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

**BUSINESS PROCESS MODEL FOR ONLINE AGRICULTURE STORE**

**Business Process Model:**

A business process model is a visual representation of a business process, typically outlining the steps, tasks, and workflows involved in achieving a specific organizational goal. It provides a clear and structured way to understand how work is performed within an organization. These models are used for analysis, optimization, communication, and process improvement.

**GOALS**

Facilitating remote area farmers to buy agricultural products from anywhere through a Mobile App website, enhancing product availability and improving their satisfaction.

**INPUTS**

* + **PRODUCT INFORMATION:** Pesticides, fertilizers, Different seeds Varieties, and Other agricultural products.
  + **CUSTOMER INFORMATION:** Farmer details and payment details, farmer delivery

location and other address details.

* + **TECHNOLOGY:** Web Site and Mobile App online access store.
  + **PAYMENT METHODS:** All type of payment availability / credit and debit cards.

**RESOURCES**

* + **HUMAN RESOURCES:** Project Manager, Business Analyst, Java developers, Network Admin, Testers, Database Admin.
  + **TECHNICAL RESOURCES:** Internet accessibility, Server connection, Software application tools and Programming Language (JAVA), Database (RDBMS & SQL) Maintenance, testing etc.
  + **FINANCIAL RESOURCES**: Budget for project implementation 2 Crores in INR,

duration of 18 months, under Corporate social responsibility initiative.

**ACTIVITIES**

* + **LOGIN THE APPLICATION:** Farmers creating the account and log in.
  + **PRODUCT BROWSING:** Farmers search for the agricultural products they exactly needed.
  + **PLACING ORDERS:** Farmers add the needed products to the cart and place their orders.
  + **PAYMENT METHOD:** Farmers should be able to make payment using all types payment methods/cards.
  + **ORDER TRACKING:** Track the order status through a mobile phone.
  + **DELIVERY:** Exact time delivery to the farmers.

**OUTPUTS**

* + **ORDER CONFORMATION:** Pursue orders with agreed terms and condition.
  + **DELIVERY STATUS:** Updates on the delivery process.
  + **PRODUCT DELIVERY:** Agricultural products delivered to farmers.

**VALUED CREATED BY THE END CUSTOMER**

* + **AVAILABILITY** - Farmer can check the availability of Agricultural products on their mobile phones or website.
  + **SATISAFACTION** - Agricultural products and efficient service meet the farmers fulfilment.
  + **EFFICIENCY-** Orders are delivered on efficiently to the farmers and they can easily track their products.

**SUMMARY**

This Model helps easily fulfil the farmer ’s needs by efficiently facilitating their purchase of agricultural products. It acts as a bridge between farmers and online agriculture store owners.

**END CUSTOMERS**

* + - * + **INPUT CUSTOMER –** Online Agriculture store owner
        + **OUTPUT CUSTOMER –** Farmers.

1. **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 OF THE PROJECT**

**SWOT ANALYSIS:**

A SWOT analysis is a strategic planning tool used to evaluate an organization's internal strengths and weaknesses, as well as external opportunities and threats. It helps businesses, teams, or individuals identify areas of advantage and potential risks to make informed decisions and strategies**.**

**STRENGTHS:**

* + **BUDGET AVAILABILITY** – Enough resources like budget, tools, good cash flow and profitability.
  + **INNOVATIVE PRODUCT OR SERVICE** – Providing a unique product or service should be offering in market that meets customer better than other competitor company.
  + **ADVANCE TECHNOLOGY –** Offering an advance version of technology to the project and optimizing the project process.
  + **SKILLED WORK FORCE –** Having a good skilled and well experience team member is necessary things.
  + **STRONG BRAND REPUTATION –** Creating the strong well known and respected brand that meets the customer loyalty and Satisfaction.

**WEAKNESSES**

* + **INTERNAL CONFLICTS -** Team might have conflicts and not work together.
  + **TIME CONSTRAINTS –** The project has tight deadlines, which may affect the quality.
  + **SKILL GAPS –** Lack of experience and skill member within the team
  + **INSUFFICIENT RESOURCES –** Lack of resources like budget, Manpower, technology etc.

**OPPORTUNITY**

* + **REGULATORY CHANGES:** Based on the need for changes in regulations or policies.
  + **ADVANCE TECHONOLOGY:** New technology can be utilized.
  + **STRATEGIC PARTERSHIPS:** Collaborating with potential that gives the value to success project.

**THREATS**

**COMPETITION:** Powerful competitor will impact the project growths.

**PROJECT RISKS:** Project specific risks like project scope creeps and technical challenge etc.

**FIANANCIAL RISKS**: Cash flow downturns and financial instability.

These are SWOT ANALYSIS things Mr. Karthik wants to well inform the decision to proceed.

