**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 :**

Business Process Model

* Goal:

Facilitate easy online purchasing of agricultural products for remote farmers.

* Inputs:

Product details from manufacturers.

User needs from farmers.

Internet access.

* Resources:

Online platform (web/mobile app).

Development team (project manager, developers).

Budget (2 Crores INR).

* Outputs:

Operational online store.

Product listings for farmers.

* Activities:

Gather requirements from farmers.

Develop the online platform.

Allow manufacturers to list products.

Process orders and arrange deliveries.

* Value Created:

Convenience for farmers.

Better access to products.

Potential cost savings.

Improved farming productivity.

**Question 2 – SWOT - 5 Marks**

**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.**

**Answer :**

SWOT Analysis

Strengths:

Direct Access to Products: Farmers can directly connect with manufacturers, reducing middlemen.

User-Friendly Design: The goal of a user-friendly application makes it accessible for all farmers.

Support from Established Company: Backing from SOONY and its resources enhances project credibility.

Experienced Team: Skilled team members in development and project management ensure quality execution.

Weaknesses:

Technology Adoption: Some farmers may lack the technical skills or access to smartphones/internet.

Initial Trust: New platform may face skepticism from farmers regarding reliability.

Dependence on Internet Connectivity: Remote areas may have inconsistent internet service, affecting usage.

Opportunities:

Growing E-commerce Trend: Increasing adoption of online services in agriculture can drive usage.

Expansion to Other Regions: Success in this project could lead to expansion into more areas or product categories.

Partnerships with More Suppliers: Opportunity to collaborate with additional agricultural product manufacturers.

Threats:

Competition: Other platforms or local suppliers may offer similar services.

Market Changes: Fluctuations in product prices or availability could impact operations.

Regulatory Challenges: Compliance with agricultural regulations may pose challenges.

Cybersecurity Risks: Potential threats to the platform's security could compromise user data.

**Question 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 :**

Feasibility Study Points

* Hardware:

Servers for hosting.

Compatibility with farmers’ devices.

* Software:

Java development tools (e.g., Eclipse).

Frameworks (e.g., Spring).

Database (e.g., MySQL).

* Trained Resources:

Skilled Java developers.

Potential training needs.

Support staff for maintenance.

* Budget:

Estimate for development costs.

Ongoing maintenance costs.

Contingency funds for extras.

* Time Frame:

Development timeline.

Key milestones.

Buffer time for delays.

**Question 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 :**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Aspect** | **AS-IS (Current)** | **TO-BE (Future)** | **Gap** |
| Product Access | Limited access; long travel to buy products. | Easy online access to products. | Saves time and effort for farmers. |
| Communication | Local suppliers with limited options. | Direct contact with manufacturers. | Better choices and information. |
| Order Process | Manual ordering with middlemen. | Online ordering directly from manufacturers. | Faster and more efficient. |
| Information | Limited product knowledge. | Detailed product listings online. | Informed purchasing decisions. |
| Delivery | Inconsistent delivery methods. | Reliable delivery to farmers’ locations. | Improved delivery reliability. |
| User Experience | No tech support for farmers. | User-friendly app with support available. | Easier access and use for farmers. |

**Question 5 – Risk Analysis - 10 Marks**

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

**Answer :**

Risk Factors in the Online Agriculture Store Project

In the development of the Online Agriculture Store, several risk factors can impact the project's success. These can be categorized into Business Analyst (BA) Risks and Process/Project Risks.

1. Business Analyst Risks

Requirements Misunderstanding: There's a risk of misaligning the project requirements with the actual needs of farmers. If the requirements are not clearly understood or documented, it may lead to developing features that do not meet user expectations.

Stakeholder Engagement: Active involvement from stakeholders (farmers, suppliers) is crucial. A lack of engagement can result in missed insights and requirements, impacting the platform's effectiveness.

Changing Requirements: As the project progresses, stakeholders may change their needs or expectations, which can lead to scope creep and project delays.

Data Quality: The accuracy and completeness of product data provided by manufacturers are vital. Poor data quality can affect product listings, leading to misinformation and dissatisfaction among users.

2. Process/Project Risks

Technical Risks: Integrating various technologies (e.g., database systems, payment gateways) may pose challenges. Compatibility issues can arise, leading to delays or additional costs.

