliverables. c) Construction means we work on the deliverables or we should make the team work on deliverables. d) Transition means we should make this deliverable fit to next stage.

• This RUP Model is called as heavy weight process model because it's each stage has multiple phases therefore it requires more resources, more time, more budget, of course efficiency and effectiveness would be high. RUP is used in IBM related project.

### Spiral Model:

- Spiral Model starts near to the origin and goes out of the region.
- Spiral Model is divided into four quadrants:
- a. Top left Quadrant i.e. Planning phase: Customer interaction where the customer will be discussing about the requirements.
- b. Top right Quadrant i.e. Risk Analysis phase: Risk Analysis and prototyping. Basically, a process is undertaken to identify risk and alternate solution. A prototype is produced at the end of risk Analysis phase.
- c. Bottom right Quadrant i.e. Engineering Phase: Normal Waterfall Model. Software is produced in the engineering phase, along with the testing at the end of the phase.
- d. Bottom left Quadrant i.e. Evaluation Phase: Cushion Time which is left out for testing purposes. Evaluation phase allows the customer to evaluate the output of the project to date before the project to data before the project continues to the next spiral.
- In the Spiral Model, the angular component represents progress, and the radius of the spiral represents Cost.

### Scrum:

- Scrum is an iterative development methodology used to manage software Projects. In Scrum-based projects, there isn't a specific project manager directing project team tasks; the team is self-directed, with co-located team members relying on communication over documentation for effective project delivery.
- Initially, once the projects kick off, Requirement planning is done.
- Then, Various requirement gathering sessions are conducted and requirement are analysed.
- Finally, the requirement is listed as 'Feature list'. This Feature list will have all the enhancements and existing features (If it is a migration project).
- From Feature list, EPIC is identified and it's broken them into Themes and then to User Stories. User Stories will have a below Information:
  - a. As s <User> I want to <What is the Purpose> So that <What you gain by this story>
  - b. Acceptance Criteria: This area will have mandatory information that are needed in this story"
- User Story is briefed to the development team.
- Then Integration Testing and System Testing is performed to ensure the system performs as desired.

As a Business Analyst, I think V- Model methodology is better for this project as V-Model states that coding and Testing goes parallel hand-in -hand and even the project is a new type like project never explored before so there will be some change in the scope which can be handled by V- Model as it is very flexible. V-Model is simple and easy to use

Q10. Waterfall Vs V-Model - Write down the differences between waterfall model and V model.

A10.

Waterfall Model	V-Model	
There is no way to return to the earlier	There is no such constraint in V-model	
phase		
In Waterfall Model, testing activities start	In V-Model, testing activities start with the	
after the development activities are over	first stage.	
It is not possible to test a software during	It is possible to test a software during its	
its development.	development.	
Identification of defects is done in the	Identification of defects can be done in the	
testing phase	beginning.	
Now-a-days, it is not widely used.	Now-a-days, it is widely used.	

### Q11. Justify your choice - As a BA, state your reason for choosing one model for this project.

**A11.** As a Business Analyst, I think V- Model methodology is better for this project as V-Model states that coding and Testing goes parallel hand-in -hand and even the project is a new type like project never explored before so there will be some change in the scope which can be handled by V- Model as it is very flexible. V-Model is simple and easy to use.

Q12. Gantt Chart - The Committee of Mr. Henry, Mr Pandu, and Mr Dooku discussed with Mr Karthik and finalised on the V Model approach (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT) Mr Vandanam is mapped as a PM to this project. He studies this Project and Prepares a Gantt chart with V Model (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT) as development process and the Resources are PM, BA, Java Developers, testers, DB Admin, NW Admin.

**A12.** Project Managers generally plan their project by using Gantt Charts. This is very similar to Excel Sheet, wherein columns are weeks and in rows are the resources.



Instead of these Resources If there are Software Development cycle like Req. gathering, Req. Analysis, design, testing etc. then that chart we call it as WBS (Work Breakdown Structure).



### Q13. Fixed Bid and Billing Projects- Explain the difference between Fixed Bid and Billing projects

**A13. Fixed Bid Projects**- It means for a given functionality, time and budget is fixed. All domestic projects will be Fixed Bid Projects. It is suitable for the Projects where scope is fixed. For ex: An app needs to be built for booking movie ticket and predefined scope with budget being 10,00,000 and time allotted is 6 months.

**Billing Projects**: It means the client will be billed per resource/Hr basis. Generally, all Overseas Projects are Billing Projects. It is suitable for Projects with changing requirements. For ex: An App needs to be built where people can record and upload short video content. As we all know, how fast market trends changes on social media hence there might be change in requirements so Billing project is suitable.

### Q14. Prepare Timesheets of a BA in various stages of SDLC -

A14. Employee Name: Aakash Agrawal Role: Business Analyst

Employee ID: E1234

### • Design Timesheet of a BA

Project	Task	Time
Online Agriculture Store	Updating the RTM	10am -12pm
Online Agriculture Store	Conducting weekly status	12pm=2pm
	review meeting	
Online Agriculture Store	Updating client about any	2pm-4pm
	changes in the design	
Online Agriculture Store	Clarifying Architect queries	4pm-6pm
	on the SRS document	

### • Development Timesheet of a BA

Project	Task	Time
Online Agriculture Store	Updating the RTM	10am -12pm
Online Agriculture Store	Conducting weekly status 12pm=2pm review meeting	
Online Agriculture Store	Update End User Manual and identifying UAT participants.	2pm-4pm
Online Agriculture Store	Clarifying Technical team queries during coding	4pm-6pm

### • Testing Timesheet of a BA

Project	Task	Time
Online Agriculture Store	Analysing the Test Cases	10am -12pm
	that Tester hasn't missed	
	any Test case scenario.	
Online Agriculture Store	Preparing UAT plan	12pm=2pm
Online Agriculture Store	Conducting Factory	2pm-4pm
	Acceptance Testing Before	
	UAT and ensuring System	
	developed according to the	
	BRD	
Online Agriculture Store	Conducting weekly status	4pm-6pm
	review meeting with the	
	Testing Team.	

#### • UAT Timesheet of a BA

Project	Task	Time
Online Agriculture Store	Giving Demonstration of the	10am -12pm
	Developed System to the	
	Client.	
Online Agriculture Store	Supporting Client in UAT	12pm=2pm
Online Agriculture Store	Conducting weekly status	2pm-4pm
	review meeting to check the	
	progress of UAT.	
Online Agriculture Store	finally taking UAT signoff	4pm-6pm
	from them and reviewing	
	the supporting Documents	

### • Deployment n Implementation Timesheet of a BA

Project	Task	Time
Online Agriculture Store	Forward RTM to client or	10am -12pm
	the PM which should be	
	attached to the Project	
	closure Document	
Online Agriculture Store	Share End User Manual.	12pm=2pm
Online Agriculture Store	Planning Training Sessions	2pm-4pm
	for the End Users.	
Online Agriculture Store	Preparing Lessons learnt	4pm-6pm
	from the Project which	
	would be useful for the next	
	projects.	