INTRODUCTION

BACKGROUND AND HISTORY

In commerce there is an evolving landscape and an efficient supply chain management plays a crucial role in ensuring business operate smoothly. Normally retailers source their inventory through multiple intermediaries. This then leads to increased costs, delays and miscommunication as there are more steps in the supply chain which means it will take longer processing. The advancement of digital solutions has led to business-to-business (B2B) marketplaces which connect the manufacturer and retailer.

This project aims to develop a B2Bmarketplace that directly connects manufactures with retailers to eliminate unnecessary intermediaries. Through technology this project will create a platform where there is transparency and seamless business transactions. The project is important as there is a growing demand for digital solutions in supply chain management. There is also a need for retailers to have direct access to manufacturers for more cost –effective and efficient purchasing.

PERSONS RESPONSIBLE

Mr Samkeliso Mlotsa– project manager and designer

Mr Sisekelo Dlamini – programmer and designer

Ms Nontokozo Djokoto – system architect and designer

AIMS AND OBJECTIVES

The initial aim of this project is to design and develop a robust B2B marketplace which provides direct transitions between manufactures and retailers. To achieve this, the system will have to promote efficiency, security for data safety and convenience for both retailer and manufacturer. The other objectives include:

* Developing a user friendly platform where retailers can easily browse through and search for products or items they can order directly
* Ensuring that orders are being tracked and inventory is being managed for a better supply chain visibility
* Providing retailers and manufacturers with a platform they can communicate and build business relationships
* Enhancing trust and transparency through the features of user reviews and ratings.

SUMMARY OF PROJECT

The project involves creating a B2B marketplace which will bring manufacturer and retailer together. The platform is basically a central hub where manufactures can list the products they have and their costs so that retailers can browse through and purchase the desired stock effectively. Eliminating barriers in the supply chain will help reduce costs and enhance the overall business efficiency. The marketplace will have a dual-interface system for both the manufacturer and retailer to access with functionalities tailored to their needs. The digitalization of commerce is increasing so the B2B marketplace will contribute to the modernization of supply chain operations.

USER CLIENT INVOLVEMENT

Information provided

To ensure the successful development and implementation of the B2B marketplace the users (retailers and manufacturers) will provide essential information, including:

- Business registration details for verification purposes.

- Product catalogues, pricing, and inventory availability from manufacturers.

- Feedback on whether the platform is good to use and request to enhance the functionality of the system.

- Contact details

Services Provided by Users/Clients

Users and clients will contribute to the project by offering:

- Participation in testing phases to provide real-world feedback.

- Data on current supply chain challenges to inform system design and improvements.

- Cooperation in on boarding processes and platform training.

Timeline for User/Client Involvement

User and client contributions will be structured as follows:

*Project Initiation Phase*– Provide business information, product details, and supply chain insights.

*Development Phase* – clients will participate in feedback sessions and usability testing.

*Implementation Phase*– Assist with training and initial usage of the platform.

By actively involving users and clients throughout the project, we ensure that the B2B marketplace meets their needs effectively and delivers maximum value.

RISKS

Identifying potential risks early in the project is important to minimize the possibility of disruption. It will ensure the success of the B2B business marketplace. The following are risks that have been identified along with strategies to address these risks:

1. Technical challenges

There may be unforeseen issues in system development like integration problems or bugs. A strategy to solve this issue is to conduct a thorough requirement analysis and phased testing. It will involve continuously testing modules before integration.

1. Inaccurate or incomplete data

Users may provide incorrect data or outdated product and inventory information. To solve this problem a strategy to enable a regular data validation process will be implemented for data accuracy.

1. Legal and compliance issues

The failure to comply with local business and data protection laws is a potential risk. To prevent this risk a legal review will be conducted during development to ensure that the system complies with the relevant regulations.

1. Financial constraints

There may be risk of a budget overrun or insufficient funding. To avoid this a detailed budget plan with regular monitoring of expenditures will be kept.

STANDARDS GUIDELINES AND PROCEDURES

To ensure that the project is delivered efficiently and meets quality expectations all the team members should follow the following guidelines:

1. Communication guidelines –the teams will hold weekly meeting to make sure the project is still progressing as planned. The meetings will also assist in resolving issues early. There will be a communication platform which will be used for daily updates and queries. All the major decisions will be documented.
2. Quality assurance procedures – there will be unit, integration and user acceptance testing during the different phases of the project. The code and design documents will be reviewed to make sure they are correct.
3. Documentation requirements – preparing and maintaining an up-to-date document that includes the system design, user manuals and the technical specifications.
4. Project timeline compliance – following the project schedule and submitting deliverables on time. The team leader will be notified in advance if any deadlines are at risk of being missed.
5. Ethics and professionalism – honesty and transparency should be maintained in all communications. Intellectual property of clients should also be respected and follow the appropriate rights or rules.