**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:**

A **feasibility study** is an in-depth analysis and evaluation of the potential of a proposed project, plan, or solution to determine whether it is viable, achievable, and worth pursuing. The study assesses various aspects such as technical, financial, legal, and operational factors to minimize risks and optimize decision-making.

**HARDWARE (HW):**

* + **SERVERS**: Cloud Based server or hybrid or dedicated server any type which suitable for this project.
  + **DEVELOPMENT MACHINES**: JAVA Developer have power handling machines like Sufficient RAM 16 + And good processor and high speed SDD for efficient java programming development.
  + **NETWORK INFRASTRACTURES**: Development, testing, Deployment and security needs based on this project.

**SOFTWARE(SW):**

* + **JAVA DEVELOPMENT KIT (JDK):** Java update version like Java 11, Java 17 is on this project.
  + **FRAME WORKS:** Hibernate ORM java frameworkis used to check for development speed and performance.
  + **DEVELOPMENT TOOLS:** Development tools like ECLIPSE, version tools like GIT and CI /CD Tools like Jenkins are used this project.
  + **DATA BASE:** This project Database like MYSQL or NOSQL is going to used.
  + **CLOUD SERVERS**: Cloud platforms like AWS, AZURE is used in this project.
  + **THIRD PARTY LIBRARIES**: Third party libraries needed for security, logging, or data processing.
  + **ECOMMERCE AND CRM**: Creating CRM and Ecommerce platform its help farmer choosing the agriculture product and CRM also helps to order the products through payment gateways, product list etc.

**TRAINED RESOURCES:**

* + **TECHNICAL EXPERTISE:** This project we have a java developers and web development, they are expertise in java and web development, project expertise and some support staff all are need to trained for this project.
  + **MARKETING EXPERTISE:** A marketing and sales after completing the technical work next move into marketing side determine the required skills and promoting the agriculture product to store and also consider enough knowledge to social media, digital marketing platforms.

**BUGDETS:**

* + **DEVELOPMENT COSTS:** Acquiring hardware, hiring the developer costs, software licenses purchasing.
  + **OPERATIONAL COSTS:** Server maintenance, cloud service, and ongoing support.
  + **TRAINING COSTS:** Budget allocate for training team members on technology etc.

**TIME FRAME:**

* + **Development Phase:** Break down the project into phases like planning, Development, deployment, testing.
  + **RISK MANAGEMENT:** Identify the potential risk and planning for mitigation strategies to all destroyed.
  + **PROJECT TIMELINE:** Plan the project milestones and deadlines in detailed view.

Considering by these point Mr Karthik feasibility Study on this project.

1. **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**

**Process Efficiency and Automation:**

**EXISTING STATE:**

Manual or semi-automated tasks leading to time inefficiencies, potential human errors, and inconsistent results**.**

**FUTURE STATE:**

Fully automated, streamlined processes with reduced manual intervention, improving speed, accuracy, and consistency**.**

**Data Management and Accessibility:**

**EXISTING STATE:**

Disorganized data storage, difficult access to real-time data, and lack of centralized data management**.**

**FUTURE STATE:**

Centralized, organized, and accessible data with real-time updates, allowing informed decision-making and easier data retrieval.

**Communication and Collaboration:**

**EXISTING STATE:**

Poor or delayed communication between departments, resulting in silos and misaligned efforts.

**FUTURE STATE:**

Integrated communication platforms enhancing cross-departmental collaboration, reducing delays, and aligning team objectives.

**Cost and Resource Utilization:**

**EXISTING STATE:**

High operational costs due to inefficiencies, redundant activities, and underutilization of resources.

**FUTURE STATE:** Optimized resource allocation, reduced redundancies, and lower operational costs, leading to better resource utilization.

**Customer Experience and Responsiveness**

**EXISTING STATE:** Delays in responding to customer needs, inconsistent service quality, and limited personalization.

**FUTURE STATE:** Improved response times, consistent service, and tailored customer experiences that enhance satisfaction and loyalty.

**Risk Management and Compliance**

**EXISTING STATE:**

Limited compliance tracking, high manual effort in regulatory reporting, and vulnerability to non-compliance risks.

**FUTURE STATE:**

Automated compliance checks, easier regulatory reporting, and reduced risk exposure through proactive monitoring.

**Scalability and Future Growth**

**EXISTING STATE:**

Processes not scalable, limiting potential for growth and adaptability to new business demands.

**FUTURE STATE:**

Scalable systems and processes that can adapt to increased demands, supporting long-term growth and agility**.**

**Employee Productivity and Satisfaction**

**EXISTING STATE:**

Low productivity due to repetitive tasks, lack of engagement, and high error rates.

**FUTURE STATE:**

Increased productivity through task automation and employee empowerment, fostering higher job satisfaction.

