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

**Question 1: Identify Business Process Model for Online Agriculture Store – (Goal, Inputs, Resources, Outputs, Activities, Value created to the end Customer).**

**Business Process Model**: BPM is a collection of activities that are required to get the desired output from specific input. BPM helps in understanding how the work is performed and what are the areas of improvement.

A business process has:

GOAL: To provide a platform various agriculture products (fertilizers, seeds, pesticides) to remote villages, reducing the difficulties in day-to-day farming work

INPUTS: Farmer Database, Maps access for connectivity, Manufacturing companies, Team of APT IT Solutions, Soony, Pete9r, Kevin and Ben

RESOURCES: Warehouse to store products, Application

OUTPUTS: User friendly Web/Mobile Application,

ACTIVITIES: Product details from the manufacturers, Display the products to the farmers, Delivery to farmers location

VALUE ADDITION: Customer satisfaction, availability of all the products on one platform, Training to farmers

**Question 2: Mr Karthik is doing SWOT analysis before he accepts this project. What Aspects he should consider as Strengths, as Weaknesses, as Opportunity and as Threats.**

**SWOT Analysis:** SWOT Analysis is a model which is used to understand what are the influencing factors and how will they affect the project. SWOT is the acronym of Strengths, Weaknesses, Opportunities and Threats. Out of these, internal factors are strengths, weaknesses and external factors are opportunities, threats.

Strengths

* Experienced and trained staff
* Effective IT systems
* Strong customer relationships
* One stop solution for farming needs
* Coverage of remote locations where procurement of material is difficult

Weakness

* Inventory storage issues
* Unavailability of internet in remote areas
* Limited digital literacy of the users
* Difficulty in ensuring the product quality

Opportunities

* Market capture by introduction of new products
* Adding additional features in the app like weather updates or new farming techniques
* In future, expanding the business by introducing farming tools as well

Threats

* Farmers are not system friendly
* Connectivity issues for delivery
* Trust issues regarding payment
* Competition from local suppliers

**Question 3: 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.**

**Feasibility Study:** Feasibility study in an assessment to identify if the project is doable or not within some constraints like technology, budget and time. Various factors are assessed like -

Technology: Determing the platform for the application (ios, android, webpage), Farmers Database, Manufacturers Database, Payment Gateways, Data Security

Hardware: Computers for developer, Data backup systems, Warehouses setup, Networking with delivery partners, Dedicated Servers

Software: Payment software, Delivery Tracking software, Product management software, Development tool (Java), MySQL, MongoDB, Testing Tool

Resources: BA, Project Manager, Developers, Testers, Customer Service and other skilled staff

Budget: Rs. 2 Crores. Costs which need to be considered are - Operational Costs, Running Costs, Maintenance Costs, Servicing Costs (after sales)

Time frame: 18 months

**Question 4: 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**

**GAP Analysis:** Gap analysis is a comparison between the current situation and the future desired situation. This process is performed by BA and Project Manager. It is an analysis of the delta of as-is and to-be of a process.

AS-IS Situation

* Farmers are going to shop/store to procure the material
* No guarantee of timely availability of products
* Quality issues
* Transportation issues/constraints
* Inventory storage issues
* Lack of knowledge about better and advanced products
* Limited variety of products

TO-BE Situation

* One stop availability of all the products
* Easy comparison based on performance and cost
* Door step delivery resulting in reduced storage cost
* Timely delivery as and when the products are required resulting in no compromise on quality
* Coverage of remote locations
* Expansion of business by introduction of new products and technologies

**Question 5: List down different risk factors that may be involved (BA Risks And process/Project Risks)**

BA Risks

* Improper requirement gathering
* Lack of user involvement
* Continuous changes in requirement
* Improper documentation
* Poor communication

Process/Project Risks

* All the available products are not listed
* Poor budget estimations
* Time running out
* Continuous changes in requirement
* Unavailability of skilled resources

**Question 6: Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers**

| **RACI** | **Resource** | **Position** |
| --- | --- | --- |
| Responsible | Dooku | Project Coordinator |
| Juhi | Sr. Java Developer |
| Me | BA |
| Vandanam | Project Manager |
| Jason | Testers |
| Alekya |
| Accountable | Me | BA |
| Vandanam | Project Manager |
| Dooku | Project Coordinator |
| Consulted | Pandu | Financial Head |
| Juhi | Sr. Java Developer |
| Mike | Network Admin |
| John | DB Admin |
| Informed | Henry | Sponsor |
| Peter | Client BA |
| Kevin |
| Ben |
| Karthik | Delivery Head |

