**CAPSTONE PROJECT 1**

**Online Agriculture Products Store:**

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

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| **Goal** | To build a user-friendly online web and mobile application that allows remote farmers to purchase fertilizers, seeds, and pesticides directly from manufacturers. |
| **Inputs** | - Farmer requirements (Peter, Kevin, Ben) - Manufacturer product data (type, price, availability) - Project funding (₹2 Crore) - Technical team & tools - Internet access for users |
| **Resources** | Human Resources: Mr. Henry, Mr. Pandu, Mr. Dooku, Stakeholders (Peter, Kevin, Ben), APT IT Team (Developers, Testers, Admins, BA) Technical Resources: Development tools (Java, DB), servers, test tools Financial Resources: CSR funding from SOONY |
| **Activities** | 1. Requirement gathering 2. System design (UI/UX, database) 3. Application development 4. Testing (functional & usability) 5. Deployment 6. Support & maintenance |
| **Outputs** | - Fully functional web/mobile app - Manufacturer product listings - Order/request features - Farmer login and order tracking - Reports for admin/manufacturers |
| **Value**  | - Easy product access for remote farmers - Direct communication with manufacturers - Cost & time savings - Improved crop yield with timely input delivery - Empowerment through technology |

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.**

**Strengths**

* Backed by a strong CSR initiative with ₹2 Crores funding from SOONY
* Socially impactful project with real-world benefits for farmers
* Clear support and involvement from key stakeholders (Mr. Henry, Mr. Pandu, Mr. Dooku)
* First-mover advantage: Limited digital platforms for agriculture product supply in rural areas
* Stakeholder engagement: Direct input from real farmers (Peter, Kevin, Ben) helps shape requirements

**Weaknesses** :

* End-users (farmers) may lack technical literacy or digital awareness
* Potential connectivity issues in remote areas impacting platform accessibility
* High reliance on proper training and onboarding for rural users

**Opportunities:**

* Expand platform to include weather updates, crop advisory, and e-learning for farmers
* Collaborate with logistics companies to ensure doorstep delivery
* Scope to scale to pan-India rural areas or extend to international markets
* Use feedback and data to enhance platform for B2B & B2C sales later

 **Threats**:

* Possible competition from government or private agri-tech initiatives
* Risk of non-adoption by farmers due to lack of trust or digital skills
* Dependence on manufacturers' participation for product listings
* Delays in logistics or supply chain affecting credibility of the platform
1. **. 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**

**1. Hardware (HW) -** Servers to host the web & mobile backend, End-user devices (smartphones, desktops for farmers/manufacturers)- Network infrastructure, security hardware (firewall, routers etc.)

**2. Software (SW) -** Android Studio for mobile app (if native Android app is preferred), Security tools for data encryption and user access control

**3. Trained Resources -** Availability of experienced Java Developers, Testers, UI/UX Designers, Business Analyst

**4. Budget -** Total budget allocated is ₹2 Crores,Development and testing tools/licenses  Training and onboarding materials for farmer, Marketing and outreach in rural areas.

**5. Time Frame -** Project timeline is 18 months ( Requirement Gathering & Analysis – 1.5months, Design (UI/UX, Architecture) – 1.5 months, Development – 6 months, Testing & UAT – 3 months, Deployment – 1 month)

4. **Mr Karthik must submit Gap Analysis to Mr Henry to convince to initiate this project. What points (compare AS-IS existing process with TO-BE future Process) to showcase in the GAP Analysis**

**Current State :** Farmers manually visit nearby towns or local dealers to buy seeds, fertilizers, and pesticides. The availability is limited, and product quality is uncertain.

Farmers have no direct access to manufacturers. They rely on local agents or middlemen who might overcharge and provide limited product information**.**

Farmers in remote areas struggle with poor access to input markets. Travel consumes time and money and There’s no tracking of farmer preferences, buying patterns, or product demand.

**Desired State :**

Product Access: From manual, local purchase to online global access

Price Transparency : From unknown/inflated prices to real-time, manufacturer-set pricing

Information Availability : From no data to detailed online product info.