**Performance Metrics and Monitoring**

**EXISTING STATE:**

Limited or outdated performance tracking, making it difficult to measure efficiency and progress**.**

**FUTURE STATE:**

Enhanced tracking and reporting capabilities, allowing real-time performance metrics and informed decision-making**.**

These points provide Mr. Karthik a structured framework to illustrate the gaps, quantify the value of each improvement area, and emphasize how the TO-BE state aligns with business goals to convince Mr. Henry to initiate the projecTop of Formt.

**Bottom of Form**

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

**RISK ANALYSIS:**

Risk analysis is the process of identifying, assessing, and prioritizing potential risks that could impact the success of a project, plan, or decision. It involves evaluating the likelihood and potential impact of each risk to develop strategies for mitigation, acceptance, or avoidance. This process helps organizations make informed decisions and safeguard against uncertainties**.**

**Internal Risks:**

Internal risks are factors within the project team, company, or organization that could impact project success.

**RESOURCE RISKS:**

* + - **SKILL GAP:** The team may lack specific skills, particularly in agriculture and user experience for remote, less tech -savvy users**.**
    - **STAFF AVAILABILITY:** Key team members such as developers, testers, or the BA, may have conflicting priorities or be unavailable during critical phases**.**
    - **TEAM TURNOVER:** High turnover among the project team members could lead to delays, knowledge loss, added recruitment / training costs.

**BUDGET CONSTRAINTS:**

* + - **BUDGET OVRERTURNS**: Additional costs for resources or unexpected expenses (e.g. integration fees, additional support for testing) could exceed the budget of 2 crores INR.
    - **INSUFFICIENT CONTINGENCY**: Lack of financial buffer could hinder problem -solver if additional resources are needed due to unforeseen challenges.

**TECHNICAL INFRASTRUCTURE**:

* + - **PLATFORM SCALABILITY:** Insufficient planning for future growth could result in an application that is unable to handle increased traffic or data over time**.**
    - **INTEGRATION ISSUSES:** The platform may need to integrate with third-party systems for payment, logistics, or inventory, which could lead to compatibility or performance issues.

**PROJECT MANAGEMENT RISKS:**

* **Timeline Delays:** Poor management of the project timeline could lead to delays in milestones, potentially pushing the project beyond the 18-month deadline.
* **Communication Gaps:** Miscommunication within the team or with stakeholders, especially with remote stakeholders, could lead to misunderstandings and errors**.**

**External Risks**

External risks come from outside the project team and organization, impacting factors beyond immediate control**.**

**Environmental and Location Challenges**

* **Internet Connectivity:** Farmers in remote areas may struggle to access the online platform consistently, reducing its effectiveness**.**
* **Natural Disasters:** Events like floods, storms, or droughts could disrupt farmers’ access to products or interrupt supply chains.

**Regulatory and Compliance Risks**

* **Compliance with Agricultural Standards:** The platform must comply with regulations on agricultural products, such as the distribution of pesticides, which vary by region.
* **Data Privacy Regulations:** Ensuring that farmers’ data is secure and compliant with privacy laws (like GDPR if applicable) is essential to avoid legal issues**.**

**Market and User Adoption Risks**

* **Resistance to Change**: Farmers accustomed to traditional buying practices may be reluctant to adopt an online platform**.**
* **Low Adoption Rates by Manufacturers:** If manufacturers are not willing to list their products or participate actively, the platform could fail to deliver value.

**Business Analysis (BA) Risks:**

BA risks relate to the roles and responsibilities of the Business Analyst in gathering requirements, managing stakeholders, and ensuring alignment with project goals.

**Requirements Gathering and Analysis**

* **Incomplete Requirements:** If requirements from farmers or manufacturers are not fully captured, the final platform may not meet user needs.
* **Changing Requirements**: Evolving expectations from stakeholders during the project could lead to scope creep, increased costs, or project delays.

**ii. Stakeholder Management**

* **Conflicting Interests:** Different stakeholders (farmers, manufacturers, project team) may have conflicting needs that are challenging to align.
* **Remote Stakeholder Challenges:** Limited communication channels or low response rates from remote stakeholders could impact timely requirement validation and feedback.

**iii. Documentation and Communication**

* **Miscommunication:** Lack of clarity or misunderstandings in communication between the BA, stakeholders, and project team could result in incorrect assumptions and misaligned goals.
* **Unclear Scope and Objectives:** An unclear scope may lead to stakeholders having different expectations of the final deliverable**.**

**iv. Agricultural Industry Knowledge**

* **Limited Understanding of Farming Needs:** The BA’s limited knowledge of agricultural needs could lead to gaps in requirements or overlooked pain points (e.g., seasonal challenges, crop-specific needs).

