**Capstone Project 1**

**Question 1 - BPM - 5 Marks**

**Identify Business Process Model for Online Agriculture Store - (Goal, Inputs, Resources,**

**Outputs, Activities, Value created to the end Customer)**

**Answer 1:**

¬**Goal**: To create an online platform for farmers in remote areas to easily purchase

agriculture products such as fertilizers, seeds, and pesticides.

**¬Inputs**: Product details from manufacturers, customer orders, and payment information.

**¬Resources**: The website or mobile application, IT infrastructure, and human resources

including developers, testers, and customer service staff.

**¬Outputs**: A user-friendly platform for farmers to browse and purchase products, delivery of

products to customers, and financial transactions.

**¬Activities**: Development and maintenance of the website or mobile application Product

management, which includes updating product information and pricing Order management,

which includes processing customer orders, payment and delivery. Customer service,

which includes responding to customer inquiries and addressing any issues that arise.

Value created to the end customer:

**¬Convenience**: Farmers can purchase products from the comfort of their own homes Time-

saving: Farmers no longer have to travel to purchase products. Access to a wider range of

products: Farmers can now purchase products from manufacturers they may not have been

able to before Improved efficiency: Farmers can now plan their purchases and deliveries in

advance, increasing their productivity.

**Q-2 – SWOT - 5 Marks**

**Mr Karthik is doing SWOT analysis before he accepts this project. What Aspects he Should**

**consideras Strengths, as Weaknesses, as Opportunity and as Threats.**

**Answer 2:**

As the Delivery Head, Mr. Karthik should consider the following aspects when performing a SWOT

analysis for the online agriculture product store project:

**1. Strengths:**

a. The project aligns with the company's mission of providing IT solutions to improve

the lives of people in rural areas.

b. The company has a talent pool of experienced developers and other IT professionals

available to work on the project.

c. The project has the support of Mr. Henry, a successful businessman, and other

stakeholders who can provide valuable input and resources.

d. Online marketplaces are becoming more popular, so the project has the potential to

be successful.

**2. Weaknesses:**

a. The 18-month project duration may be a tight timeline to deliver a complex system.

b. The company may not have previous experience in developing an online agriculture

product store.

c. The budget of 2 Crores INR may not be sufficient to cover all the costs of the project.

d. The company may not have enough knowledge of the agriculture industry to

understand the specific needs of the farmers and manufacturers.

**3. Opportunities**:

a. The project could open up new business opportunities for the company in the

agriculture and rural development sectors.

b. The project could help improve the lives of farmers in remote areas by making it

easier for them to access the products they need.

c. The company could use this project as a showcase for future projects and gain

reputation.

d. The online store could be a platform for farmers to connect with each other and

share their experiences

**4. Threats:**

a. The project may face competition from existing online agriculture product stores if

any.

b. The project could be affected by changes in government regulations or policies.

c. The company may encounter unexpected technical difficulties or delays during the

development process.thus escalating costs

d. The farmers may not be willing to adopt the new technology as they may be reluctant

to change and do not see utility in it.

e. They may be reluctant to bear the cost and charges for the system due to lack of

trust. By considering these aspects, Mr. Karthik can identify potential challenges and

opportunities for the project, and make an informed decision about whether to accept

the project and how best to approach it.

**Q-3 Feasibility study - 5 Marks**

**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 Mr. Karthik conducts a feasibility study on the use of Java technology for the online agriculture

product store project, he should consider the following points:

**1. Hardware:**

Mr. Karthik should ensure that the company has the necessary hardware resources to

support the project, such as servers, storage, and network infrastructure. He should also

consider scalability and future expansion in case the project grows in size and usage.

**2. Software:**

Mr. Karthik should evaluate the existing software systems and libraries that the

company uses and assess whether they are compatible with Java. He should also

research and identify any additional software or frameworks that may be required for the

project.

**3. Trained Resources:**

Mr. Karthik should identify the availability of trained resources within the company who

can work with Java. He should also assess whether the company has enough Java

developers with the necessary skills and experience to complete the project within the

given timeline.

**4. Budget:**

 Mr. Karthik should analyze the costs associated with the project, such as hardware,

software, and personnel costs. He should also evaluate whether the project budget of

2Crores INR is sufficient to cover all the costs and if not how to adjust the project scope

to make it feasible.