Delivery : From no delivery to doorstep delivery options

Communication : From middlemen to direct farmer–manufacturer interaction

Support : From no guidance to 24/7 online and multilingual support

Reach & Scalability : From limited markets to scalable nationwide service

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

**Business Analyst (BA) Risks :**

* Incomplete Requirements
* Changing Requirements
* Limited Domain Knowledge
* Miscommunication with Stakeholders

**Process/Project Risks :**

* Technology Risk
* Lack of Infrastructure
* Timeline Delays
* Quality Assurance Issues

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

**Responsible Designation Contact**

* Mr. Dooku Project Coordinator xxxxxx000

**Accountable**

* Mr. Henry Sponsor xxxxxx000

**Consulted**

* Mr. Pandu Finance Head xxxxx
* Mr. Karthik Delivery Head xxxxx
* (Peter, Kevin, Ben) Farmers xxxxx
* Manufacturers Product Owners

**Informed**

* Mr. Vandanam (Project Manager)
* Vidhi Shrivastava BA
* (Juhi & Team) Developer
* (Jason & Alekya) Testers

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

**Business Case Document**

**Project Title: Online Agriculture Products Store**

**Prepared By: Mr. Karthik (Delivery Head, APT IT SOLUTIONS)**

**Client: SOONY Company (Sponsor: Mr. Henry)**

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**1. Executive Summary**

Mr. Henry, a successful businessman, aims to support farmers in remote areas by resolving key challenges in procuring agricultural inputs like fertilizers, seeds, and pesticides. After consulting his childhood friends (Peter, Kevin, and Ben), who are actively farming, he identified a significant gap in the current procurement and supply system. This business case proposes the development of an Online Agriculture Products Store to bridge this gap through digital transformation.

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**2. Business Problem**

Farmers in rural and remote areas face the following issues:

• Lack of access to quality fertilizers, seeds, and pesticides

• Dependence on intermediaries and local agents

• Price inconsistencies and exploitation

• No direct communication with product manufacturers

• Limited awareness and availability of modern farming inputs

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**3. Proposed Solution**

An Online Web and Mobile Application that allows:

• Farmers to browse and buy agriculture products online

• Manufacturers to list and manage their product inventory

• Direct communication between farmers and companies

• Delivery tracking and digital payments

• Multilingual support for ease of use

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**4. Project Objectives**

• Empower farmers with access to quality and affordable agriculture inputs

• Improve transparency in pricing and sourcing

• Reduce dependency on intermediaries

• Enable data-driven decisions for future planning

• Create an inclusive digital ecosystem for agriculture supply chain

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**5. Strategic Alignment**

This project aligns with Mr. Henry’s CSR initiative and SOONY’s mission to contribute to rural development, empower farmers, and support digital inclusion. It also supports national goals around agriculture modernization and financial inclusion.

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**6. Expected Benefits**

Benefit Category Description

Economic Increased income for farmers by reducing middlemen

Social Empowerment of rural communities

Technological Promotion of digital literacy and infrastructure

Environmental Optimized use of farm inputs through proper guidance

Organizational Enhanced brand reputation and CSR impact for SOONY

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**7. Project Scope**

• Web and mobile platform (Android) development

• Product listing and inventory management

• User registration and profile management

• Multilingual interface (English + regional languages)

• Order placement, tracking, and digital payment

• Admin dashboards for monitoring

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**8. Estimated Cost and Timeframe**

• Budget: ₹2 Crores INR (Allocated by SOONY)

• Duration: 18 Months (as per CSR committee approval)

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**9. Risks and Mitigation**

Risk Mitigation Strategy

Low internet access in rural areas Design for offline support and lightweight features

Adoption resistance Conduct training, demos, and farmer engagement sessions

Budget overrun Strong project planning and phased delivery

Data privacy concerns Implement robust security and compliance measures

8. **The Committee of Mr. Henry , Mr Pandu , and Mr Dooku and Mr Karthik are having a discussion on 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**

**SDLC (Software Development Life Cycle)**

SDLC is the structured process followed to develop high-quality software. It ensures that the project is delivered systematically, with clear phases:

Requirement Gathering & Analysis

System Design

Implementation (Development)

Testing

Deployment

Maintenance

the four common SDLC methodologies:

**1. Sequential Model (Waterfall)**

 Characteristics:

Linear and phase-wise.

One phase must be completed before the next starts.

Suitable for well-defined requirements.

Example:

Build the entire platform at once — requirement gathering → design → development → testing → deployment.

 Pros:

Simple and easy to manage.

Clear documentation and timeline.

Cons:

No flexibility; hard to go back and change.

Not ideal if user feedback is ongoing or requirements evolve.

**2. Iterative Model RUP**

Characteristics:

Software is built and refined through multiple cycles (iterations).

Each iteration adds improvements or features.

Requirements can evolve over time.

 Example:

First version delivers core buying features; the next iteration improves search filters; later iterations add delivery tracking, etc.

Pros:

Early working product visible.

