Nurturing Process - Capstone Project1 – Part -1/3 V2D1- Mar2024

Question 1 – BPM

Answer 1 : Business Process Model for Online Agriculture Store

Goal ---> To Create an Online Platform need to be used both mobile app and internet platform for farmers to have all agricultural products at one place.

Inputs ---> Product Information, IT Team to Develop app

Resources ---> IT Team, Payment management team, FAQ resolution team, Budget to give for IT People

Outputs ---> Products availability easily to farmers, feedback for app, get agricultural products online from app

Activities ---> to be user friendly to use for new login members, farmer search for products and also usage, payment for products ordered

Value created to the end customer ---> farmers get all different types of seeds and pesticides in one place by delivering to doorstep. More knowledge on fertilizers searching and also by reading reviews.

Question 2 – SWOT

Answer 2 : As taken from project Mr.Karthik is Delivery Head at APT IT Solutions before accepting this project he need to follow the below SWOT Analysis.

|  |  |
| --- | --- |
| Strengths:* Mr Karthik is having all required Talent pool to complete the project.
* Mr karthik got Budget of 2 cr INR and 18 months duration to complete with an support.
 | Weaknesses:* When creating a app the app should be in regional languages because most of the farmers are not familiar with English.
* Mr. Karthik need more members in Team for resolving queries raised by service request.
 |
| Opportunity:* As mentioned it is CSR initiative the project will be new to team they will have hands-on experience on agricultural project.
* If project is successful APT IT Company will have more Market reach on other projects also.
 | Threats:* Here due to language problem farmers may not understand the app and it may not be successful.
* The given budget may not be sufficient if project time extends.
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Question 3 – 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.

Answer 3 : As taken from project Mr.Karthik is Delivery Head at APT IT Solutions is trying to do Feasibility study on doing project in Technology JAVA.

Hardware Requirements:

* Developer Machines to perform programs as per project requirement.
* Server handling machines
* Huge Data saver systems.

Software Requirements:

* Developing Team who is PRO in JAVA programming
* Android and IOS mobile application support devices
* Testing Tools
* Data Saving Software.

Resource Feasibility:

 Skilled Talent pool is available to complete the project.

* Mr.Karthik – Delivery Head
* Mr.Vandanam – Project Manager
* Ms. Juhi – Senior Java Developer
* Mr. Teyon , Ms. Lucie, Mr. Tucker, Mr. Bravo – Java Developers
* Mr. Mike – Network Admin
* Mr. John – DB Admin
* Mr. Jason and Ms. Alekya – Tester
* Me – BA

Budget Feasibility:

 Assess if the project can be executed within the allotted budget.

Total Budget : 2 Crores INR.

The budget to be allocated amoung

* HR& Development team
* Infrastructure Team
* Software tools and Hardware allocation
* Java Developers
* Testing and UAT
* Deployment Team and Support Team

Time Frame:

 Here we need to complete the project within the given time.

Total Duration: 18 Months

Time sheet to be prepared according to the given duration and this project is doable in the time frame.

Question 4 – GAP Analysis

Answer 4 : Mr Karthik is submitting GAP Analysis for Mr. Henry to convince to initiate the project.

AS-IS (Current State):

* Farmers depend on local shops with limited stock.
* Farmers are not having knowledge about correct pesticides.
* Farmers go to shops for stock and they carry them to their places by self-transport.
* No records maintained how much stock is brought to field only manual entries are maintained.
* Farmers cannot rely on quality of pesticides and seeds they get from middle men.

TO-BE (Desired State):

* Farmers can get products online directly from manufactures from mobile applications.
* In online application farmers can get exact knowledge about correct seed and pesticides to be used for particular crop.
* The ordered seed or pesticides come to door step with exact address given in portal.
* Application maintains the details of farmer and also ordered history if required he can order again the same product.
* Farmers are connected to different types of direct manufactures for different products they can select according to their required quality.

Question 5 – Risk Analysis

Answer 5 : Listing down different risk factors that may be involved (BA Risks And process/Project Risks)

BA Risk:

* Insufficient Knowledge in agricultural practices or terminology.
* Farmers have low knowledge in digital platform may struggle in agricultural needs.
* Main features get delayed and also chances of rework.
* Incomplete testing and quality issues arises.

Project Risk:

* Delays in any phase could have project scope creep.
* Planned project time and budget may increase 2Cr.
* Farmers may not very comfortable to use the mobile application.
* Delays or lost shipments frustrate users and harm trust in shipments.

Internal Risk :

* Loss of key skills employees in pressure building.
* Running out of budget if project extends.
* No proper alignment of work and it may lead to project delay.

External risk:

* New updates on products farmers order.
* Any product orders if doesnot work properly there is a chances of failure of application.
* Any damage in logistics due rain also need to be beared.
* Farmers may face neywork issues and payment issues.