**Question 7: Help Mr Karthik to prepare a business case document**

* **What is the purpose of this project?** The purpose is to solve the day to day material procurement problems faced by the farmers.
* **What are the current problems faced by the farmers?** Currently farmers are unable to find the required products on time with the desired price and quality. Also, the transportation and storage of the products is a huge problem.
* **How many farmers will actually trust the online market?** In the current situation, the number of farmers trusting the online market is very less. However, same can be improved by providing training or creating videos for awareness.
* **When will the company reach its BEP?** It dependsonce the training is provided to most of the farmers and the farmers start trusting the online platform through word of mouth.
* **How much time will be required for the delivery of the products from warehouse to the location of the farmers?** The warehouses needs to be setup after analysing how the farmers are scatter geographically. This can be done by creating surveys or arranging the awareness camps.
* **The web/app must work in how many languages?** The application or web needs to be developed in regional languages so that it will be convenient and easier for the users to use the application.
* **What are the resources required to complete the project?** For completion of the project, we need hardwares, a group of dedicated skilled staff, ground staff for surveys and camps, we need different softwares like for payment, delivery, products etc.
* **How much time required to complete the project?** The duration of the project is 18 months. However, it should be completed within 12-15 months and remaining time should be allocated in analysing the purchasing pattern of the users.
* **How to identify the stakeholders?** All the business, process and third party stakeholders need to be identified using RACI Matrix.

**Question 8: 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.**

Sequential: Waterfall

It is a development strategy which is also known as Linear Sequential Life Cycle. Waterfall Model is a type of Sequential methodology. In this methodology, the project will be completed in phases sequentially. Each phase must be completed before moving to next phase. This methodology is easy to use. However, it is difficult to incorporate changes.

Iterative: Rational Unified Process (RUP)

It is a development strategy in which the project is divided into smaller parts and is developed in iterations. In this methodology, the development is done in cycles and each cycle includes all the phases altogether. Incorporating changes is easy as this strategy focuses on continuous feedback.

Evolutionary:

It is a development strategy in which the project is divided and is evolved in each and every phase. A prototype is made early in the system and is provided to the client for feedback. Any changes requested by the client is easier to implement without impacting the overall project. This strategy is best for the projects in which the change requests are high.

Agile:

It is development strategy in which the project is divided in smaller cycles call sprints. The duration of each sprint is pre decided. Also, what needs to be done and how to done is also decided before the start of the sprint. Each sprint is reviewed on regular basis. This methodology is more structured and focuses on client satisfaction.

**Question 9: 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?**

Waterfall:

Waterfall model is a type of Sequential methodology. In this approach, the project is completed in phases. We can move to next phase only after completion of previous phase. A review is being conducted at the end of each phase to determine the progress of the project. There are 5 stages in Waterfall Approach – Requirement gathering and Analysis, Design, Build, Testing and Implementation.

This approach is most common and simple. It is best suited for well defined projects in which minimal changes are made as implementing any changes after completion of a phase is difficult.

RUP:

Rational Unified Process is a type of Iterative methodology. It was developed by IBM. In RUP, the project is divided into blocks. Each block will describe the goals and it will work in iterations.

Spiral:

Spiral Model is a type of Evolutionary methodology. This model is divided into 4 phases – Planning, Risk Analysis, Engineering and Evaluation. The project is initiated from the Planning phase and the requirements are gathered. At the end of Risk Analysis phase, a prototype is being made. A Software is made at the end of Engineering Phase and Testing is also being done. In the last phase, Customer evaluates the output.

Very high amount of risk is involved in this kind of Model as this is high in cost. Spiral model is beneficial for large and critical projects and is not well for smaller projects due to high cost.

Scrum:

Scrum is a type of Agile methodology. In this model, the project is divided in smaller cycles call sprints. For understanding the requirements, user stories are used. All the user stories are discussed. The duration of each sprint is pre decided. Before start of each sprint, Sprint Planning Meeting is conducted.

In the given case study, Waterfall Model is more beneficial due to –

* The change requirements will be less in this project as the users are new to the technology
* V model is beneficial from more structured projects
* Waterfall model is very simple and easy to understand
* Scope adjustment is not possible in V model as it will kill the project

**Question 10: Write down the differences between waterfall model and V model.**

| **Waterfall Model** | **V Model** |
| --- | --- |
| It is a sequential approach in which one phase is completed entirely before moving to the next phase | It is a parallel approach in which Development and Testing is done simultaneously |
| Moving from one phase to other looks like a Waterfall flowing downwards | Development and Testing is done together forming a V shape |
| Testing is done after completion of Development phase | Testing is done parallelly with each development |
| Any issues detected in testing will delay the project | Any issues detected in testing are comparatively easy to resolve |
| Waterfall model is not flexible | V Model is more flexible than Waterfall model |
| Any errors detected will cost more to the project | Any errors detected can be rectified with minimal cost |
| It is beneficial for projects with least change requirements | Works well for higher quality and accuracy projects like aviation, defence etc. |

**Question 11: As a BA, state your reason for choosing one model for this project**

As a BA, we would suggest Waterfall Model. This approach is selected because –

* The change requirements will be less in this project as the users are new to the technology
* Waterfall model is very simple and easy to understand
* Project requirements are clear

**Question 12: 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.**

V Model

* It is a sequential approach
* Testing is done after each development
* Project is reviewed regularly
* Phases are completed one at a time
* Beneficial for small projects where requirements are clear

RG: Requirement Gathering is a process performed by BA to gather the requirements from the stakeholders

RA: In this process, BA will analyse the elicitated requirements and document the same.