Easier to make improvements.

Cons:

Needs good planning; rework possible.

Can be time-consuming if not controlled.

3. **Evolutionary** **Model (SPIRAL)**

Characteristics:

Similar to iterative but focuses more on rapid prototyping.

A working prototype is built early and then continuously refined based on real user feedback.

 Example:

Build a simple prototype for farmers to place basic orders, gather their feedback, and enhance gradually.

 Pros:

Very flexible to user needs.

Real-time learning from actual users.

Cons:

Requirements may keep changing.

Documentation can lag behind development.

**4. Agile Methodology (SCRUM)**

Characteristics:

Based on collaboration, flexibility, and customer feedback.

Development is done in sprints (2–4 week cycles).

Frequent releases and reviews.

 Example:

A sprint delivers login, the next adds product catalog, then cart & payment in next sprint — all with regular farmer and manufacturer input.

 Pros:

Highly adaptive to changes.

Regular feedback leads to better product fit.

Continuous delivery ensures stakeholder engagement.

Cons:

Requires active stakeholder participation.

Less effective if the team is inexperienced with Agile.

* Mr. Karthik’s Recommendation: Agile (or Hybrid Agile-Evolutionary)

For this CSR project involving farmers, where feedback, simplicity, and usability are key:

Start with a prototype (Evolutionary) to show to farmers and manufacturers.

Move to an Agile model for incremental development based on real-time feedback.

This approach ensures: Continuous improvement, Faster go-to-market, High user satisfaction

9. Waterfall RUP Spiral and Scrum Models

 Waterfall - Well-defined, stable projects, low risk

 RUP - Medium to large enterprise systems, Medium risk

 Spiral - Risk-heavy, complex technical projects

 Scrum - Evolving, user-focused product development, medium risk

**10. – Waterfall Vs V-Mode**

 **Waterfall Model**

Linear, sequential

Phases follow one after another

 Emphasis on completing each phase before moving to the next

Begins after development is complete

Errors found late in the cycle

Small or medium-sized projects with stable, well-defined requirements

**V-Model (Validation & Verification Model)**

Non-linear

Development phases on left side, testing phases mirrored on right side (V-shape)

Emphasis on early testing and validation of each stage

Testing is planned from the beginning of the project

Errors can be identified early, reducing cost of fixing

Projects where quality and early defect detection is critical (e.g., embedded, medical, defense systems)

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

As a Business Analyst on this project (Online Agriculture Products Store), my recommendation is to use the Agile Model.

**Reason for Choosing: Agile Model**

 1. User-Centric Development

The primary users (farmers, manufacturers) are from diverse backgrounds, and their real-time feedback is critical.

Agile allows us to involve users regularly during development, ensuring the product meets actual field needs.

 2. Changing Requirements

Farmers or stakeholders like Mr. Henry, Mr. Pandu, and Peter may come up with new insights during the development phase.

Agile's flexibility helps us incorporate changes without major rework.

3. Early and Incremental Delivery

Instead of waiting 18 months for the full system, we can:

Deliver a basic version early (e.g., registration, product listing).

Gradually add modules like cart, payments, logistics, etc.

This early delivery builds confidence and allows for early adoption.

 4. Stakeholder Involvement

Stakeholders like Peter, Kevin, Ben, and the project committee can participate in sprint reviews, giving feedback continuously.

Ensures better alignment with CSR goals and user expectations.

Simple, Modular Interfaces

Farmers may have limited digital literacy.

Agile enables us to test UI/UX prototypes with them in early sprints, simplifying the interface step-by-step.

**Answer 12 :**

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| **SDLC Phase** | **BA Activities** | **Estimated Time (%)** |
| --- | --- | --- |
| **1. Requirements Gathering (RG)** | - Stakeholder interviews- Requirement workshops- Initial documentation | 20% |
| **2. Requirements Analysis (RA)** | - Analyze gathered data- Create BRD/SRS- Validate with stakeholders | 15% |
| **3. System Design (Review)** | - Support design team- Clarify requirements- Review design specs | 10% |
| **4. Development Support (D1–D4)** | - Clarify functional doubts- Review user stories- Participate in sprint planning | 15% |
| **5. Testing Phases (T1–T4)** | - Create/review test cases- Participate in defect triage- Support UAT | 20% |
| **6. UAT Support** | - Assist users in UAT- Capture feedback- Coordinate defect fixes | 10% |
| **7. Project Communication & PMO** | - Status reports- Meetings with PM, QA, Dev- Stakeholder updates | 10% |