2024

PVS GENT SALES ORDER APP: PROJECT PLAN & PROPOSAL

Executive Summary

Tycan will develop a Micro Application to streamline and automate sales order processing.

The project will be delivered in four phases, with a focus on reducing manual work by leveraging historical data to automate tasks.

The work will be carried out without disrupting the existing technology systems used by PVS Gent.

The application development and data cleanup will be carried out to ensure future benefits in digitization and process improvements.

After the first month needed for initial set up, the project will deliver usable software features every 4 weeks, so that we benefit from the development effort without delay.

The project duration is from 1st Nov 2024 to 14th Feb 2025.

Contents

Phase 1: Project Kick-off & User Interface Design

Timeline: November 1 to 30

Key Deliverables:

- **User Interface Screens**
- **Data & Decision Workflow for Load Planning Automation**

Tasks:

1. **Figma Prototype Development (Week 1-3):**
    - Create a wireframe and prototype of the sales order portal.
    - Get approval from PVS on the design.
2. **Development Environment Set Up (Week 1-3):**
    - Coordinate with IT(James) and Walter for VPN Access, Dev & Product Environment set up, Remote Machines, User IDs
    - Coordinate with Herman for communication with Exact Globe Next, XML format, and operational methods
2. **Data & Decision Workflow for Load Planning Automation (Week 2-4):**
    - Analyse historical data & prepare data tables for load planning
    - Create workflow diagram for load planning decision making
3. **Backend Setup & Integration (Week 3-5):**
    - Set up Python backend to connect with Exact ERP database.
    - Collate & prepare data for load planning
    - Implement logic to suggest pricing, loading times, etc., based on historical data.

Phase 2: Automated Load Planning & Order Creation in Exact Globe ERP

Timeline: December 1 to 6th January

Key Deliverables:

- **Automated Load Planning Feature**
- **Integrate with Exact ERP & Create Orders in Exact using XML files**
- **Data & Decision Workflow for CMR Printing & Transporter Communication**

Tasks:

1. **Frontend Development (Week 3-6):**
    - Develop the front end using React.
    - Ensure ease of use, integration with backend services, and ability to modify automatically created load plan.
2. **Testing & Feedback (Week 6-7):**
    - W & Transporter Communication
    - Create workflow diagram
3. **Deployment (6th January):**
    - Deploy the Sales Order portal.

- Ensure proper communication with Exact ERP by uploading XML

Functional Specifications

OrderPro - Software Requirements Specification

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1. Introduction

1.1 Purpose

The purpose of this document is to specify the requirements for the OrderPro application, a web-based software system developed to enhance and automate bulk load order management for PVS Gent. The system aims to replace the current manual processes, ensuring:

- Streamlined operations
- Data accuracy
- Seamless integration with the **Exact ERP**

1.2 Scope

OrderPro is designed to:

- Manage the creation, processing, and tracking of bulk load orders.
- Automate load planning, with advanced features such as email notifications and document printing in the subsequent phases.
- Integrate with the **Exact ERP system** for real-time, accurate data exchange.
- Provide authorized users with browser-based access for ease of use and accessibility.

This system will significantly enhance operational efficiency, reduce manual errors, and support PVS Gent in scaling its operations.

1.3 Definitions and Acronyms

- **XML**: Extensible Markup Language
- **Exact** : Data Management System used by PVS Gent for resource planning and data management.
- **ERP**: Enterprise Resource Planning

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2. System Overview

OrderPro offers a modular, phased rollout to meet PVS Gent' needs:

- ➔ **Phase 1(January 6th 2025):**:
  - ◆ Tasks completed: User design and data cleanup (ongoing for three months).
  - ◆ Core functionalities, including order creation, processing, and confirmation.
    - Deliverables include order processing, customer details management, delivery date scheduling, and load planning.
    - XML file generation for Exact system uploads.
    - Manual adjustments in PVS Log for load scheduling will still be required.
- ➔ **Phase 2 Deliverables:**:
  - ◆ Transporter communication (by January End).
  - ◆ Customer communication (by February 15th).
- ➔ **Long-Term Goals:**
  - ◆ Automate processes such as load planning, CMR printing, transporter and customer email communications.
  - ◆ Replace PVS Log with system-integrated processes, except for manual uploads to Exact.
  - ◆ Automate order creation directly from customer emails in the future.
  - ◆ File uploads to Exact and adjustments in PVS Log to remain until automation is implemented.

The system ensures a seamless workflow from order creation to delivery, integrating with Exact data management system for real-time data exchange.