**Project-Based Risks**

Project-based risks are general risks associated with project execution, including resources, budget, timelines, and technology**.**

**Resource and Talent Risks**

* **Talent Pool Constraints:** The team may lack specific expertise, requiring time and budget to either train or hire additional resources**.**
* **Availability of Resources:** Scheduling conflicts or inadequate availability of key personnel (e.g., developers, testers) could cause delays**.**

**Technology and Platform Development**

* **Platform Stability:** Issues like software bugs, data integrity problems, or system crashes could lead to poor user experience and project failure**.**
* **Security Risks:** Protecting sensitive information, like farmers' personal and payment details, is critical to avoid data breaches and maintain user trust**.**

**iii. Budget and Financial Risks**

* **Insufficient Funding:** The allocated budget may not be enough to cover unforeseen project expenses, particularly for external integrations or additional infrastructure needs.
* **Delayed Payments or CSR Funding:** As this project is CSR-funded, any delays in CSR fund allocation could cause budget-related interruptions**.**

**iv. User Acceptance and Training**

* **Low Adoption Rates:** If farmers are not comfortable with technology, usage rates could remain low, making it challenging for the platform to achieve its purpose**.**
* **Need for Training:** Farmers may require training or support to use the platform effectively, which could increase project costs if not planned in advance.

**v. Change Management and Process Adaptation**

* **Frequent Requirement Changes**: Frequent changes from stakeholders, especially as the project progresses, could disrupt the timeline and budget**.**
* **Resistance to New Processes:** Farmers and other stakeholders may be resistant to the digital shift, leading to slower adoption and potential adjustments to platform features.

**Mitigation Strategies**

1. **Improved Communication Channels:**
   * + - * Establish frequent and clear communication channels with remote stakeholders to ensure feedback is timely and requirements are validated**.**
2. **Stakeholder Training and Support:**
   * + - * Plan and provide training materials for farmers to use the platform easily. Provide ongoing support through help desks or on-call support teams**.**
3. **Technical Infrastructure Planning:**
   * + - * Ensure the platform is built for scalability and has robust security features. Perform extensive testing for performance and reliability**.**
4. **Change Management:**
   * + - * Implement a formal change management process for assessing new requirements, prioritizing essential changes, and avoiding unnecessary scope creep**.**
5. **Risk Contingency Plans:**
   * + - * Allocate a contingency budget and plan for potential issues, including delays in resource availability, technical challenges, or increased costs due to unforeseen needs**.**
6. **Legal and Regulatory Compliance:**
   * + - * Consult with legal advisors to ensure compliance with agricultural product standards and data privacy regulations to prevent legal complications.
7. **Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take**

**Decisions and Who** **are the influencers.**

* **Define Roles Using RACI:**

**The RACI framework defines four main roles:**

* **Responsible (R):** People responsible for completing the task or activity.
* **Accountable (A):** The person ultimately answerable for the completion of the task**.**
* **Consulted (C):** Individuals whose opinions are sought (usually experts).
* **Informed (I):** Stakeholders who need to be kept up to date but are not directly involved.

|  |  |  |  |
| --- | --- | --- | --- |
| **R/A/C/I** | **NAME** | **DESIGNATION** | **DETAILS** |
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| Kevin | Key Stakeholder (Farmer) | Email: kevin@farmers.com  Phone: +91-9990000006  Reach Out: 8 AM - 12 PM |  |  |  |
| Ben | Key Stakeholder (Farmer) | Email: ben@farmers.com  Phone: +91-9990000007  Reach Out: 8 AM - 12 PM |  |  |  |
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| Mr. John | DB Admin | Email: john@aptitsolutions.com  Phone: +91-9990000015  Reach Out: 9 AM - 6 PM |  |  |  |

**7.Help Mr.Karthik to prepare a Business Case Document**

**Business Case Document**

Business case documents are prepared during the project initiation phase and their purpose is to include all the project’s objectives, costs and benefits to convince stakeholders of its value. **Project Overview:**

**PROJECT NAME: ONLINE AGRICULTURE STORE**

**SPONSOR: Mr.HENRY**

**COMPANY: SOONY**

**PROJECT EXECUTING PARTNER: APT IT SOLUTION**

**BUDGET: 2 CRORES INR**

**PROJECT DURATION:18 MONTHS**

**CSR INITIATIVE: YES**

**Why is this Project Initiated**

The project was initiated by Mr. Henry, a successful businessman, who recognized the challenges faced by his friends and other farmers in remote areas in procuring essential agricultural products such as fertilizers, seeds, and pesticides. By creating an online agriculture product store, Mr. Henry aims to empower farmers by connecting them directly with manufacturers. This online platform will enable farmers to access quality agricultural products at competitive prices, increase productivity, and improve crop yields. The project also aligns with SOONY’s **Corporate Social Responsibility (CSR)** objectives, as it aims to address a critical agricultural challenge impacting rural communities.