Budget Overruns: The project is allocated a budget of 2 Crores INR. There is a risk that unforeseen expenses could lead to exceeding this budget, potentially jeopardizing project viability.

Timeline Delays: The project has a defined duration of 18 months. However, unforeseen issues such as technical challenges or resource availability may result in delays, impacting the launch date.

User Adoption: Farmers may resist adopting the new platform due to a lack of technological skills or distrust in online transactions. This resistance can limit the platform's effectiveness and reach.

Cybersecurity Threats: With an online platform, there are inherent risks related to data breaches and cyberattacks. Ensuring data security is crucial to maintaining user trust and compliance with regulations.

Market Competition: The emergence of competing platforms during or after the development phase could impact market share and profitability, necessitating ongoing analysis and adaptation.

Regulatory Compliance: Compliance with agricultural regulations and e-commerce laws can be complex. Failing to meet these legal requirements can result in fines or operational disruptions.

Conclusion

Identifying and addressing these risk factors is essential for the successful implementation of the Online Agriculture Store project. Effective risk management strategies, including stakeholder engagement, thorough requirements gathering, and robust technical planning, will help mitigate these risks and contribute to a successful outcome.

**Question 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 :**

RACI Matrix

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Stakeholder | Role | R (Responsible) | A (Accountable) | C (Consulted) | I (Informed) |
| Mr. Henry | Project Sponsor |   | Yes | Yes | Yes |
| Mr. Pandu | Financial Head |   |   | Yes | Yes |
| Mr. Dooku | Project Coordinator | Yes |   | Yes | Yes |
| Mr. Karthik | Delivery Head (APT IT) | Yes |   | Yes | Yes |
| Mr. Vandanam | Project Manager (APT IT) | Yes |   | Yes | Yes |
| Development Team | Developers | Yes |   |   |   |
| Farmers (Peter, Kevin, Ben) | Stakeholders/Users |   |   | Yes | Yes |
| Mr. Jason & Ms. Alekya | Testers | Yes |   |   |   |
| Manufacturers | Suppliers |   |   | Yes | Yes |

Key Influencers

Mr. Henry: High influence (final decisions).

Mr. Dooku: Moderate influence (coordinates project).

Mr. Karthik: High influence (oversees delivery).

Farmers: High influence (user feedback shapes the project).

**Question 7 – Business Case Document - 8 Marks**

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

**Answer :**

Business Case Document for Mr. Karthik

1. Current Problem

Farmers in remote areas, such as Mr. Henry's childhood friends Peter, Kevin, and Ben, face significant challenges in procuring essential agricultural products like fertilizers, seeds, and pesticides. These challenges hinder their productivity and crop yield, ultimately affecting their livelihoods. There is a lack of direct communication and access to suppliers, which compounds these issues.

2. Problems to be Solved

The online agricultural product store aims to address several key issues:

Procurement Difficulties: By providing a platform where farmers can easily access and purchase products.

Supply Chain Efficiency: Direct communication between farmers and manufacturers will streamline the purchasing process.

Product Availability: Ensuring that farmers have access to a wider range of products without geographical constraints.

User Experience: Creating a user-friendly application to cater to users with varying levels of digital literacy.

3. Resources Required

To successfully implement the project, the following resources are necessary:

Technical Resources:

Development team (Java developers, testers)

Network and database administration

Financial Resources:

Budget of INR 2 Crores

Human Resources:

Project management team

Stakeholder involvement (farmers and manufacturers)

Technology:

Online platform (web and mobile application)

Internet connectivity solutions for remote areas

4. Organizational Changes to Adapt Technology

Adapting to this new technology will require:

Training and Support: Providing training sessions for farmers on how to use the application effectively.

Infrastructure Development: Ensuring reliable internet connectivity in remote areas.

Change Management: Encouraging a cultural shift towards digital solutions in farming practices.

5. Return on Investment (ROI)

The anticipated ROI includes:

Increased Sales for Manufacturers: Direct access to a wider customer base.

Higher Crop Yields for Farmers: Improved access to necessary products leading to better productivity.

Cost Savings: Reduced time and resources spent on sourcing products.