Organization of the Project

**Relation to Other Projects**

This B2B marketplace project aligns with and complements the broader national efforts in Eswatini to enhance the country’s digital economy, promote e-commerce, and modernize supply chains. The project will integrate well with government-driven initiatives like the **National ICT Policy**, which aims to promote a robust, interconnected digital infrastructure, and **Eswatini's Economic Diversification Strategy**, which encourages businesses to move towards digital platforms for greater efficiency and sustainability.

Additionally, the platform will serve as a critical link between Eswatini's growing manufacturing sector and local retailers, helping to streamline supply chains and reduce costs. This will, in turn, enhance the competitiveness of Eswatini businesses within the Southern African region and globally, contributing to Eswatini's economic growth and fostering a more sustainable, digitally-enabled business environment.

**Project Organization**

The project will be structured into distinct teams, each responsible for a specific aspect of the development process. These teams will collaborate to ensure the platform is successfully delivered, from conception to implementation. The following key roles have been identified:

1. **Project Manager (Samkeliso Mlotsa)**:
   * **Role**: The Project Manager will oversee the entire development process, ensuring the project is completed on time and within budget. They will also serve as the primary liaison between the project team and stakeholders, including Eswatini's business community, local government agencies, and potential end-users.
   * **Responsibilities**:
     + Coordinating with stakeholders, including the University of Eswatini, local business leaders, and government bodies.
     + Managing the project schedule, resources, and finances.
     + Addressing any risks or challenges that arise during the project lifecycle.
2. **Programmer (Sisekelo Dlamini)**:
   * **Role**: The Programmer will be responsible for the technical development of the platform, including both the front-end and back-end. This includes ensuring the platform is user-friendly, integrates smoothly with local payment systems, and meets the specific needs of Eswatini’s retail and manufacturing sectors.
   * **Responsibilities**:
     + Developing core functionalities such as user registration, product catalog management, order processing, and communication features.
     + Ensuring the platform’s scalability and security, particularly given the country’s focus on improving cyber security within the digital economy.
3. **System Architect (Nontokozo Djokoto)**:
   * **Role**: The System Architect will design the overall structure of the platform, including the database, UI/UX, and backend infrastructure. They will ensure the platform is built to be scalable, secure, and compatible with the latest technologies, particularly focusing on supporting businesses in Eswatini.
   * **Responsibilities**:
     + Designing the technical architecture to support the platform's future growth and integration with other systems (e.g., ERP, CRM).
     + Ensuring that the platform adheres to local data protection laws and regulations, as well as international best practices for security and privacy.

### Training Plan for Project Manager, Architect, Programmer, and Designer

### 1. ****Project Manager Training****

The Project Manager is tasked with overseeing the B2B marketplace’s development from inception to completion. In the context of Eswatini’s economy, a project manager needs to understand the challenges of small and medium-sized enterprises (SMEs) in the country and the importance of digital transformation in improving local trade.

#### ****Key Areas of Training:****

* **Project Management Methodologies in the Eswatini Context**:
  + **Agile Scrum**: Emphasizing iterative development and continuous improvement, key to adapting to the dynamic economic environment of Eswatini.
  + **Waterfall**: For projects requiring thorough documentation, common in large-scale projects in Eswatini's industrial and governmental sectors.
* **Risk Management in Eswatini's Economy**:
  + Understand the specific economic and political risks in Eswatini, such as currency fluctuation, changes in import/export policies, and infrastructure challenges.
  + Training will focus on addressing financial and operational risks faced by local retailers and manufacturers due to infrastructural gaps.
* **Stakeholder Management**:
  + Managing relationships with local business owners, government entities, and international suppliers.
  + Communication techniques suitable for Eswatini’s business culture, emphasizing transparency, trust-building, and relationship-driven business interactions.
* **Project Management Tools**:
  + Localized tools such as **JIRA** for task management and **Trello** for smaller projects. Understanding the accessibility and adaptability of tools in Eswatini, including considerations for internet bandwidth and tech infrastructure.