**5. Time frame:**

Mr. Karthik should evaluate whether the 18-month project duration is realistic given the

complexity of the project. He should also consider any potential delays or obstacles that

may arise during the development process, and assess whether the company has the

resources and expertise to complete the project on time.

By considering these points, Mr. Karthik can determine whether the project is technically

feasible, and whether the company has the resources and capability to deliver the

project within the given timeframe, budget and quality.

**Q-4 Gap Analysis - 5 Marks**

**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**

**Answer 4:**

A gap analysis is used to identify the difference between the current (AS-IS) state of a process

and the desired (TO-BE) state. In the context of the online agriculture products store project, Mr.

Karthik could showcase the following points in the gap analysis to convince Mr. Henry to initiate

the project:

**1. Ease of Access:**

Currently, farmers in remote areas face difficulties in procuring fertilizers, seeds, and

pesticides. The online store would provide easy and convenient access to these products

from anywhere with internet connectivity.

**2. Improved communication:**

The existing process does not allow direct communication between farmers and

companies that manufacture fertilizers, seeds, and pesticides. The online store would

provide a platform for farmers to directly communicate with the companies, reducing the

need for intermediaries.

**3. Better pricing:**

By reducing the number of intermediaries and providing direct communication between

farmers and companies, the online store could help farmers get better prices for the

products they need.

**4. Increased Product Availability:**

The online store would increase the availability of agriculture products to farmers in remote

areas. This would help farmers to access products that are not easily available in their local

markets.

**5. Increased Efficiency:**

**5. Increased Efficiency:**

The manual process of procuring agriculture products is time-consuming and prone to

errors. The online store would automate many aspects of the process, increasing efficiency

and reducing the likelihood of errors.

**6. Increased Transparency:**

The manual process can be opaque, making it difficult to track the flow of products and

money. The online store would increase transparency by providing a clear and detailed

record of all transactions.

These points highlight the key benefits of the online agriculture products store and how it

addresses the existing challenges faced by farmers in remote areas. By showcasing these

benefits, Mr. Karthik can convince Mr. Henry to initiate the project.

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benefits, Mr. Karthik can convince Mr. Henry to initiate the project.

**Q-5 - Risk Analysis - 10 Marks**

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

**Answer 5:**

**BA Risks:**

**1. Requirements Gathering:**

Inadequate requirements gathering and analysis could lead to misunderstandings or

missed requirements that would impact the final product.

**2. Stakeholder Management:**

Different stakeholders (farmers, companies, project team, etc.) may have conflicting

requirements or opinions, leading to difficulties in getting consensus on the

requirements.

**3. Communication:**

Miscommunication between the BA, project team, and stakeholders could lead to

misunderstandings and incorrect assumptions about the requirements.

**4. Change Management:**

Changes in requirements or stakeholders' expectations during the project could result in

delays or additional costs.

 **Project Risks:**

**1. Budget:**

The project budget may be insufficient to cover the development and implementation

costs, leading to financial constraints.

**2. Technical:**

Technical difficulties during the development and implementation of the online store

could impact the delivery timeline and quality of the final product.

**3. User Acceptance:**

The success of an online store depends on the willingness of farmers and businesses to

use the platform. If the user acceptance rate is low, the project may not reach its goals.

**4. Integrations:**

Online stores need to integrate with various systems such as payment systems, logistics

systems, and inventory management systems. Problems during integration can affect

project schedule and quality.

**Q-6 - Stakeholder Analysis (RACI Matrix) - 8 Marks**

**Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take**

**Decisions and Who are the influencers**

**Answer 6:**

**Responsible**

Mr.Karthik - Delivery Head - APT IT Solutions

Mr.Vandanam - Project Manager - APT IT Solutions

Ms.Juhi - Senior Java Developer - APT IT Solutions

Mr.Teyson, Ms.Lucie, Mr.Tuker, Mr. Bravo - Java Developer - - APT IT Solutions

Mr.Mike - Network Admin - - APT IT Solutions

Mr.John - DB Admin - APT IT Solutions

Mr.Jason and Ms.Alekya - Testers - - APT IT Solutions

**Accountable**

Mr.Henry - Client - Soony Company

Mr.Pandu - Financial Head - Soony Company

Mr.Dooku - Project Coordinator Soony Company

**Consulted**

 Peter, Kevin and Ben – Stakeholders (Formers from the remote

village)

**Informed**

Formers & Companies (Manufaturers of fertilizers, seeds &

Pesticides

**Q-7 - Business Case Document - 8 Marks**

**Help Mr Karthik to prepare a business case document**

**Answer 7:**

**1. Executive Summary:**

The online agriculture product store is a proposed solution to the difficulties faced by

farmers in procuring fertilizers, seeds and pesticides. The store will be a platform for

farmers and product manufacturers to communicate directly, making the procurement

process easier and more efficient. The proposed project has an estimated budget of 2

crores INR and a duration of 18 months.