Community Development: Enhancing the economic status of local farmers, leading to broader economic growth in the region.

6. Identifying Stakeholders

Stakeholders can be identified through:

Engagement with Local Farmers: Understanding their needs and involving them in the development process.

Collaboration with Manufacturers: Building relationships with suppliers of fertilizers, seeds, and pesticides.

Involvement of Community Leaders: Leveraging local leadership to gain support and insights into farmer challenges.

Regular Feedback Mechanisms: Establishing channels for ongoing feedback from all parties involved to ensure the platform meets their needs.

7.Role of a Business Analyst (BA) in a Project

Requirements Gathering: Collect and document needs from stakeholders, including farmers and manufacturers.

Stakeholder Management: Identify, engage, and communicate with all stakeholders to understand their expectations.

Documentation: Create clear documents like business requirements, user stories, and process maps.

Business Process Modeling: Analyze and model existing processes to improve efficiency and integration.

Solution Assessment: Collaborate with the development team to ensure solutions meet requirements and participate in testing.

Change Management: Help users adapt to the new system through training and support.

Risk Analysis: Identify risks and develop mitigation strategies with the project manager.

Continuous Improvement: Gather post-implementation feedback for further enhancements.

Collaboration: Work closely with project team members to ensure alignment and successful delivery.

**Question 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:**

Software Development Life Cycle (SDLC)

SDLC is the process for developing software, which includes these stages:

Planning: Define goals and scope.

Analysis: Gather requirements.

Design: Create system architecture.

Implementation: Write and test code.

Maintenance: Provide ongoing support.

Methodologies

* Sequential (Waterfall)

Description: Linear process; each phase must finish before the next begins.

Pros: Easy to manage; clear documentation.

Cons: Inflexible to changes.

* Iterative

Description: Develops through repeated cycles, refining with each iteration.

Pros: Allows for adjustments based on feedback.

Cons: Risk of scope creep.

* Evolutionary

Description: Starts with a basic version and evolves based on user feedback.

Pros: Adaptable and user-focused.

Cons: Can be hard to manage changes.

* Agile

Description: Flexible, collaborative approach with continuous feedback.

Pros: Quick responses to changes; delivers value frequently.

Cons: Requires active involvement from stakeholders.

Conclusion

The best methodology depends on project needs and stakeholder engagement. Agile is often favored for its flexibility, especially for projects with changing requirements like the Online Agriculture Store.

**Question 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**

**Answer :**

1. Waterfall Model

Description: A linear and sequential approach where each phase must be completed before the next begins.

Stages: Requirements → Design → Implementation → Testing → Maintenance.

Pros: Simple and easy to manage; clear documentation.

Cons: Inflexible to changes; late feedback can lead to costly fixes.

2. RUP (Rational Unified Process)

Description: An iterative and incremental model that divides the project into four phases: Inception, Elaboration, Construction, and Transition.

Pros: Focuses on risk management; allows for adaptability and feedback throughout the process.

Cons: Can be complex; requires careful planning and discipline.

3. Spiral Model

Description: Combines iterative development with the systematic risk assessment of the project in a spiral pattern.

Phases: Planning → Risk Analysis → Engineering → Evaluation (repeats).

Pros: Strong emphasis on risk management; allows for changes based on user feedback.

Cons: Can be expensive; requires expertise in risk management.

4. Scrum

Description: An Agile framework that emphasizes teamwork, accountability, and iterative progress through sprints (short development cycles).

Roles: Product Owner, Scrum Master, Development Team.

Pros: Highly flexible; encourages collaboration and quick adjustments based on feedback.

Cons: Requires strong commitment and communication; can be chaotic without proper management.

Conclusion

The best model depends on the project’s needs. Agile methods like Scrum are great for flexibility and quick feedback, especially for projects like the Online Agriculture Store.

**Question:**

**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 a Business Analyst, I recommend the V-Model for the Online Agriculture Product Store project. Here's why:

V-Model

Description: Emphasizes testing at each development stage.

Pros:

Early detection of issues through testing.

Clear structure with defined phases.

Cons:

Less flexible for changes once phases are completed.

Waterfall Model

Description: Linear approach with phases completed one after another.