#### ****Training Schedule****:

* **Week 1**: Overview of Agile and Waterfall methodologies in Eswatini’s economic context.
* **Week 2**: Tools such as JIRA and Microsoft Project, with a focus on practical application in Eswatini's development environment.
* **Week 3**: Risk management and stakeholder communication, emphasizing local market conditions.
* **Week 4**: Ethical leadership and project sustainability in Eswatini’s economic landscape.

### 2. ****System Architect Training****

The System Architect is responsible for designing the underlying structure of the B2B marketplace. In the context of Eswatini’s economy, where small businesses are crucial to economic growth, the system needs to be adaptable and scalable, ensuring that it caters to both large manufacturers and small local retailers.

#### ****Key Areas of Training:****

* **Software Architecture Patterns for Eswatini’s Digital Landscape**:
  + **Cloud Solutions**: Since Eswatini has limited but growing internet infrastructure, training will emphasize the use of cost-effective cloud platforms such as **AWS** or **Microsoft Azure** for scalability and availability, ensuring the system is adaptable to the country’s current and future infrastructure.
  + **Microservices and Serverless Architectures**: Training on creating independent modules to ensure ease of updates and scalability, important in Eswatini, where businesses may need flexibility in growth.
* **Data Security and Compliance with Eswatini’s Laws**:
  + **Data Protection**: Understanding Eswatini’s regulatory landscape concerning data privacy and security.
  + **GDPR and Eswatini’s Personal Data Protection Laws**: Ensuring that the platform adheres to both international and local laws around data protection and privacy.
* **Integration with Local Systems**:
  + Focus on integrating with local payment processors and logistics providers in Eswatini to ensure the platform works seamlessly with the existing infrastructure.

#### ****Training Schedule****:

* **Week 1-2**: Overview of cloud-based solutions, microservices, and security protocols.
* **Week 3**: Integration with local systems, including payment processors and logistics providers.
* **Week 4**: Legal and regulatory considerations specific to Eswatini.

### 3. ****Programmer Training****

Programmers play a crucial role in developing the functional aspects of the B2B marketplace. Given the current technological landscape in Eswatini, training will focus on creating accessible, robust, and scalable code that can function within the limitations of local internet infrastructure.

#### ****Key Areas of Training:****

* **Frontend and Backend Development**:
  + **HTML5, CSS3, JavaScript (React.js)**: Emphasis on creating responsive and user-friendly interfaces suitable for all devices, especially considering the increasing mobile penetration in Eswatini.
  + **Node.js**: Training on server-side programming that is lightweight and scalable, suitable for Eswatini’s growing but limited technological infrastructure.
* **Database Design for Local Data Requirements**:
  + Using **SQL** and **NoSQL** databases (e.g., **MongoDB**, **PostgreSQL**) to store data efficiently while ensuring that data access remains fast, even with internet latency that may exist in parts of Eswatini.
* **Payment Gateway Integration**:
  + Understanding how to integrate local mobile payment solutions (e.g., **eSwatini Mobile Money**, **MTN Mobile Money**) to cater to the local economy where digital payments are gaining traction.
* **Testing and Deployment**:
  + **Unit Testing (Jest, Mocha)**: Ensuring that the platform is reliable, even with a large number of small businesses using the platform.
  + **Continuous Integration**: Ensuring that updates and patches to the platform can be deployed efficiently to maintain operational integrity.

#### ****Training Schedule****:

* **Week 1**: Frontend and Backend Development, focusing on mobile-first design for the Eswatini market.
* **Week 2**: Database design and payment gateway integration for local solutions.
* **Week 3**: Testing, deployment, and cloud integration techniques suitable for Eswatini.

### 4. ****Designer Training****

The Designer is responsible for creating the user interface and user experience of the marketplace. In Eswatini, where businesses may have varying levels of digital literacy, the platform must be intuitive and accessible for a wide range of users.

#### ****Key Areas of Training:****

* **UI/UX Design for Eswatini’s Market**:
  + **User-Centric Design**: Designing the interface keeping in mind the literacy levels and technology access among local users. This includes simple layouts, straightforward navigation, and easy-to-understand language.
  + **Localization**: Adapting the design for Eswatini’s primary languages (Siswati and English) and cultural context.
* **Design Tools and Prototyping**:
  + **Figma and Adobe XD**: Practical training on these tools to create wireframes, prototypes, and mockups that align with the needs of local users.
  + **Mobile-First Design**: As mobile phones are the most common means of accessing the internet in Eswatini, designers will focus on creating responsive designs optimized for mobile users.
* **Accessibility and Inclusivity**:
  + Designing platforms that are accessible to people with disabilities, considering the local context of Eswatini's healthcare and education systems.

