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**1 Introduction**

**1.1 Purpose of Document**

This is a Requirements Specification document for a new web-based sales system for Solar Based Energy, Inc. (SBE). SBE is a distributor of alternative energy products including windmills, photovoltaic and fuel cells. The new system will upgrade the current websites to provide customers and employees customized browsing of the product catalogue and the ability to complete product orders on-line. This document describes the scope, objectives and goal of the new system. In addition to describing non-functional requirements, this document models the functional requirements with use cases, interaction diagrams, and class models. This document is intended to direct the design and implementation of the target system in an object oriented language.

**1.2 Project Summary**

|  |  |
| --- | --- |
| **Project Name:** | SBE Sales System |
| **Project Manager:** | Mary Beth Lohse, CEO, CIS 616 Consulting |
| **Project Analysts:** | Benjamin B. Bolz, Lead Analyst Cynthia C. Caldwell, Senior Analyst David D. Dreese, Analyst Helen H. Hitchcock, Analyst |
| **Responsible Users:** | Imogene I. Ives, President of SBE Benjamin B. Baker, Vice-President of Sales |

**1.3 Background**

SBE sells state-of-the-art alternative energy systems utilizing wind and solar power. SBE customers include both individuals and businesses interested in incorporating wind or solar energy sources into either new or existing construction. SBE has identified two trends that they believe will cause explosive growth in the demand for their products. The first is the continuing energy crisis in the western United States. The second is the maturation of fuel cell technology which provides a feasible system for storing excess power generation for later use. SBE sells state-of-the-art alternative energy systems utilizing wind and solar power. SBE customers include both individuals and businesses interested in incorporating wind or solar energy sources into either new or existing construction. SBE has identified several trends that they believe will cause explosive growth in the demand for their products.

|  |
| --- |
| FUNCTIONAL SUB-COMPONENTS |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CREATE PRODUCT | UPDATE PRODUCT | COPY PRODUCT | APPROVE PRODUCT | CLOSE PRODUCT |

Because of the innovative and technical nature of their products, SBE employs sales agents who can guide customers through the process of choosing an alternative energy system. Other SBE employees are identified as a product "owners". The product owner is the expert on a particular product or product line. As the authoritative source of product information he produces whitepapers--highly technical and focused documents on product specifications.

Currently there are two separate web sites. The public website (www.sbe.com) is static HTML. It provides general information about SBE and its products. The internal website (www.sbesales.com) is restricted to SBE employees and provides detailed product information. Sales orders are placed by agents on this site. Two different Oracle databases underly these sites.

Problems with the current system include

* the information available on the public website is too limited and the user cannot immediately place an order
* the existence of two databases means information is often inconsistent or incorrect
* users who need more technical information have difficulty accessing the relevant whitepapers
* sales agents have difficulty reaching product owners

Imogene I. Ives, President of SBE has requested that an analysis be done with a view to reengineering the current sales system. The new system should allow customers direct access to product information and ordering as well as continuing to provide support to the existing sales agent network.

**1.4 Project Scope**

The scope of this project is a web-based system that supports the marketing of SBE products directly to customers as well as through the existing sales agent network. Advertising of products, inventory control, and account billing are not part of this project.

The two current web sites will be replaced by this new system. In addition, changes to the logical and physical design of the current databases are expected. The actual implementation of a new database system is not part of this project. A web search engine and language translator will be obtained as purchased components for the new system. Their internal details are not part of this project. Issues of website security, other than password protection within the site, are not part of this project.

**1.5 System Purpose**

**1.5.1 Users**

Those who will primarily benefit from the new system and those who will be affected by the new system include

Customers:

Upon implementation of the new system, customers will find site navigation, product identification and product ordering easier. Customers will be able to choose whether to buy directly from SBE or work with a sales agent.

Sales Agents:

The new system will provide sales agents with more detailed, accurate and up-to-date product information. They will be informed of potential customers more quickly and they will have faster access to the product owner.

Product Owners:

Product owners will be allowed to maintain the data about their products directly. This will eliminate delays in getting new products or changed product specifications into the system.

Customer Service Department:

The new system should reduce the workload of Customer Service as customers are able to find the information they need from the web-site.

Marketing Department:

Site navigation data could be sent to the Marketing Department. Understanding how a customer uses the web site to make a purchase will result in improvements in getting and keeping customers.

Accounting Department:

Purchase information will be sent directly to Accounting, allowing for more accurate and timely billing.

Shipping Department:

Purchase information will be sent directly to Shipping for inventory control and order processing.

Information Technology Department:

This department will be responsible for implementing the new database, hosting the website and maintaining the system.

**1.5.2 Location**

The system will be available to any potential customer using the Internet. SBE employees may also use the system from any location and will be able to access restricted areas of the site through a password protection scheme.

**1.5.3 Responsibilities**

The primary responsibilities of the new system:

* provide customers direct access to up-to-date, accurate product information on which they can make a decision to buy
* customize product offerings to specific users
* allow differential access to web pages based on type of user
* allow customers to place an order through the website
* allow customers to request the assistance of a sales agent
* provide sales agents improved access to product information and product owners
* allow product owners to maintain information about their products directly
* allow access to whitepapers on demand
* send order information directly to Accounting and Shipping

Other desired features of the new system:

* a consistent "look and feel" throughout the website
* full-text searches of the web pages a user has permission to access
* on-line help in website navigation
* password protection scheme for non-public web pages
* translation of a web page to another language

The system will not be responsible for account receivables, or inventory control.