**2. Problem Statement:**

Farmers in remote areas face several difficulties in procuring essential agriculture

products such as fertilizers, seeds and pesticides. These difficulties result in a decrease

in crop yield and a loss in income for the farmers.

**3. Solution:**

The proposed solution is to create an online agriculture product store that will make the

procurement process easier and more efficient for farmers. This store will be accessible

through internet connectivity and will be user-friendly.

Business Requirements:

 **The solution must have the following features:**

**1. Product listing:**

The ability to list products such as fertilizers, seeds and pesticides with detailed

Information.

**2. Order placement:**

Farmers must be able to place orders for products they need through the platform.

**3. Delivery:**

The platform must have the ability to arrange for delivery of the products to the farmers.

**4. User-friendly interface:**

 The platform must have a user-friendly interface for easy navigation.

**5. Benefits:**

The online agriculture product store will bring the following benefits:

a) Increased access to agriculture products:

Farmers will have access to a wider range of products through the platform,

increasing their options for procurement.

b) Improved efficiency:

The procurement process will become more efficient, reducing the time and effort

needed to purchase products.

c) Increased income:

Improved access to essential agriculture products will result in increased crop yields,

leading to an increase in income for the farmers.

d) Costs and Funding:

The estimated budget for the project is 2 crores INR. The funding for the project will

come from Mr. Henry's Company SOONY under their CSR initiative.

e) Project Schedule:

The project is expected to take 18 months to complete. Key milestones include

project initiation, requirements gathering, development, testing and deployment.

Risks and Mitigation:

The following risks have been identified:

Technical Risks: Risks related to the technology used for the platform

.

Delivery Risks: Risks related to delivering the products to the farmers.

**Adoption Risks:**

Risks related to the adoption of the platform by the farmers. To mitigate these risks,

the project team will implement appropriate risk management measures such as

regularly reviewing the technical design, partnering with reliable delivery companies

and providing adequate training to farmers.

In conclusion, the online agriculture products store has the potential to bring great

benefits to remote area farmers and the farming community at large. By addressing

the problems of accessibility and availability of essential products such as seeds,

pesticides, and fertilizers, the application can improve the productivity and efficiency

of farming operations. The business case highlights the need for this solution, the

estimated budget and timeline, the project risks, and the stakeholder involvement.

The development approach will be guided by a suitable methodology such as Agile,

Iterative, Sequential or Evolutionary, ensuring that the project is delivered effectively

and efficiently. The Committee is committed to ensuring the success of this project

and improving the lives of remote area farmers.

**Q-8 Four SDLC Methodologies - 8 Marks**

**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:**

**1.Sequential:**

This methodology follows a linear approach and moves through each phase of the SDLC in

a set sequence. This method is best suited for projects with well-defined requirements, low

risk, and predictable outcomes.

**2.Iterative:**

This methodology involves developing the software in iterations, where each iteration builds

upon the previous one. This method is best suited for projects with complex requirements

and high risk.

**3.Evolutionary:**

This methodology involves developing a basic version of the software and then

incrementally improving it. This method is best suited for projects with rapidly changing

requirements and high risk.

**4. Agile:**

This methodology is based on an iterative and incremental approach, and involves close

collaboration between the development team and stakeholders. This method is best suited

for projects with rapidly changing requirements, high risk, and complex environments.

**Q-9 Waterfall RUP Spiral and Scrum Models – 8 Marks**

**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:**

**They discussed models in SDLC like waterfall RUP Spiral and Scrum . You put forth your**

**understanding on these models**

**1.Agile:**

This methodology is based on an iterative and incremental approach, and involves close

collaboration between the development team and stakeholders. This method is best suited

for projects with rapidly changing requirements, high risk, and complex environments.

**2.Waterfall:**

This model is a sequential approach where each phase of development must be completed

before moving on to the next phase. It is best suited for projects with well-defined

requirements and clear project goals.