#### ****Training Schedule****:

* **Week 1**: UI/UX design principles, with a focus on Eswatini’s demographic considerations.
* **Week 2**: Localization and mobile-first design techniques.
* **Week 3**: Accessibility design, ensuring the platform is inclusive and usable by all.

Project Phases

**Life Cycle Model**

The project will follow an **Agile** methodology, emphasizing flexibility, iterative development, and stakeholder involvement. Given the rapid evolution of digital technology and the unique challenges facing Eswatini’s businesses, this model is ideal as it allows for continuous improvement and adaptation throughout the project.

1. **Project Initiation Phase**:
   * Tasks: Define the project scope, identify stakeholders, gather initial business and system requirements from Eswatini's local business community.
   * Milestones: Completion of the project charter, requirement analysis, and stakeholder engagement.
   * Effort: Estimated 10% of the total project time.
2. **Design Phase**:
   * Tasks: System architecture design, database schema development, UI/UX design, and preparing prototypes tailored to Eswatini’s business needs.
   * Milestones: Completion of system architecture and UI/UX prototypes.
   * Effort: Estimated 25% of the total project time.
3. **Development Phase**:
   * Tasks: Develop the core functionalities of the platform, including product catalog, order management, and communication systems, while integrating local payment gateways and data security protocols.
   * Milestones: Completion of functional modules, successful internal testing, and integration with third-party systems.
   * Effort: Estimated 40% of the total project time.
4. **Testing Phase**:
   * Tasks: Conduct unit, integration, and user acceptance testing with a focus on local use cases in Eswatini, ensuring the platform performs under typical Eswatini conditions.
   * Milestones: Completion of user acceptance testing and issue resolution.
   * Effort: Estimated 15% of the total project time.
5. **Deployment and Maintenance Phase**:
   * Tasks: Deploy the platform to a live environment, provide user training, and monitor system performance, particularly in Eswatini's unique internet environment.
   * Milestones: System go-live and user training completion.
   * Effort: Estimated 10% of the total project time.

**Critical Path**

The critical path includes the design and development of core functionalities, including the product catalog, order management, and user communication systems. Delays in these key areas will directly affect the overall project timeline and the platform’s ability to go live on schedule.

**Effort Estimation (Cost and Time)**

Each phase will require careful estimation of both costs and time. Initial estimates for each phase have been provided, but these will be refined as the project progresses based on real-time feedback and adjustments made during the Agile sprints.

Requirements Analysis and Design

**Methods and Techniques for Requirements Analysis**

To accurately capture the needs of Eswatini's business community, the following methods will be employed:

1. **Interviews**: Conducting in-depth interviews with key stakeholders from both retail and manufacturing sectors to understand their specific pain points and requirements.
2. **Surveys/Questionnaires**: Distributing surveys to gather broad feedback from a larger sample of businesses across Eswatini.
3. **Use Cases**: Developing use cases that outline specific actions users will take within the platform, such as placing orders, updating inventory, and managing transactions.
4. **Prototyping**: Creating early-stage prototypes to visually validate ideas and obtain feedback from potential users in Eswatini’s market.

**Resources and Tools**

* **Requirements Gathering Tools**: Tools like **JIRA** and **Confluence** will be used to document and manage requirements and feedback.
* **Prototyping Tools**: **Figma** or **Adobe XD** will be used to create wireframes and interactive prototypes for early user testing.
* **Analysis Tools**: Tools like **Microsoft Visio** will be used to model system processes and workflows.

Implementation

**Resources and Tools for Implementation**

* **Programming Languages and Frameworks**: The platform will be developed using **HTML5**, **CSS3**, **JavaScript**, and back-end frameworks such as **Node.js** or **Django**. Front-end development will use **React** or **Angular** to ensure a responsive and modern user interface.
* **Database Management System**: **PostgreSQL** or **MySQL** will be used for database management, ensuring robust storage of product data, user information, and transactions.
* **Cloud Infrastructure**: The platform will be hosted on cloud services like **AWS** or **Microsoft Azure** to ensure scalability and reliability for Eswatini-based businesses.

**Key Tasks for Implementation**

* **Database Setup**: Developing the database schema to accommodate product listings, user profiles, and transaction data.
* **API Integration**: Integrating third-party APIs for payment processing and other essential services.
* **Security Implementation**: Implementing secure data encryption, user access control, and other measures to ensure data privacy and compliance with Eswatini’s data protection laws.

By maintaining a structured and well-planned approach to implementation, the project will meet its objectives and support the evolving digital needs of Eswatini’s business community.