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3. Functional Requirements

3.1 Secure Login and Access Management

- ➔ **Login Page**:
  - ◆ Fields for User ID and Password.

Current Setup:

- Login is restricted to existing users.
- New user creation and password change requests require an email to **Tycan** for manual processing.

Future Enhancements:

- Enable self-service options for:
  - New user registration (with admin approval).
  - Password reset via email authentication or OTP (One-Time Password).

➔ **Dashboard**:

- ◆ Central interface for accessing system functionalities.
- ◆ Displays key sections: **Purchase Queue** and **Order Queue**.
- ◆ Orders with delivery dates in the next 7 working days will be prioritized and displayed at the top of the dashboard.
- ◆ For orders with delivery dates beyond 7 days, the priority will be based on their creation date, with earlier entries listed first.
- ◆ Among orders, those with the earliest delivery dates will always appear first within their respective categories.
- ◆ Orders scheduled for delivery within the next 7 days will always take precedence in the listing, ensuring timely processing.
- ◆ Regardless of the delivery date, all orders must be processed within 2 working days from their creation.

3.2 Order Management

➔ 3.2.1. **Create New Request**:

- ◆ Input request details via a popup form where we can enter client details including
  - Order Number
  - Ordered By
  - PO Number
  - Delivery Date
  - Delivery Time
  - Delivery To
  - Product
  - Quantity
  - Incoterms
  - Loading At
  - Bill To
  - Load Reference
  - Attachment (PDF)
- ◆ **Mandatory Fields**:
  - Ordered By
  - Product
  - Delivery Date

- Client and product details, among others, can be saved in the database, allowing them to be selected directly without the need for typing.
- Orders are saved in the **Purchase Order Queue**.
- Saved orders can be paused during creation and revisited later for completion.
- Users have the ability to edit paused orders before finalizing them.
- Once all necessary details are updated, and the user confirms the order, the paused orders will transition to **Planned**.
- Paused orders will appear in the "**In Progress**" status within the order queue until finalized.
- This feature allows flexibility for users to manage orders efficiently without losing partially entered data.

➔ **3.2.2. Create New Order**:

The "Create New Order" functionality allows users to initiate and manage purchase orders seamlessly by leveraging system-suggested inputs and backend calculations.

- **Order Initiation:**
  - Users start by clicking the "Start" button in the **Purchase Order Request** section.
  - The system displays key details, including:
    - Product and address information.
    - Suggested transporter details, prices, loading dates, and time.
- **Backend Calculations:**
  - **Price Calculation**:
    - The system calculates prices using master tables based on
      - delivery date
      - delivery address
      - payment terms
      - Price validity time period
      - Packaging
      - Incoterms
    - Use a temporary price of "zero" when no price data is available (until February 15th).
    - Ensure Exact reflects the correct pricing for accounting and billing.
    - Includes special pricing considerations like Saturday pricing and holiday-based adjustments.
    - Maintain a database to store holidays, off days, and corresponding prices.

    - Update the holiday calendar annually based on inputs from the Sales team.
    - Set up an automated reminder email to the Sales team in the first week of December every year to collect the updated holiday list in the subsequent phases.
    - Integrate the holiday calendar with backend pricing logic to ensure accurate price calculations for holidays or off days.
    - Ensure the system allows flexibility to modify holiday rules and prices as needed.
    - Spot Pricing
        - In certain cases, the company may have unsold stock and will offer clients a one-time price, which is not the standard price.
        - This one-time price will override the standard price for that specific order but will not affect the price stored in the database.
        - The one-time price will be tagged ''Spot Sales Price'' for future reference.
        - Spot sales must be recorded separately to identify these transactions.
        - Initially, users must email Tycan for handling it from the backend when applying spot pricing.
        - In the future, the system will be enhanced to allow users to handle spot pricing independently without requiring Tycan's intervention.
- **Transporter Selection**:
    - Suggests cost-effective transporters, with options to choose existing ones.
    - The backend will maintain master tables with transporter details, mapped to factors based on
        - product
        - delivery location
        - delivery date
        - loading at
        - incoterms
        - price
    - The system will suggest the most suitable transporter based on predefined rules and cost-effectiveness.
    - Provide a dropdown list to select from existing transporters.
    - Include an option to add new transporters to the database for flexibility in the later phase.