Pros:

Simple and easy to manage.

Cons:

Inflexible; hard to adapt to changes.

Conclusion

If requirements are stable, the V-Model is better for early validation. If flexibility is needed, consider Agile. Engaging stakeholders can help clarify which methodology fits best.

**Question 10 – Waterfall Vs V-Model - 5 Marks20Write down the differences between waterfall model and V model.**

**Answer :**

|  |  |  |
| --- | --- | --- |
| **Aspect** | **Waterfall Model** | **V-Model** |
| Structure | Linear and sequential | Sequential but emphasizes verification |
| Phases | Stages flow one after the other | Development and testing phases are parallel |
| Testing | Testing occurs after development | Testing is integrated at each stage |
| Flexibility | Inflexible to changes | Less flexible; changes are costly |
| Feedback | Limited feedback during development | Early feedback through testing phases |
| Documentation | Heavy documentation at each phase | Documentation includes testing at each stage |
| Risk Management | Late identification of issues | Early identification of issues through testing |
| Use Cases | Best for well-defined projects | Suitable for projects needing early validation |
| User Involvement | Limited user involvement | More user involvement through testing |
| Implementation | Direct implementation after development | Direct implementation after thorough testing |

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

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

**Answer :**

As a Business Analyst, I recommend the V-Model for the Online Agriculture Product Store project because:

Early Testing: Allows for early identification of issues through testing at each phase.

Risk Management: Helps manage risks effectively by detecting problems early.

User Involvement: Encourages user feedback at each stage, ensuring the product meets farmer needs.

Suitable for Defined Requirements: Works well when project requirements are stable and clear.

Overall, the V-Model ensures a high-quality product that aligns with user expectations.

**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 chartwith 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 :**

Gantt Chart Outline for V-Model Development Process

Phases and Tasks:

Requirements Gathering (RG)

Resources: PM, BA

Requirements Analysis (RA)

Resources: PM, BA

Design

Resources: PM, BA, Java Developers

Development (D1)

Resources: Java Developers

Testing (T1)

Resources: Testers

Development (D2)

Resources: Java Developers

Testing (T2)

Resources: Testers

Development (D3)

Resources: Java Developers

Testing (T3)

Resources: Testers

Development (D4)

Resources: Java Developers

Testing (T4)

Resources: Testers

User Acceptance Testing (UAT)

Resources: PM, BA, Testers

Resource Allocation:

PM: Oversees the project throughout all phases.

BA: Engages primarily during RG, RA, and UAT.

Java Developers: Involved in design and multiple development phases.

Testers: Active during all testing phases.

DB Admin and NW Admin: Available as needed during the design and development phases for database and network support.

| Week | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10| 11| 12| 13| 14| 15| 16| 17| 18| 19| 20| 21| 22|

|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| RG |██ |██ | | | | | | | | | | | | | | | | | | | | |

| RA | | |██ |██ | | | | | | | | | | | | | | | | | | |

| D1 | | | | |██ |██ | | | | | | | | | | | | | | | | |

| T1 | | | | | | |██ |██ | | | | | | | | | | | | | | |

| D2 | | | | | | | | |██ |██ | | | | | | | | | | | | |

| T2 | | | | | | | | | | |██ |██ | | | | | | | | | | |

| D3 | | | | | | | | | | | | |██ |██ | | | | | | | | |

| T3 | | | | | | | | | | | | | | |██ |██ | | | | | | |

| D4 | | | | | | | | | | | | | | | | |██ |██ | | | | |

| T4 | | | | | | | | | | | | | | | | | | |██ |██ | | |

| UAT | | | | | | | | | | | | | | | | | | | | |██ |██ |

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

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

**Answer :**

Fixed Bid Projects

Description: A set price for the entire project.

Pros: Predictable costs, clear budget.

Cons: Less flexibility for changes, risk for the vendor if costs exceed the bid.

Billing Projects (Time and Materials)

Description: Client pays for actual time and resources used.

Pros: Flexible to changes, vendor is paid for all work.

Cons: Unpredictable costs for the client, requires careful monitoring.

Summary

Fixed Bid: Best for well-defined projects.

Billing Projects: Ideal for projects with changing requirements.

**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 BA**