Technical Solution Design Preparation Document

## Task 3.1 Review the Case Study

Graphical Representation of Current Technology Environment:

Legacy Systems:

* Traditional manufacturing systems for newsprint and magazine paper.
* Seven standalone on-premise systems from different vendors.
* Systems include Sales, Supplier records (SRM), Asset Management, Financials, Payroll, Plant Operations, and Warehouse Management.

Fragmented IT Landscape:

* Historical reliance on small IT team supporting multiple systems.
* Lack of advanced or predictive analytics capabilities.
* Limited internal resources for managing diverse systems.

Challenges:

* Margins as low as 2-3% for some products.
* Increasing pressure from customers, regulatory authorities, and the public regarding environmental impact.
* Shifting focus from cost-driven, batch production to speed, transparency, and customization.

High-Level Products and Solutions (From Customer Journey Roadmap):

SAP S/4HANA

* Core ERP system for streamlined operations and data analytics.
* Integration of business processes to provide a single source of truth.

SAP Predictive Maintenance and Service, SAP Analytics Cloud

* Real-time analytics and predictive maintenance for efficient asset management.
* Operational analytics to support the goal of reducing waste.

SAP Ariba, SAP Integrated Business Planning (IBP)

* Supplier Relationship Management (SRM) for enhanced negotiations.
* Supply Chain Management (SCM) for visibility into the supply chain performance.

SAP Commerce Cloud

* Customer-facing e-commerce capabilities.
* Integration with SAP S/4HANA for real-time inventory and order management.

SAP Environmental Compliance

* Integration into the solution architecture for tracking and reporting sustainability metrics.
* Provides environmental impact assessments for customer orders.

Sustainability challenges faced by customers in the Paper industry.

* Deforestation and Habitat Loss
  + Challenge: The paper industry historically relies on wood pulp as a primary raw material, leading to deforestation and habitat destruction.
  + Impact: Loss of biodiversity, disruption of ecosystems, and potential contribution to climate change.
* Resource Intensity
  + Challenge: High water and energy consumption in paper manufacturing processes, particularly in traditional paper mills.
  + Impact: Depletion of natural resources, increased carbon emissions, and environmental strain on water sources.
* Chemical Usage and Pollution
  + Challenge: The use of chemicals in the pulping and bleaching processes poses environmental risks.
  + Impact: Water pollution, soil contamination, and adverse effects on aquatic ecosystems.
* Waste Generation
  + Challenge: Paper production generates significant waste, including sludge, residues, and by-products.
  + Impact: Increased landfill waste, potential harm to ecosystems, and challenges in waste management.
* Carbon Footprint
  + Challenge: The industry's reliance on fossil fuels for energy contributes to a high carbon footprint.
  + Impact: Climate change, greenhouse gas emissions, and environmental degradation.
* Recycling and Circular Economy
  + Challenge: Limited recycling rates and challenges in promoting a circular economy for paper products.
  + Impact: Increased demand for virgin fibers, resource depletion, and missed opportunities for waste reduction.
* Social Responsibility and Community Impact
  + Challenge: Ensuring fair labor practices, community engagement, and addressing social issues in the supply chain.
  + Impact: Human rights concerns, community displacement, and reputational risks for companies.
* Regulatory Compliance
  + Challenge: Adhering to stringent environmental regulations and sustainability standards.
  + Impact: Fines, legal implications, and the need for ongoing investments in compliance measures.
* Shifting Market Demands
  + Challenge: Meeting consumer expectations for sustainable and eco-friendly products.
  + Impact: Market competitiveness, brand image, and the need for continuous innovation in sustainable practices.
* Education and Awareness
  + Challenge: Lack of awareness among consumers about the environmental impact of paper products.
  + Impact: Limited demand for sustainable alternatives, hindering industry-wide adoption of eco-friendly practices.

## Task 3.2 Analysis and design inputs

Key Technology Elements:

* Network
  + High-speed and reliable network infrastructure to support data transfer and communication across different locations.
* Systems
  + Implementation of SAP S/4HANA as the core ERP system for seamless integration of business processes.
  + SAP Ariba for Supplier Relationship Management (SRM) and SAP Integrated Business Planning (IBP) for enhanced supply chain visibility.
* Infrastructure
  + Robust and scalable IT infrastructure to support the deployment of SAP solutions.
  + Cloud-based infrastructure for flexibility, accessibility, and resilience.
* Data
  + Centralized data repository using SAP S/4HANA as a single source of truth.
  + Advanced analytics for real-time decision-making using SAP Analytics Cloud.
* Process Models
  + Business process reengineering to align with the to-be state, incorporating diversified operations in industrial paper products, recycling services, and thermal capture energy production.
  + Integration of new process models for customized customer offerings and enhanced supplier negotiations.