Question 6th Stakeholder Analysis RACI matrix

Answer 6:

Stakeholder Analysis is the process of identifying and evaluating individuals, groups, or organization who are involved in or affected by a project. It helps to understand their roles, interests, and influence on the project. The RACI MATRIX ( Responsible, Accountable, Consulted, Informed) is often used to clarify stakeholder involvement and decision making responsibilities.

* Responsible (R) : Those who perform the work to achieve the task.
* Accountable(A) : The Decision makers who approve the task or deliverable.
* Consulted(C): Those who provide input or feedback during the task.
* Informed(I): Those who need to be Kept updated on program and decisions.

RACI Matrix for the Online Agriculture store Project:

|  |
| --- |
| **RACI MATRIX** |
|
| Stake Holder | Role | R (Responsible) | A (Accountable) | C (Consulted)  | I (Informed) |
| Mr. Henry | Project Initiator |   | Y | Y | Y |
| Mr. Pandu | Finacial Head |   | Y | Y | Y |
| Mr. Dooku | Projet Coordinator | Y | Y | Y | Y |
| Peter,Kevin,Ben | Stake Holder |   |   | Y | Y |
| Mr. Karthik | Delivery Head | Y | Y | Y | Y |
| Mr.Vandhanam | Project Manager | Y | Y | Y | Y |
| Myself | Business Analyst | Y |   | Y |   |
| Juhi,Teyon, Lucie,tucker, Bravo | Developers |   |   | Y | Y |
| Jason, Alekya | Testers | Y |   | Y | Y |

Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers

Who are the Decision Makers?

• Mr. Henry: Final approval on Requirements, Budget, UAT, Deployment (Business Owner)

• Mr. Pandu: Budget and financial decisions

• Mr. Vandanam (PM): Project-level technical and process decisions

• BA: Decisions on business requirements detailing.

Who are the Influencers?

• Mr. Dooku: Project Coordination influence

• Peter, Kevin, Ben (Farmers): Major influencers in defining the actual user needs and product acceptance

• Mr. Karthik: Influences overall delivery process and escalations from APT IT Solutions side

• Senior Java Developer (Ms. Juhi): Influences technical design and solution architecture.

Question 7th Business case Document

Answer 7:

1. Why is this project initiated?
* Mr henry want to help farmers by giving then different types of seeds and fertilisers.
* Creating an agricultural sector also innovations into tech market place of having new technology.
1. What are the current problems?
* Farmers not getting wanted products and required pesticides from near by shops.
* No proper Usage videos with proper guidelines.
* Farmers go to different places for different seeds
1. With this project, How many problems could be solved?
* The problems regarding product knowledge and usage of product can be known.
* At time any place availability for farmers from different types of manufacturers.
* Delivery and safety of products is no more taken.

1. What are the resources required?
* APT IT Company required development team with all required developers, testers, feedback analysis team.
* Workstations to have a project hardware equipment.
* Payment basement, network basement management third party dealers.
1. How much organizational change is required to adopt this technology?
* As this is based on unique project on agricultural based on CSR Activity they need trained employees to complete this application.
* Need to have heavy storage devices and long term project handling experiences persons.
* Change management plan can also be used as it is a agricultural project.
1. What is the time frame to recover ROI?
* As Mr.Henry project sponsor is given amount of 2Cr for 18 months.
* Benefit Estimate can be in year if we assume 20K order in first year then this will be 1 Cr.
* If we consider BEP by next 2 yrs it can move to 2Cr.

(Hear after 6 months if we consider all types of gains it can be social and efficiency)

Full ROI:

By Month 30, Platform-generated service fees + efficiency improvements deliver net positive cash flow for APT.

1. How to identify stakeholders?
* Internal Parties : Project sponsor, Delivery Head, Project Manager, Developers
* External Parties: Manufactures, Logistics, Farmers(End users)
* High influence: Mr.Henry, Dooku , Karthik.
* High Interest: Farmers , Quality analyst.

Question 8 : 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

Answer 8:

**Sequential:** This is the most common and classic of life cycle models, also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed in its entirety before the next phase can begin. At the end of each phase, a review takes place to determine if the project is on the right path and whether or not to continue or discard the project.

**Pros:**

• Simple and structured

• Good when requirements are fixed and well-understood from the start

• Easy to manage and document

**Cons:**

• Rigid – changes are hard to accommodate later

• No working product until the very end

• Risk of delivering something that doesn’t meet user needs

**Iterative:** The Rational Unified Process (RUP) is an iterative software development process framework created by the Rational Software Corporation, which was acquired by IBM in
February 2003. RUP is based on a set of building blocks, or content elements, describing what is to be produced, the necessary skills required and the step-by-step explanation describing how
specific development goals are to be achieved.