**Current Problems**

* **Lack of Access to Essential Products:** Farmers like Peter, Kevin, and Ben struggle to procure necessary products such as fertilizers, seeds, and pesticides due to limited availability in remote areas.
* **Dependence on Intermediaries:** Farmers often rely on intermediaries to buy agricultural products, which can lead to higher costs, limited product choices, and potentially low-quality items.
* **Time and Effort Wasted:** Farmers need to travel long distances to access markets, incurring transportation costs and losing time that could be used for agricultural work.
* **Limited Product Variety:** Due to remote locations and limited access, farmers often face restricted options for crop-specific products, impacting their crop health and yield.
* **Communication Gap with Manufacturers:** Farmers lack direct communication with manufacturers, making it challenging to learn about new and effective agricultural products.

**Problems Addressed by the Project:**

**The proposed online agriculture product store aims to address the following issues:**

* **Direct Product Access:** Farmers can order fertilizers, seeds, and pesticides online, reducing dependency on intermediaries.
* **Cost Savings:** Direct transactions with manufacturers eliminate extra costs from middlemen, allowing farmers to access products at more affordable prices.
* **Increased Product Variety and Availability:** The platform offers a wide variety of agricultural products, which can be filtered by crop type, soil type, and other parameters, enabling farmers to select the right products for their specific needs.
* **Enhanced Communication**: Manufacturers can communicate directly with farmers through the platform, providing insights into the latest agricultural products and technologies.
* **Time Efficiency:** Farmers can order products at any time, from any location with internet access, saving travel time and effort.

**Resources Required**

* **Human Resources:**

**APT IT SOLUTIONS Team:**

* Mr. Karthik (Delivery Head), Mr. Vandanam (Project Manager), Ms. Juhi (Senior Java Developer)
* Java Developers: Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo
* Mr. Mike (Network Admin), Mr. John (DB Admin)
* Mr. Jason and Ms. Alekya (Testers)
* Business Analyst (You) to gather requirements and ensure stakeholder alignment.

**Technology Resources:**

* + **Hardware:** Servers, storage, networking equipment for hosting and maintaining the platform.
  + **Software:** Java development kits, IDEs, testing tools, and third-party integration APIs.
  + **Security:** Robust encryption and security protocols to protect data and enable secure transactions.
* **Logistical Resources:**
  + **Logistics Partners:** For the delivery of products to remote areas.
  + **Customer Support**: For user support and handling inquiries from farmers.
* **Financial Resources:**
  + **Budget:** 2 Crores INR allocated for development, infrastructure, and operational costs.

**Organizational Change Required**

Adopting this online platform will require minimal organizational change within SOONY but will necessitate cultural and behavioral adjustments among the farmers:

1. Training and Awareness: Farmers accustomed to traditional purchasing methods will need basic training on using the online platform, including placing orders, browsing products, and making online payments.
2. Support Infrastructure: The project may require setting up a dedicated support team to assist farmers, particularly during the initial phases of platform adoption.
3. System Integration: Integrating with payment gateways and logistics partners may require updates to internal processes to ensure smooth transactions and timely deliveries.

**Time Frame to Recover ROI**

* Initial Time Frame: The project is scheduled to be developed and implemented within **18** months.
* Expected ROI Recovery Period: Since this project is a CSR initiative with a primary focus on community development, traditional ROI metrics may not directly apply. However, measurable impact indicators could include:
  + - * + **User Adoption Rate:** The number of farmers actively using the platform.
        + **Increased Productivity:** Improved crop yields due to easier access to quality agricultural products.
        + **Cost Savings for Farmers:** Savings achieved through direct manufacturer purchases.

In a CSR context, the platform’s success and impact on farmers’ livelihoods and agricultural productivity will be essential ROI metrics rather than direct financial returns.

**Stakeholder Identification:**

**Key stakeholders for this project can be identified as follows:**

**Primary Stakeholders:**

* + - * + **Farmers:** End-users of the platform who will benefit directly from improved access to agricultural products.
        + **Manufacturers:** Companies producing fertilizers, seeds, and pesticides that will list their products on the platform.
        + **Project Sponsors:** Mr. Henry and the SOONY committee responsible for financing and supporting the project.

**Secondary Stakeholders:**

* + - * + **APT IT SOLUTIONS Team:** The team responsible for the platform’s development, implementation, and maintenance.
        + **SOONY Company:** The organization sponsoring the project under its CSR program.
        + **Logistics Partners:** Essential for ensuring timely delivery of products to remote farmers.

