# *Option Pricer System*

# *Requirements Document*

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**1. Introduction**

* **1.1 Purpose of this document**

This document describes the requirements specifications for the Option Pricer System. The project is sponsored by the financial division, and is the intended audience of this document.

* **1.2 Scope of this document**

This document is divided into seven sections. It provides an introduction and overview of the Option Pricer System, a general description of the system and its users, functional requirements in detail, interface requirements of how the software interfaces with users, performance requirements, design constraints, and other non-functional requirements.

The requirements in this document were determined through interviews with the staff of the company and requests from the traders.

* **1.3 Overview**

The Option Pricer System is a Web-based Option Pricer calculator system that calculate the price using different algorithms, display a consistent result quickly, compare the results with each other and analyze the result more accurately for user. Unlike our competitors’ system that will produce inconsistent results with different algorithms and let traders take advantage of the inaccuracy, the OPS will be consistent, more accurate and more efficient. To calculate different option prices,

* **1.4 Business Context**

The company is a business company that provide pricing options for the traders. The mission, goal and organizational structure of the company is as followed:

Mission – To provide the traders with an integrated Option Pricer System to help them calculate and compare price options using several algorithms.

Goal - To provide an improved, consistent, integrated, more efficient and accurate Option Pricer System.

The company is headed by a President, assisted by a Voice President and an Executive Staff composed of the associate directors. The company has six divisions and the software team is responsible for the new Option Pricer System.

**2. General Description**

* **2.1 Product Functions**

The unique functions of the new Option Pricer System is that it will calculate option prices over different regions and generate volatility graphs, allow the desk quants to select from the possible algorithms to calculate an option price and compare their results, and allow the desk quants to select from the possible algorithms to calculate an option price and compare their results.

For calculating the different option prices, the OPS requires users to provide certain date:

* Current stock price, e.g. $100.00
* Duration, e.g. 3 month
* Expend growth rate, e.g. 0.04
* Stock price volatility, e.g. 0.2
* Risk free interest rate, e.g. 1%
* Option side, e.g. call or put
* Type of option, e.g. American, European, Asian
* **2.2 Similar System Information**

Currently, the company uses multiple set of programs across various trading desks to calculate option prices which is confusing and not reliable. The traders need a new Option Pricer System to avoid the mistakes made by using different programs.

The new Option Pricer System will be a consistent and integrated program with stock data from Stock Exchange Service.

Some competitors of the company use similar software, but their system are not stable and may have errors sometime. The OPS will be the first software available in the industry.

* **2.3 User Characteristics**

Option Pricer System will be used by all traders of the company. Traders need to use the OPS to calculate the price using different pre-defined algorithms with different option types, input new algorithms and compare the results with each other.

All traders will have access to the Internet and have a computer capable of using a web browser.

* **2.4 User Problem Statement**

There is a possibility that the trader will not use the OPS effectively and would go back to their previous system which would lead to a significant loss of investment. The OPS let traders to input new algorithm to calculation option price. The new input algorithm may need new variables. For pre-defined algorithms, users may don’t understand its meaning. Traders need essential descriptions for the new OPS.

* **2.5 User Objectives**  
  The Option Pricing System will support several algorithms and types of option prices and let traders compare the results of different algorithms and types.

The Option Pricing System will display graphs of volatility smiles.

The Option Pricing System will allow traders to “drop in” their own algorithm into the system.

Traders should be able to access the system using an Internet Explorer 7.0 or higher compatible browser. The result will be returned within 0.5 sec with 1% error margin.

* **2.6 General Constraints**

The Option Pricer System will run on Web application servers. Traders of the company can use the Option Pricer System to calculate the price using different algorithms,

The Option Pricing System must be accessible by end-users using different combinations of operating system platforms and browsers. This includes Windows and iOS.

The Option Pricing System must support the HTTP and TCP/IP protocols.

The time from when query is submitted to the result is generated should be in 0.5 seconds with 1% error margin. If the time estimated exceed the limits, the traders will be informed and given the opportunity to cancel or modify the calculation.