        - Allow exceptions to the cost-effectiveness rule for special requirements or scenarios.
    - **Loading Slots**:
        - Adjusted using historical data for delivery time optimization.
        - Based on the chosen load point, product name, product dilution, availability of loading slots (storage tanks), and the delivery destination, the system will suggest an appropriate loading date and time. These calculations are based on the historical data and delivery location and time.
        - Ability to mark loading points as unavailable due to closures, shutdowns, or shortages.
        - Manage product shortages by sourcing from distributors, based on details provided by Isabelle. A database will be maintained for this purpose, allowing users to select an existing distributor or add a new one in the subsequent phases.
    - **Delivery Time Management**:
        - The system will manage customer-specified delivery time.
        - Using historical data (collected from the past two years of PVS Log), the system will suggest an optimal delivery time.
        - The system-suggested delivery time, managed through backend criteria based on previous history of delivery, will dictate the adjustment of loading time accordingly.
        - For on-time delivery, the system will calculate when loading must begin at the designated loading point.
        - Once the delivery time is finalised, based on the hours needed for transportation to the delivery location, the system will choose the loading slot and time.

➔ **3.2.3. Order History Comparison tool**:

- Highlight differences between new and similar past orders to mark changes easily identifiable and for quick adjustments.

➔ **3.2.4. Order Saving:**

- Save the order with the status In Progress.
- Confirmed orders are updated to Planned in the Order Queue.

➔ **3.2.5. Order Queue**:

- Categorized orders as:
    - **Planned Orders**
        - For order processing, users confirm the data by selecting the "Save and Continue" option.
        - Once confirmed, the order status automatically updates to "Planned."

- **In Progress Orders**
    - Users can save an order with the available data during creation.
    - Once saved, the order status changes to "In Progress."
    - Users can revisit and update the order later to complete the process.
    - The order remains in the "In Progress" status until the order is edited again and processed fully.
    - Once the user confirms the order, OrderPro changes its status to "Planned."
- **Confirmed Orders**
    - The order status is changed to "Confirmed" after sending a confirmation email to the customer in response to their purchase order. This status update is done manually by the user.(until February 15th)
    - A Confirmation email is sent to the customer only after the following steps are completed:
        - PVS Gent has the product available for delivery on the date requested by the customer.
        - PVS Gent has arranged transportation (truck) for delivery.
        - All required paperwork for the order is completed.
    - Orders are manually marked as **Confirmed** by the user once the order is downloaded as an XML file and uploaded to Exact ERP.(until February 15th)
- **Delivered Orders**
    - Orders automatically transition to the "Delivered" status on the specified delivery date.
    - Users are permitted to edit or modify these orders under exceptional circumstances, such as factory shutdowns or on-premises accidents that prevent scheduled loading or dispatch.
    - This capability ensures that affected orders can be rescheduled for a later date, maintaining accurate order tracking and facilitating necessary delivery adjustments.
- **Cancelled Orders**
    - Orders can be cancelled by the user at any stage of the Order creation process.
    - Once cancelled, the order status is updated to "Cancelled."
    - No further actions can be taken on a cancelled order.

- Actions:

- **Start**: Opens a pre-filled, editable order form.
- **Save and Exit**: Mark as **In Progress**.
- **Confirm**: Updates status to **Planned**.

3.3 Integration with Exact

- **Order Synchronization**:
  - Orders can be downloaded using the XML Download button, with options to select one or multiple orders using checkboxes.
  - Orders uploaded to the Exact ERP are manually marked as Confirmed.
- **Delivery Management**:
  - Orders automatically transition to **Delivered** on the specified delivery date.

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4. Non-Functional Requirements

4.1 Scalability

- The system will handle increasing order volumes as PVS Gent' operations grow.

4.2 Security

- User authentication with encrypted credentials.
- Data encryption for secure data exchange with Exact ERP.

4.3 Performance

- Fast page loading and minimal latency for data processing.
- Reliable integration with Exact to avoid delays.

4.4 Usability

- Intuitive user interface for ease of navigation.
- Responsive design for compatibility across devices and browsers.

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5. System Workflow

5.1 Order Planning

- **Creation**: Initiate new orders from the Dashboard.
- **Saving Orders**: Saved orders are moved to the **Purchase Queue**.

- **In Progress Status**: Automatically marked for saved but unconfirmed orders.

5.2 Order Processing

- **Review and Edit**: Finalize and confirm order details.
- **Order Queue Transition**: Confirmed orders are updated to **Planned**.

5.3 Order Confirmation

- Uploaded to **Exact ERP**.
- Status updated to **Confirmed**.

5.4 Order Delivery

- Transition to **Delivered** as delivery date approaches.

5.5 Order Cancellation

- Users can cancel orders before confirmation.
- Cancelled orders are marked as **Order Cancelled**.