**Tertiary Stakeholders:**

* + - * + **Regulatory Authorities:** Agencies overseeing compliance with agricultural standards and data protection.
        + **Local Government Bodies:** Authorities that may influence internet infrastructure improvements in rural areas for better platform access

**8. 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)**:

The Sequential or Waterfall model follows a strict linear process, where each phase (such as requirements, design, coding, testing, and deployment) is completed fully before the next phase begins. Provides a structured, easy-to-understand approach that works well for projects with clear, unchanging requirements. It’s rigid and doesn’t handle changes well once a phase is completed, making it less suitable for projects with evolving needs.

**Iterative**:

The Iterative model builds the system in small steps or cycles, where each iteration produces a working version that is improved upon in subsequent cycles. Helps identify and address issues early, allowing for adjustments based on feedback from previous iterations. It requires clear goals for each iteration and can be resource-intensive as changes accumulate over cycles.

**Evolutionary**:

The Evolutionary model (which includes methods like Prototyping and Spiral) creates an initial version of the product quickly and refines it based on continuous user feedback. Allows for ongoing adjustments to meet user needs more precisely, making it ideal for projects where requirements are uncertain or subject to change. Can be complex and costly if continuous user feedback and iterative adjustments are required.

**Agile**:

Agile development is a flexible, incremental approach that breaks down the project into small, manageable parts called sprints. It emphasizes collaboration, customer feedback, and adaptability. Quick delivery of functional parts, strong customer involvement, and the ability to adapt quickly to changing requirements. Agile requires close collaboration and a flexible scope, making it harder to predict timelines and costs compared to more rigid models.

Each methodology has its strengths, and the choice depends on the project's requirements, complexity, and need for adaptability.

**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?**

**Waterfall Model**:

* + - * + **Characteristics**: The Waterfall model is a linear, sequential approach where each phase must be completed before moving to the next. It emphasizes thorough documentation and a clear, step-by-step process.
        + **Strengths**: Best for projects with stable requirements and a predictable path from start to finish.
        + **Limitations**: Not ideal if requirements are likely to change, as it lacks flexibility.

**Rational Unified Process (RUP)**:

* + - * + **Characteristics**: RUP is a flexible, iterative model with four phases—Inception, Elaboration, Construction, and Transition. It is a structured approach with clearly defined stages and milestones.
        + **Strengths**: Allows flexibility to revisit and refine phases. Supports iterative improvements and is adaptable to changing requirements.
        + **Limitations**: Can be complex to manage, requiring skilled team members familiar with iterative approaches.

**Spiral Model**:

* + - * + **Characteristics**: The Spiral model combines iterative and risk-driven approaches, cycling through phases of Planning, Risk Analysis, Engineering, and Evaluation. Each cycle results in an improved version of the product, with continual risk assessments.
        + **Strengths**: Ideal for large projects with high risk and complex requirements. Helps in managing and mitigating risks.
        + **Limitations**: Resource-intensive, requiring careful management and risk assessment, which can add to project costs and time.

**Scrum Model (Agile Framework)**:

* + - * + **Characteristics**: Scrum is an Agile framework that emphasizes rapid, iterative development in sprints. It allows for regular feedback, adjustments, and continuous delivery of small increments of the product.
        + **Strengths**: Highly flexible and adaptive to changing requirements. Emphasizes close collaboration, which ensures alignment with user needs.
        + **Limitations**: Requires significant team collaboration and can be challenging if requirements are not well-defined from the beginning.

**Evaluating the V-Model vs. Waterfall for This Project**

**V-Model**:

* The **V-Model** is an extension of the Waterfall model, with a focus on testing and quality at each phase of development. It creates a "V" structure where each development phase is paired with a corresponding testing phase (e.g., requirements gathering is paired with acceptance testing).
* **Strengths**: The model ensures high quality and thorough testing at each phase. It’s suitable for projects requiring rigorous quality assurance and well-defined requirements.
* **Limitations**: Like Waterfall, it is rigid and not ideal for projects where requirements might change frequently. Changes are difficult to incorporate once a phase is completed.

**Waterfall Model**:

* The Waterfall model is simpler, providing a straightforward, sequential approach without an emphasis on testing at each stage.
* **Strengths**: Its structured approach makes it easy to manage and track progress, ideal for projects with clear, stable requirements.
* **Limitations**: It does not accommodate changes well. Once a phase is complete, going back to make changes can disrupt the process.

**As a Business Analyst, I believe the V-Model would be the better methodology for this project.**

**Reasons for Choosing the V-Model:**

1. **Focus on Quality:** The V-Model emphasizes testing at each stage of development. This is important for our project because it will help deliver a high-quality and user-friendly application for farmers. By testing each part as we go, we can catch any issues early and avoid problems in the final product.
2. **Clear Structure**: The V-Model has a structured, step-by-step approach. Each development phase is paired with a corresponding testing phase (for example, requirements are paired with acceptance testing). This helps keep the project organized and ensures that each part is carefully checked before moving forward.
3. **Support from Stakeholders**: The SMEs (**Subject Matter Experts**) on our project team prefer the V-Model because of its focus on quality. Choosing this model aligns with their priorities and shows that we value their input, which will improve collaboration and project buy-in.