**3.RUP:**

This model is a unified and iterative approach that uses a set of best practices for software

development. It is best suited for complex projects with changing requirements.

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before moving on to the next phase. It is best suited for projects with well-defined

requirements and clear project goals.

3.RUP:

This model is a unified and iterative approach that uses a set of best practices for software

development. It is best suited for complex projects with changing requirements.

**4.Spiral:**

This model is a combination of both the sequential and iterative approaches, where each

iteration builds upon the previous one. It is best suited for high-risk projects with uncertain

requirements.

**5.Scrum:**

This model is an agile approach that emphasizes teamwork, collaboration, and adaptability.

It is best suited for projects with rapidly changing requirements and complex problem-

Solving.

**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: As per the suggestion of SME V model will be more appropriate for the reason that it

provides more flexibility and can adapt some changes to project if required. As chances are the

project may need more changes during the project timeline.

**Question 10 – Waterfall Vs V-Model - 5 Marks**

**Write down the differences between waterfall model and V model.**

**Answer 10:**

**1.Waterfall Model:**

The Waterfall Model is a sequential development process, where progress flows in a

downward, linear fashion from one phase to the next. It is a traditional and straightforward

methodology. It is well suited for projects with well-defined and fixed requirements. Each

phase must be completed before the next one starts. Testing is done only after the

development phase is completed.

**2.V Model:**

The V Model is a variation of the Waterfall Model, where each stage of development is

accompanied by a corresponding testing phase. It allows for the integration of testing and

development into a single continuous process. It is well suited for projects with high-quality

and regulatory requirements. It allows for early detection and correction of defects, reducing

the cost of fixing them later. It provides a clear and traceable path for verifying the software

development process.

**Question 11 – Justify your choice - 3 Marks**

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

**Answer 11**

 V model is selected . It is recommended by the SME and is more suited for the project. The V model allows changes in between the project which might be suitable for project where change requirement can arise due to regulator

**Question 12 – Gantt Chart - 5 Marks**

**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:**

**Answer 12: Gantt Chart for Online Agriculture Products Store**

Mr. Henry has identified key challenges faced by his farmer friends—difficulty in procuring fertilizers, seeds, and pesticides. To solve this, he decides to launch an Online Agriculture Products Store that will provide these essential farming supplies.

Project Development Approach: V Model

The V Model development approach consists of the following phases:

1. RG (Requirement Gathering) – Understanding business and technical requirements
2. RA (Requirement Analysis) – Finalizing the product catalog (fertilizers, seeds, pesticides), logistics, and supplier integration
3. Design – UI/UX and system architecture for the online store
4. D1 (Development Phase 1) – Building basic website functionality (user registration, product catalog)
5. T1 (Testing Phase 1) – Testing website UI and basic functionalities
6. D2 – Adding secure payment gateway and order tracking system
7. T2 – Payment and order processing testing
8. D3 – Implementing vendor management and inventory tracking
9. T3 – Vendor and inventory module testing
10. D4 – Full system integration and performance optimization
11. T4 – End-to-end testing before launch
12. UAT (User Acceptance Testing) – Farmers and suppliers test the platform before public release

Project Roles and Responsibilities

| Phase | PM | BA | Web Developers | Testers | DB Admin | NW Admin |
| --- | --- | --- | --- | --- | --- | --- |
| RG | ✅ | ✅ |  |  |  |  |
| RA | ✅ | ✅ |  |  |  |  |
| Design | ✅ | ✅ | ✅ |  | ✅ | ✅ |
| D1 | ✅ |  | ✅ |  | ✅ | ✅ |
| T1 | ✅ |  |  | ✅ | ✅ | ✅ |
| D2 | ✅ |  | ✅ |  | ✅ | ✅ |
| T2 | ✅ |  |  | ✅ | ✅ | ✅ |
| D3 | ✅ |  | ✅ |  | ✅ | ✅ |
| T3 | ✅ |  |  | ✅ | ✅ | ✅ |
| D4 | ✅ |  | ✅ |  | ✅ | ✅ |
| T4 | ✅ |  |  | ✅ | ✅ | ✅ |
| UAT | ✅ |  |  | ✅ | ✅ | ✅ |

✅ = Resource Involved in the Phase

This Gantt chart ensures a structured approach for the development of the Online Agriculture Products Store, making it easier for farmers to access essential farming materials.