**Pros:**

• Allows revisiting and improving parts of the system

• Faster feedback loop

• Less risk compared to Waterfall

**Cons:**

• Still assumes you know all major requirements upfront

• May take longer if many iterations are needed

**Evolutionary:** The spiral model gives more emphases placed on risk analysis. The spiral model has four phases: Planning, Risk Analysis, Engineering and Evaluation. A software project repeatedly passes through these phases in iterations (called Spirals in this model).

**Pros:**

• Encourages progressive development

• Prioritizes the most important features first

• Engages users early

**Cons:**

• Might lack structure or become hard to manage if not controlled

• Scope creep is possible

**Agile :** Agile Light weight Can be implemented where faster delivery is required.
The code in itself forms as documentation no documentation Not support scalability and extendibility SDLC life cycle cut down by employing seasoned DEVELOPERS

**Pros:**

• Highly flexible and user-focused

• Encourages regular feedback from stakeholders

• Early and continuous delivery of value

• Ideal when requirements are unclear or likely to change

**Cons:**

• Requires close collaboration and experienced teams

• Might be hard for clients who want strict timelines and budgets

• Can lose track of the bigger picture if not well managed.

Question 9: 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 methodology do you think would be better for this project?

Answer 9 :

1. Waterfall Model is Clearly defined, sequential projects with well-understood requirements.

| **Waterfall Model** |
| --- |
| Requirements → Design → Development → Testing → Deployment |
| Suitable if the requirements are fixed and well-documented upfront. |
| Simple, easy to manage, strict phase discipline. |
| Rigid, not flexible to changes once development begins. |

In our project : Not ideal, since farmers are new users and evolving feedback is expected.

2. RUP (Rational Unified Process) is Large-scale enterprise systems with evolving architecture.

| **RUP Model** |
| --- |
| Inception → Elaboration → Construction → Transition |
| Best for medium to large projects with frequent changes and need for iterative development. |
| Iterative, risk-driven, supports reusability and documentation. |
| Complex, heavy documentation, may require RUP tool knowledge. |
| Can work well for managing requirements, risks, and architecture in an organized way. |

In our project : Can work well for managing requirements, risks, and architecture in an organized way.

3. Spiral Model is High-risk projects requiring frequent validation and heavy prototyping.

| **Spiral Model** |
| --- |
| Planning → Risk Analysis → Engineering → Evaluation (repeats in spirals) |
| Suitable when the project has high risk or is not well defined early on. |
| Risk handling, early detection of problems, iterative approach. |
| Complex management, costly. |

In our project : Useful if risk is high and features need frequent validation from stakeholders like farmers.

4. Scrum (Agile Framework) is Projects with dynamic requirements and emphasis on early and frequent delivery.

| **Scrum Model** |
| --- |
| Sprint Planning → Sprint Execution → Review → Retrospective |
| Ideal for changing requirements and iterative, customer-driven development. |
| High collaboration, adaptability, quicker delivery. |
| Requires experienced team, needs close collaboration and daily stand-ups. |

In our project : Highly suitable since you have direct stakeholder input (farmers), and need a user-friendly evolving product.

My Recommendation as a BA

For the given project if the team choose between the two, then:

The V-Model is a better choice than Waterfall in this project, because:

• It ensures better testing after each and every development of every requirement.

• Testing is planned early, because at the time of deployment testing is conducted so if any changes immediately can be done for end users.

Question 10: Waterfall v/s V-Model

20Write down the differences between waterfall model and V model

Answer 10:

|  |  |
| --- | --- |
| Waterfall Model | V-Model |
| 1. This is Linear and sequential.
2. Duration Takes long time

 1. End users requirement checked only at the first and last stages.
2. Suitable for short term projects only.
3. Errors are checked only in final stage of testing.
4. Very simple to understand because it goes step by step process.
5. This model is used in simple well defined projects.
6. Testing is done at ending.
7. Mostly thinks about development.
8. Any changes to be made will be difficult.
9. Linear downward
10. Verification and validation done only after development.
 | 1. Sequential but extended version of testing for each phases.
2. Duration Fastest due to testing is done immediately.
3. End user requirement is checked it is taken or not at the time of each testing.
4. Suitable for long term projects.
5. Errors are found after each and very development and resolved.
6. Very complex to understand because it has testing at every stage.
7. This is used for very critical projects.
8. Testing is done simultaneously with development.
9. Mostly checks with errors at the time of development.
10. Any changes to be made can be flexible.
11. V-Shaped
12. Verification and validation done throughout the steps.
 |

Question 11: Justify your Choice

As a BA, state your reason for choosing one model for this project.

Answer 11: The V-Model is a better choice in this project, because:

* It ensures better testing after each and every development of every requirement.
* Testing is planned early, because at the time of deployment testing is conducted so if any changes immediately can be done for end users.
* Mostly checks with errors at the time of development.
* End user requirement is checked it is taken or not at the time of each testing.