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

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| **FEATURES** | **WATERFALL** | **V -MODEL** |
| |  | | --- | |  |   **Definition** | |  | | --- | |  |  |  | | --- | | A sequential design process where each phase follows the previous one. | | A variant of the Waterfall model that includes testing at every development stage. |
| **Development and Testing** | Development and testing phases are separate; testing is performed after development. | Testing is parallel with development; each phase has a corresponding testing phase. |
| **Phases** | Requirements → Design → Implementation → Testing → Maintenance. | Each development phase has a corresponding testing phase, forming a V shape. |
| **Flexibility** | Less flexible; changes are difficult once a phase is completed. | More flexible; errors can be detected and corrected in parallel with development. |
| **Time of Testing** | Testing occurs after the complete development phase. | Testing happens in each phase, allowing early defect detection. |
| **Cost of Errors** | Errors found late in the testing phase are costlier to fix. | Errors are found early, reducing the cost and time for fixes. |
| **Documentation** | Comprehensive documentation is often created at each phase | Documentation is required for each phase as it is tested immediately |
| **Risk Management** | Higher risk, as issues are only detected in the testing phase. | Lower risk due to early detection of defects in each stage. |
| **Dependency** | Phases depend on the completion of the previous one. | Each phase is paired with a testing phase, allowing simultaneous development and testing. |

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

**As a Business Analyst (BA), I would choose the V-Model for this project**

**because of:**

**Clear Phase-by-Phase Validation:**

The V-Model aligns each development phase with a corresponding testing phase, ensuring that requirements are verified and validated at every step, which reduces the risk of errors.

**Early Defect Detection:**

Testing after each stage allows for early detection of issues, minimizing the cost and time required for corrections later in the project.

**Suitability for Defined Requirements:**

Since project requirements are well-understood and stable, the V-Model’s structured approach helps prevent scope creep and ensures the final product aligns closely with initial expectations.

**Top of Form**

**Bottom of Form**

**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.**

A Gantt chart is a visual project management tool used to plan and track the progress of tasks within a project over time. It provides a clear and simple way to display project activities, their duration, dependencies, and milestones.

**V MODEL APPROACH:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Week 1** | **Week 9** | **Week 17** | **Week 29** | **Week 37** | **Week 41** | **Week 49** | **Week 53** | **Week 61** | **Week 65** | **Week 73** | **Week 77** |
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| **RG** | |  |  |  |  |  |  |  |  |  |  |
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|  | **RA** | |  |  |  |  |  |  |  |  |  |
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|  |  | **Design** | |  |  |  |  |  |  |  |  |
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|  |  |  | **D1** | |  |  |  |  |  |  |  |
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|  |  |  |  | **T1** | |  |  |  |  |  |  |
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|  |  |  |  |  | **D2** | |  |  |  |  |  |
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|  |  |  |  |  |  |  |  | **T3** |  |  |  |
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|  |  |  |  |  |  |  |  | **D4** | |  |  |
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**Resources:**

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| **Resources** | **Week 1** | **Week 9** | **Week 17** | **Week 29** | **Week 37** | **Week 41** | **Week 49** | **Week 53** | **Week 61** | **Week 65** | **Week 73** | **Week 77** |
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| **Project Manager** |  | | | | | | | | | | | |
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| **Business Analyst** |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Java Developer** |  |  |  | | | | | | |  |  |  |
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| **Tester** |  |  |  |  |  | | | | | | | |
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| **DB Admin** |  |  |  |  |  |  |  |  |  |  |  |  |
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| **NW Admin** |  |  |  |  | | | | | | | | |

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

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| **Aspect** | **Fixed bid projects** | **Billing projects** |
| **Pricing Structure:** | In a fixed bid project, the client and service provider agree on a fixed price for the entire project upfront. This price does not change, regardless of the amount of time or resources spent to complete the project. | In a billing project, the client is billed based on the time spent (hourly or daily rate) and the resources (materials or additional costs) used during the project. There's no predetermined total cost. |
| **Scope** | The scope of the project is clearly defined before work begins. Any changes or additional features after the project begins may require a new agreement or additional costs. | The scope can be flexible and can evolve as the project progresses. Changes, additional tasks, or adjustments can be made without the need for renegotiating a new fixed price. |
| **Risk** | The service provider bears the risk. If the project takes longer than anticipated or if unforeseen challenges arise, they still need to complete the project within the agreed budget. | The client bears the risk. If the project takes longer or requires more resources than expected, the client pays more |
| **Advantages** | Predictable cost for the client.  Easier budgeting and planning. | Greater flexibility for making changes or adjustments.  The service provider can focus on quality without being constrained by a fixed budget |
| **Disadvantages** | Less flexibility for changes after the project starts.  The service provider might cut corners to stay within budget. | Costs can be unpredictable and may exceed the original estimate.  Clients may need to closely monitor time and resource usage to control expenses. |