Collaboration with SAP Professionals and Customer Staff:

* SAP Professionals
* Collaboration with SAP S/4HANA consultants, SAP Ariba experts, and SAP IBP specialists for system implementation.
* Engaging with SAP Analytics Cloud consultants for advanced analytics requirements.
* Customer Staff
* Involvement of ECP's IT team for insights into the current technical landscape and collaboration on system integration.
* Collaboration with department heads for recycling, industrial products, and energy production for specific process requirements.

Considerations in Technical Solution Design

* Integration Points
  + Identification and mapping of integration points between SAP solutions to ensure seamless data flow.
  + Consideration of interfaces with existing systems to minimize disruption.
* Data Security and Compliance
  + Implementation of robust data security measures to ensure compliance with industry regulations.
  + Consideration of data privacy and protection in the design.

Review and Analysis

* Analysis Frameworks
  + Utilization of industry-standard analysis frameworks to assess the effectiveness of the proposed technical solution.
  + Regular reviews using frameworks to ensure alignment with project goals.
* Surveys and Interviews
  + Conducting surveys and interviews with end-users to gather feedback on system usability and performance.
  + Continuous engagement with stakeholders through interviews to address evolving business needs.

Closing Solution Gaps

Gap Analysis

* Conducting a thorough gap analysis to identify disparities between the proposed solution and the existing technical landscape.
* Developing mitigation strategies to close identified gaps, including additional configurations or customizations.

High-Level Functional Requirements

* Asset Management: Ability to track and manage assets across manufacturing, recycling, and energy production operations.
* Supply Chain Visibility: Enhanced visibility into the supply chain for efficient logistics, transportation, and inventory management.
* Customer-Facing E-commerce: Implementation of an e-commerce platform for customers to submit orders online with customization options.
* Environmental Impact Tracking: Integration of tools for tracking and reporting environmental impact metrics related to customer orders.
* Predictive Maintenance: Implementation of predictive maintenance solutions for efficient management of equipment downtime.
* Real-time Analytics: Provision of real-time analytics capabilities to support data-driven decision-making across all business functions.

## Task 3.3 Design Thinking Exploration

Stage 1: Empathize (Understand who the user is. Research your user. Create a user persona.)

User Persona

* Name: Emily Thompson
* Age: 34
* Role: Operations Manager at East Canada Paper (ECP)
* Background: Holds a degree in Environmental Science and has been with ECP for 8 years, overseeing various aspects of operations, including recycling and energy production.
* Goals: Improve sustainability practices, streamline operations, and implement innovative solutions.
* Challenges: Balancing cost-efficiency with environmental sustainability, managing a diverse team, and integrating new technologies seamlessly.

Stage 2: Define (Define the user’s needs and problems. What are the difficulties they face?)

User Needs and Problems:

* Efficient Operations: Need for streamlined and efficient operations to meet the immediate and long-term goals of ECP.
* Sustainability Integration: Difficulty in seamlessly integrating sustainability practices into existing processes without disrupting operations.
* Team Collaboration: Challenges in fostering collaboration among a diverse team with varying technical expertise.
* Technology Adoption: Need for user-friendly technology solutions that can be adopted by the team with minimal resistance.

Stage 3: Ideate (Use methods such as mind mapping and list design ideas for the solution.)

Design Ideas:

* Integrated Sustainability Dashboard: Develop a centralized dashboard providing real-time insights into sustainability metrics and operational efficiency.
* Collaboration Platform: Implement a user-friendly collaboration platform to facilitate communication and knowledge sharing among team members.
* Training and Onboarding Program: Create a comprehensive training program to onboard team members onto new technologies and sustainability practices.
* Innovation Hub: Establish an innovation hub within the organization to encourage the generation of creative ideas and solutions.

Stage 4: Prototype (Create a prototype of the solution, maybe, through a drawing.)

Prototype Sketch

The prototype sketch illustrates an integrated sustainability dashboard with key metrics displayed in an easy-to-understand format. It includes sections for recycling rates, energy consumption, and cost-efficiency. The dashboard is designed to be accessible to users of varying technical backgrounds.

Stage 5: Test (Test the design idea using various scenarios and see whether your design works. Document the output of testing for each scenario.)

* Scenario 1: User-Friendliness Test
  + Test: Evaluate how easily team members can navigate and interpret the sustainability dashboard.
  + Output: Positive feedback on the intuitive design and clarity of the dashboard. Users found it easy to access relevant information.
* Scenario 2: Collaboration Platform Adoption
  + Test: Introduce the collaboration platform to a subset of team members and assess their engagement and interaction.
  + Output: Increased communication and collaboration observed among the test group. Positive responses to the platform's usability.
* Scenario 3: Training Program Effectiveness
  + Test: Implement the training program for a group of employees and assess their ability to apply the newly acquired skills.
  + Output: Participants demonstrated improved understanding of new technologies, indicating the effectiveness of the training program.
* Scenario 4: Innovation Hub Engagement
  + Test: Launch the innovation hub and encourage team members to contribute ideas for process improvement.
  + Output: Increased participation in idea generation, showcasing the success of the innovation hub in fostering creativity and problem-solving.