Design: A dedicated team of developers will design the software based on the prepared documents

D1T1/D2T2…: In this phase, development will be done and it will be tested for review. This will be continuous process in which testing is done after each development.

UAT: The prepared software will be made available to the client for the acceptance testing to review if the product meets their requirements.

**GANTT Chart**

|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RG** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **RA** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Design** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **D1T1** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **D2T2** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **D3T3** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **D4T4** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **UAT** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

| **Tasks** | **Resources** |
| --- | --- |
| RG | Chandni (BA), PM |
| RA | Chandni (BA), PM |
| Design | PM, Chandni (BA), DB Admin, Mike (NW Admin) |
| D1T1 | Juhi, Teyson, Lucie, Tucker, Bravo (Developers), Testers, Chandni (BA), PM |
| D2T2 | Developer, Testers,Chandni (BA),PM |
| D3T3 | Developer, Testers, Chandni (BA), PM |
| D4T4 | Developer, Testers, Chandni (BA), PM |
| UAT | Tester, Chandni (BA), PM |

**Question 13: Explain the difference between Fixed Bid and Billing projects**

Fixed Bid Projects - In this type of project, the client agrees upon a fixed price for the entire project. Once the price is fixed, it does not change even if the cost incurred exceeds the expectation. This type of billing is used for projects like construction, consultation etc where the requirements are well understood before the starting of the project.

Billing Projects - In this type of projects, the client pays based on the actual time and material incurred. In these projects, timesheets are filled and submitted to the client for the payment. This type of billing is used for the projects where the scope is not understood at the initial stage.

**Question 14:**

* **Design Timesheet of a BA**
* **Development Timesheet of a BA**
* **Testing Timesheet of a BA**
* **UAT Timesheet of a BA**
* **Deployment and Implementation Timesheet of a BA**
* **Design Timesheet of a BA**

| **Task** | **Start Time** | **End time** | **Hours** |
| --- | --- | --- | --- |
| Requirement Gathering | 09:00 AM | 11:00 AM | 2 hours |
| Document Analysis | 11:00 AM | 12:30 PM | 1.5 hours |
| Design | 01:30 PM | 04:00 PM | 2.5 hours |
| Stakeholder Analysis | 04:00 PM | 05:00 PM | 1 hour |
| Team Meeting | 05:00 PM | 06:00 PM | 1 hour |
| **Total** |  |  | **8 hours** |

* **Development Timesheet of a BA**

| **Task** | **Start Time** | **End Time** | **Hours** |
| --- | --- | --- | --- |
| Development | 09:00 AM | 11:00 AM | 2 hours |
| Requirement Clarification | 11:00 AM | 01:30 PM | 2.5 hours |
| Documentation | 02:30 PM | 04:00 PM | 1.5 hours |
| Team Meeting | 04:00 PM | 06:00 PM | 2 hours |
| **Total** |  |  | **8 hours** |

* **Testing Timesheet of a BA**

| **Task** | **Start Time** | **End Time** | **Hours** |
| --- | --- | --- | --- |
| System Testing | 09:00 AM | 11:30 AM | 2.5 hours |
| Defect log | 11:30 AM | 01:00 PM | 1.5 hours |
| Documentation | 01:00 PM | 02:00 PM | 1 hour |
| Requirement Implementation | 03:00 PM | 05:00 PM | 2 hours |
| Team Meeting | 05:00 PM | 06:00 PM | 1 hour |
| **Total** |  |  | **8** |

* **UAT Timesheet of a BA**

| **Task** | **Start Time** | **End Time** | **Hours** |
| --- | --- | --- | --- |
| UAT Preparation | 09:00 AM | 11:30 AM | 2.5 hours |
| Presentation | 11:30 AM | 12:30 PM | 1 hour |
| Issue log | 12:30 PM | 02:30 PM | 2 hours |
| Feedback Gathering | 03:30 PM | 04:30 PM | 1 hour |
| Team Meeting | 04:30 PM | 05:00 PM | 0.5 hour |
| UAT Report | 05:00 PM | 06:00 PM | 1 hour |
| **Total** |  |  | **8 hours** |

* **Deployment and Implementation Timesheet of a BA**

| **Task** | **Start Time** | **End Time** | **Hours** |
| --- | --- | --- | --- |
| Deployment Preparation | 09:00 AM | 11:00 AM | 2 hours |
| Deployment Setup | 11:00 AM | 01:00 PM | 2 hours |
| User Training | 2:00 PM | 04:00 PM | 2 hours |
| Client Feedback | 4:00 PM | 06:00 PM | 2 hours |
| **Total** |  |  | **8 hours** |