**14.** **Prepare Timesheets of a BA in various stages of SDLC**

* **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**

**DESIGN TIMESHEET BA:**

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| **S.NO** | **TASKS** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| **1** | **Requirement gathering** | Interview Stakeholders to under business | 10.00 AM | 11.00 AM | 1 hour |
| **2** | **Functional specification** | Created detailed specification | 11.00AM | 1.00 PM | 2 hours |
| **3** | **Wireframe creation** | Collaborate with UI/UX Team to define structure | 2.00 pm | 3.00 pm | 1 hour |
| **4** | **Review session** | Review and validate | 3.30 pm | 4.30 pm | 1 hour |
| **5** | **Usecase development** | Document use case and scenerios | 4.30 pm | 7.00 pm | 2.5 hours |
|  | **TOTAL HOURS** |  |  |  | 7.5 hours |

**DEVELOPMENT FOR AN BA:**

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| --- | --- | --- | --- | --- | --- |
|  | **TASK** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| **1** | **Requirement Clarifications** | Address developer queries related | 10.00AM | 12.00AM | 2 hours |
| **2** | **Change requirement documentation** | Document and analyze change requests | 12.00 pm | 2.00 pm | 2 hours |
| **3** | **Communication with development team.** | Bridge communication between business and tech teams | 2.30 pm | 4.30p m | 2 hours |
| **4** | **Review of technical specification.** | Ensure technical implementation aligns with requirements | 5.30 pm | 7.00 pm | 1.30 hours |
|  | **TOTAL HOURS** |  |  |  | 7.3 hours |

**TESTING TIMESHEET OF A BA:**

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| **S.NO** | **TASK** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| **1** | **Test Case Review** | Review test cases prepared by QA team to ensure alignment with requirements. | 10.00 am | 11.00 am | 1 hour |
| **2** | **Defect Triage** | Participate in defect triage meetings and prioritize issues. | 11.30 am | 1.00 pm | 1.30 hours |
| **3** | **Requirement Traceability Matrix** | Ensure all requirements are tested through traceability | 1.30 pm | 3.30 pm | 2 hours |
| **4** | **Support UAT Preparation** | Assist in preparing UAT test cases and scenarios | 3.30 pm | 5.00 pm | 1.30 hours |
| **5** | **System Walkthrough** | Conduct system walkthrough with stakeholders and QA team. | 5.00 pm | 7.00 pm | 1.30 hours |
|  | **TOTAL HOURS** |  |  |  | 7.6 hours |

**UAT TIMESHEET:**

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| **S.NO** | **TASK** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| **1** | **UAT Planning** | Plan UAT schedule and ensure resource allocation | 10.00 AM | 11.30 AM | 1.30 hours |
| **2** | **End-User Training** | Train end-users on the system functionality | 12.00 PM | 1.00 PM | 1 hour |
| **3** | **UAT Support** | Provide support during UAT execution, clarify requirements | 1.30 pm | 3.30 pm | 2 hours |
| **4** | **Feedback Collection** | Collect and analyze feedback from UAT users | 3.30 pm | 4.30 pm | 1 hour |
| **5** | **UAT Sign-off** | Facilitate UAT sign-off from stakeholders | 5.00 pm | 7.00 pm | 2 hours |
|  | **TOTAL HOURS** |  |  |  | 7.3 hours |

**DEPLOYMENT AND IMPLEMENTATION TIMESHEET OF BA:**

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| --- | --- | --- | --- | --- | --- |
| **S.NO** | **TASK** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| **1** | **Go-Live Planning** | Assist in planning the go-live activities | 10.00 pm | 11.00 pm | 1 hour |
| **2** | **Data Migration Support** | Support the data migration process if applicable | 11.30 pm | 1.30 pm | 2 hours |
| **3** | **Post-Go-Live Support** | Provide support for any issues after deployment | 2.00 pm | 3.00pm | 1 hour |
| **4** | **Change Management** | Help manage any required changes post-deployment | 3.00 pm | 5.00 pm | 2 hours |
| **5** | **Project Closure Documentation** | Assist in documenting lessons learned and project closure reports | 5.30 pm | 7.00 pm | 1.30 hours |
|  | **TOTAL HOURS** |  |  |  | 7.3 hours |