**1.5.4 Need**

This system is needed in order to service the expected increase in demand for alternative energy products. Replacement of the current websites will eliminate the shortcomings of those sites. The new system will allow SBE to rapidly increase sales without a large and expensive increase in the number of sales agents and other customer support employees.

|  |  |
| --- | --- |
| Use Case Name: | Login User |
| Summary: | In order to get personalized or restricted information, place orders or do other specialized transactions a user must login so that that the system can determine his access level. |
| Basic Flow: | 1. The use case starts when a user indicates that he wants to login. 2. The system requests the username and password. 3. The user enters his username and password. 4. The system verifies the username and password against all registered users. 5. The system starts a login session and displays a welcome message based on the user's preferences. |
| Alternative Flows: | Step 4:  if username is invalid, the use case goes back to step 2.  Step 4:  if the password is invalid the system requests that the user re-enter the password. When the user enters another password the use case continues with step 4 using the original username and new password. |
| Extension Points: | none |
| Preconditions: | The user is registered. |
| Postconditions: | The user can now obtain data and perform functions according to his registered access level. |
| Business Rules: | Some data and functions are restricted to certain types of users or users with a particular access level. |

**1.6 Overview of Document**

The rest of this document gives the detailed specifications for the new sales system. It is organized as follows:

* Section 2: Functional Objectives  
  Each objective gives a desired behavior for the system, a business justification, and a measure to determine if the final system has successfully met the objective. These objectives are organized by priority. In order for the new system to be considered successful, all high priority objectives must be met.
* Section 3: Non-Functional Objectives  
  This section is organized by category. Each objective specifies a technical requirement or constraint on the overall characteristics of the system. Each objective is measurable.
* Section 4: Context Model  
  This section gives a text description of the goal of the system, and a pictorial description of the scope of the system in a context diagram. Those entities outside the system that interact with the system are described.
* Section 5: Use Case Model  
  The specific behavioral requirements of the system are detailed in a series of use cases. Each use case accomplishes a business task and shows the interaction between the system and some outside actor. Each use case is described with both text and an interaction diagram. An interface prototype is also shown. The system use case diagram depicts the interactions between all use cases and system actors.
* Section 6: Class Model  
  A class is a collection of objects in the system that have the same data and behavior. All analysis classes and their relationships are shown on the class diagram.
* Section 7: An appendix containing a glossary that  
  defines terms specific to this project

**2 Functional Objectives**

**2.1 High Priority**

1. The system shall allow for on-line product ordering by either the customer or the sales agent. For customers, this will eliminate the current delay between their decision to buy and the placement of the order. This will reduce the time a sales agent spends on an order by x%. The cost to process an order will be reduced to $y.
2. The system shall reflect a new and changed product description within x minutes of the database being updated by the product owner. This will reduce the number of incidents of incorrectly displayed information by x%. This eliminates the current redundant update of information, saving $y dollars annually.
3. The system shall display information that is customized based on the user's company, job function, application and locale. This feature will improve service by reducing the mean number of web pages a user must navigate per session to x. It should reduce unnecessary phone calls to sales agents and staff by x%.
4. The system shall allow employees to view the owner of any product. An employee should be able to contact the correct owner in one phone call x% of the time.
5. The system shall allow a customer to directly contact the nearest sales office in his region. This will improve service by reducing the time to respond to a customer request to no more than x days.
6. The system shall provide accounting with accurate purchase transaction data. This will improve customer service by reducing billing complaints by x% and save $y in correcting inaccurate accounts.
7. The system shall provide shipping with accurate order data. This will allow the order to be processed in x days and inventory to be updated within y hours.

**2.2 Medium Priority**

1. The system shall provide a search facility that will allow full-text searching of all web pages that the user is permitted to access. The system must support the following searches:
   * find all words specified
   * find any word specified
   * find the exact phrase
   * Boolean search
2. The system shall make whitepapers available from the product page. This will allow customers to answer product questions themselves, reducing customer support costs by $x annually.

**2.3 Low Priority**

1. The system shall allow the user's status to be stored for the next time he returns to the web site. This will save the user x minutes per visit by not having to reenter already supplied data.
2. The system shall provide marketing with customer navigation information. This information will allow marketing to determine what information prompts a purchase and help target potential customers more effectively. This will increase annual revenue by $x in additional sales.
3. The system shall translate web pages into the languages of the countries where the company's products are available. This will improve customer service and reduce the number of support calls from foreign customers by x%.

**3 Non-Functional Objectives**

**3.1 Reliability**

* The system shall be completely operational at least x% of the time.
* Down time after a failure shall not exceed x hours.

**3.2 Usability**

* A sales agent should be able to use the system in his job after x days of training.
* A user who already knows what product he is interested in should be able to locate and view that page in x seconds.
* The number of web pages navigated to access product information from the top page should not exceed x.

**3.3 Performance**

* The system should be able to support x simultaneous users.
* The mean time to view a web page over a 56Kbps modem connection shall not exceed x seconds.
* The mean time to download and view and whitepaper in PDF format for a 56Kbps modem shall not exceed x seconds.

**3.4 Security**

* The system shall provide password protected access to web pages that are to be viewed only by employees.
* Transaction data must be transmitted in encrypted form.

**3.5 Supportability**

* The system should be able to accommodate new products and product lines without major reengineering.
* The system web site shall be viewable from Internet Explorer 4.0 or later, Netscape Navigator/Communicator 3.0 or later and the America Online web browser version 3.0 or later.

**3.6 Online user Documentation and Help**

* The system shall provide a web page that explains how to navigate the site. This page should be customized based on what pages that user is allowed to access.
* This help page should be accessible from all other pages.

**3.7 Purchased Components**

* A language translation tool from English to French and English to German will be needed.
* A web site search engine will be needed.

**3.8 Interfaces**

The system must interface with

* The current Oracle database systems for product and order information
* The current Oracle Financial accounting system
* The current AccountPro inventory system
* The acquired language translation tool
* The acquired web site search engine