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6. Phased Rollout Plan

➔ **Phase 1 Deliverables (by January 6, 2024)**:
- Order processing, load planning, and XML file generation.

➔ **Phase 2 Deliverables**:
- Transporter communication (by January End).
- Customer communication (by February 15th).
- Future phases to include CMR printing and email-based order automation.

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7. System Dependencies

- **Exact ERP System**: Availability for integration.
- **Accurate Data**: Up-to-date product ,price and client details.
- **Web Infrastructure**: Reliable hosting environment.
- **Holiday Table Setup**: Annual reminders for updates every December.

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8. Conclusion

OrderPro is a robust, scalable solution tailored to PVS Gent' requirements, offering streamlined order management, reduced manual errors, and improved operational efficiency. By automating key workflows and integrating with Exact ERP, the system will ensure data accuracy and real-time processing, delivering value aligned with PVS Gent' growth and operational goals.

Phase 3: CMR Printing & Automated Transporter Communication

Timeline: January 1 to 31

Key Deliverables:

- **Print CMR & Load List:** Ability to generate printouts of sales documents.
- **Automate Emails to Transporters:** Request for trucks at the click of a button. The email will have all necessary information about order, customer, product, and related terms and conditions
- **Data & Decision Workflow for Customer Communication**

Tasks:

1. **Requirement Definition & Design (Week 9):**
    - Discuss printout and email templates with PVS.
    - Design templates and review them with stakeholders.
2. **Backend & API Development (Week 9-11):**
    - Develop backend services for print and email generation.
    - Integrate email services (SMTP) for automated communications.
3. **Frontend Modifications (Week 9-11):**
    - Implement UI for print and email options in the portal.

2. **Data & Decision Workflow for Customer Communication (Week 9-11):**
    - Analyse historical data & prepare data tables for Customer Communication
    - Create workflow diagram for decision making
4. **Requirement Definition & Design for Customer Communication (9-11):**
    - Discuss email templates with PVS.
    - Design templates and review them with stakeholders.
5. **Testing (Week 11-12):**
    - Ensure print and email functions work seamlessly.
    - Run User Acceptance Test with the PVS team.
6. **Deployment (January 31):**
    - Deployment
    - Provide training and documentation for users.

Phase 4: Automated Customer Communication

Timeline: February 1 to 14

Key Deliverables:

- **Automate Emails to Customer:** Send order confirmation to Customers at the click of a button. The email will have all necessary information about order, transport, product, and related terms and conditions

Tasks:

1. **Backend & API Development (Week 13-14):**
    - Develop backend services for print and email generation.
    - Integrate email services (SMTP) for automated communications.
2. **Frontend Modifications (Week 13-14):**
    - Implement UI for print and email options in the portal.
3. **Testing (Week 14):**
    - Ensure print and email functions work seamlessly.
    - Run User Acceptance Test with the PVS team.
4. **Deployment (February 14):**
    - Full deployment of the portal with all features.
    - Provide training and documentation for users.

Technology Stack

We are using a modern yet proven technology stack suitable for micro-service-oriented development for browser-based applications. This helps us to reuse features we build for one micro application to be reused in another application later.

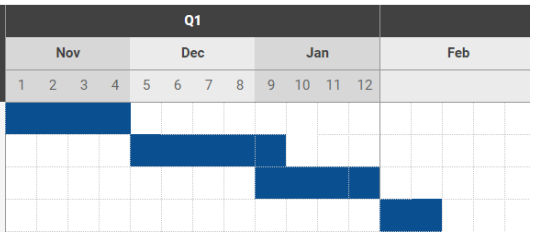
This stack also ensures that developers experienced in these technologies are commonly available globally, making it easier and cost effective to maintain this software in the future.

- **Frontend**: React
- **Backend**: Python
- **Database**: SQL-based
- **Integration**: XML file generation for ERP uploads
- **Email Service**: SMTP or third-party email API (for automated communication in Phase 2)
- **Prototyping**: Figma for design and user flow validation
- **Deployment Environment**: To be confirmed, but based on PVS's infrastructure (cloud or on-premise)

Timeline Breakdown:

This structured approach ensures that PVS gets a streamlined, efficient portal integrated with their Exact ERP, improving sales order management significantly.

PHASE	PHASE DELIVERABLES
1	Project Kick-off & User Interface Design
2	Automated Load Planning & Order Creation in Exact Globe ERP
3	CMR Printing & Automated Transporter Communication
4	Automated Customer Communication



Contact

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