**Question 13: Fixed Bid Vs Billing - 5 Marks**

**Explain the difference between Fixed Bid and Billing projects**

**Answer 13:**

**1.Fixed Bid Model:**

The Fixed Bid Model is a method of project delivery where the price for the project is

agreed upon and fixed at the outset. In this model, the scope of the project is defined and

agreed upon by the client and the vendor, and the vendor is responsible for delivering the

project within the agreed-upon budget and timeline. The vendor bears the risk of any cost

over runs or schedule delays.

**2.Billing Model:**

The Billing Models a method of project delivery where the client is charged based on the

actual time and resources used on the project. In this model, the scope of the project is not

fixed.The client is charged based on the actual time and resources spent on the project,

and any changes to the scope of the project are accommodated through changes to the

budget and timeline. This model allows for greater flexibility in the project.

**Question 14 – Preparer Timesheets of a BA in various stages of SDLC - 20 marks**

**➢ Design Timesheet of a BA**

**➢ Development Timesheet of a BA**

**➢ Testing Timesheet of a BA**

**➢ UAT Timesheet of a BA**

**➢ Deployment n Implementation Timesheet of a B**

**Answer 14:**

* **Design**

**Date** **Activity**  **In time Out Time Total hours**

**04-01-2025** Reviewing user requirements 11:00 19:00 8 Hours

04-02-2025 Creating use cases and work flows 11:00 15:00 4 Hours

04-03-2025 Designing database schema 11:00 19:00 8 Hours

04-04-2025 Creating wireframes 10:00 16:00 6 Hours

04-05-2025 Reviewing and refining design 11:00 15:00 4 Hours

04-06-2025 Creating Design specifications 11:00 15:00 4 Hours

04-09-2025 Meeting with Development team 11:00 14:00 3 Hours

04-10-2025 Updating design based on the feedback 10:00 16:00 6 Hours

04-11-2025 Finalizing design documents 11:00 19:00 8 Hours

04-12-2025 Reviewing and approving design 11:00 18:00 7 Hours

 **58 Hours**

* **Development**

**Date Activity In time Out Time Total hours**

05-01-2024 Meeting with Developers 10:00 16:00 6 Hours

05-02-2024 Conduct a session to elucidate design of software 11:00 19:00 8 Hours

05-03-2024 Conducted a session for design and development 10:00 15:00 4 Hours

05-04-2024 Reviewd test plans for upcoming release 10:00 16:00 6 Hours

 **29 Hours**

* **Testing**

**Date Activity In time Out Time Total hours**

06-01-2024 Conducted functional testing of future X 10:00 12:00 2 Hours

06-02-2024 Collaborated with the testing team on issue Y 10:00 15:00 4 Hours

06-03-2024 Conducted regression testing of module Z 10:00 15:00 4 Hours

06-04-2024 Reviewed test plans for upcoming release 10:00 12:00 2 Hours

08-05-2024 Analised test results and reported issues 10:00 15:00 4 Hours

08-06-2024 Tested integration of Module A with Module B 10:00 13:00 3 Hours

 **Total 19 Hours**

* **UAT**

Date Activity In time Out Time Total hours

09-01-2024 Prepare UAT test plans and test cases 10:00 15:00 4 Hours

09-02-2024 Revew UAT test plan with the stakeholders 10:00 16:00 6 Hours

09-03-2024 Execute UAT test cases 11:00 19:00 8 Hours

09-04-2024 Troubleshoot and report deffects found during UAT 10:00 15:00 4 Hours

09-05-2024 Retest defectes after they have been fixed by development team 10:00 12:00 2 Hours

09-06-2024 Obtain sign-off from stakeholders on UAT completion 11:00 12:00 1 Hours

 **Total 25 Hours**

* **Deployment**

Date Test Description Intime Outtime Total Hours Responsible Person

10-01-2024 Create Deployment Plan 11:00 19:00 8 Hours John Smith

10-02-2024 Deploy application to test environment 12:00 19:00 7 Hours Jane Doe

10-03-2024 Deploy applicaton to Production 10:00 19:00 9 Hours John Smith

10-04-2024 Perform User acceptance testing 11:00 23:00 12 Hours Jane Doe

10-05-2024 Finalize implementation 10:00 21:00 11 Hours John Smith

 **Total 47 Hours**