Question 12: 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.

Answer 12:

Gantt chart for Online Agriculture Product Store

|  |  |
| --- | --- |
| Resources  | Months |
| 1m - 3m | 4m - 6m  | 7m - 9m | 10m - 12m  | 13m - 15m | 16m - 18m |
|   |   |   |   |   |   |   |
| PM |   |   |   |   |   |   |
|   |   |   |   |   |   |   |
| BA |   |   |   |   |   |   |
|   |   |   |   |   |   |   |
| Developer |   |   |   |   |   |   |
|   |   |   |   |   |   |   |
| Tester |   |   |   |   |   |   |
|   |   |   |   |   |   |   |
| DB Admin |   |   |   |   |   |   |
|   |   |   |   |   |   |   |
| N/W Admin |   |   |   |   |   |   |

Question 13: Fixed Bid Vs Billing

Explain the difference between Fixed Bid and Billing projects.

1. Fixed Bid Project

In a Fixed Bid project, the client and the company APT IT SOLUTIONS agree on a fixed cost and fixed scope before the project starts.

Even if the project takes more effort or time, the cost remains fixed.

• Scope, requirements, deliverables are clearly defined upfront.

• Risk is mostly with the Company (APT IT Solutions).

• Any scope changes later can lead to Change Requests and additional billing.

• Ideal when the requirements are very clear and stable.

In this case:

Mr. Henry gives a fixed budget of 2 Crores INR and a duration of 18 months — so this project looks like a Fixed Bid.

2. Billing Project

In a Billing project, the client pays the company based on actual work done — like number of hours, manpower used.

• Scope is flexible and may change during the project.

• Risk is mostly with the client.

• Billing happens monthly or periodically based on actual efforts.

• Good when requirements are dynamic or still evolving.

In this case billing project is considered when the scenario is as follows

If Mr. Henry said, Start working and I will pay based on how many hours your team works it would be a Billing Project.

Question 14: Preparer Timesheets of a BA in various stages of SDLC

➢ Design Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Activity** | **Description** | **Hours Spent** |
| 1-May-25 | RG (Requirements Gathering) | Collect requirements farmers | 4 hrs |
| 02-May-2025 to 10-May-2025 | RG (Continued) | Conduct meetings, document preparation | 4 hrs/day (total 36 hrs) |
| 11-May-25 | RA (Requirement Analysis) | verify gathered requirements | 4 hrs |
| 12-May-2025 to 20-May-2025 | RA (Continued) | use cases, process diagrams, confirm business rules | 4 hrs/day (total 36 hrs) |
| 21-May-2025 to 30-May-2025 | Support Design Phase | Explaining Senior Java Developer clarifications | 3 hrs/day (total 30 hrs) |
| Total |  |  | 110 hrs |

➢ Development Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Activity** | **Description** | **Hours Spent** |
| 01-Jun-2025 to 15-Jun-2025 | D1 | Support Java Developers for requirement s | 2 hrs/day (total 30 hrs) |
| 23-Jun-2025 to 07-Jul-2025 | D2 | Support Java Developers during second phase | 2 hrs/day (total 30 hrs) |
| 15-Jul-2025 to 29-Jul-2025 | D3 | Clarifications and verifying | 2 hrs/day (total 30 hrs) |
| 06-Aug-2025 to 20-Aug-2025 | D4 | Final phase development  | 2 hrs/day (total 30 hrs) |
| Total |  |  | 120 hrs |

➢ Testing Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Activity** | **Description** | **Hours Spent** |
| 16-Jun-2025 to 22-Jun-2025 | T1 | prepare RTM, validate test data | 2 hrs/day (total 14 hrs) |
| 08-Jul-2025 to 14-Jul-2025 | T2 | Same steps for second testing phase | 2 hrs/day (total 14 hrs) |
| 30-Jul-2025 to 05-Aug-2025 | T3 | Same activities for third testing phase | 2 hrs/day (total 14 hrs) |
| 21-Aug-2025 to 27-Aug-2025 | T4 | Same activities for fourth testing phase | 2 hrs/day (total 14 hrs) |

➢ UAT Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Activity** | **Description** | **Hours Spent** |
| 28-Aug-2025 to 05-Sep-2025 | UAT | prepare UAT scenarios, collect feedback | 3 hrs/day (total 27 hrs) |
| Total |  |  | 27 hrs |

➢ Deployment n Implementation Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Activity** | **Description** | **Hours Spent** |
| 06-Sep-2025 to 10-Sep-2025 | Deployment Prep | Prepare deployment documents | 3 hrs/day (total 15 hrs) |
| 11-Sep-2025 to 15-Sep-2025 | Go-Live Support | Monitoring post-deployment, issue logging, checking with farmers | 2 hrs/day (total 10 hrs) |
| Total |  |  | 25 hrs |