

# Functional Requirements Document (FRD) - Scatterplot

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## 1. Introduction

### 1.1 Purpose of this Document

This Functional Requirements Document (FRD) specifies the functional and non-functional requirements for the "Scatterplot" web-based platform. It details what the system must do, how it should behave, and outlines the core features from the perspective of both the end-users (Financial Advisors) and the Administrators. This document will serve as the primary guide for the design, development, and testing phases of the Scatterplot platform.

### 1.2 Project Background & Goals

"Scatterplot" is a Software-as-a-Service (SaaS) platform designed to revolutionize how Financial Advisors (RIAs, Wealth Advisors, Asset Managers) engage with their clients. Recognizing the industry's gap in providing real-time, customized, and client-ready investment visualizations, Scatterplot aims to offer a solution. Its core goal is to enable advisors to explain complex financial concepts and market data clearly, fostering deeper client relationships, enhancing decision-making, and significantly reducing the time spent on creating presentations.

### 1.3 Target Audience

The primary target users are **Wealth Advisors and Asset Managers based in the United States**, who seek to improve client communication through data-driven visual storytelling.

### 1.4 Definitions & Acronyms

- **Advisor:** An authenticated, subscribed user of the Scatterplot platform (Wealth Advisor, Asset Manager, RIA).
- **Admin:** An authorized user of the Scatterplot Admin Portal.
- **Slide:** Refers to a single, pre-defined chart or visual presentation element within the Scatterplot library. Scatterplot will launch with approximately 50 such slides.
- **Deck:** A collection of multiple selected Slides, compiled and saved by an Advisor for a specific purpose.
- **OTP:** One-Time Password, used for secure login.
- **PDF:** Portable Document Format, the file format for exporting slides/decks.
- **API:** Application Programming Interface.
- **CMS:** Content Management System.
- **SaaS:** Software-as-a-Service.

## **1.5 Out of Scope for Initial Release**

- Any client-side chart editing or data manipulation capabilities by the Advisor (beyond branding).
  - Integration with APIs other than Finnhub.io and FRED (unless explicitly added later).
  - Complex user roles beyond basic "Advisor" (Subscriber) and "Administrator" access.
  - Custom report builders or advanced data analytics modules for end-users.
  - User-generated content (e.g., comments, forums, direct chart creation).
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## **2. User Roles & Permissions**

The system will support two primary user roles:

### **2.1. Advisor (Subscriber)**

- Can view the public-facing homepage.
- Can sign up for a paid subscription.
- Can log in using an OTP.
- Can access and manage their user profile (upload logo, select brand color, add disclosures).
- Can browse and view all 50 pre-built slides.
- Can view "as of date" and "talking points" for each slide.
- Can select slides to create and save up to 5 custom decks.
- Can download individual slides or saved decks as PDF files.
- Cannot modify the underlying data or structure of the charts/slides.
- Cannot access any Admin Portal features.
- Cannot change the Colors related to graphs

### **2.2. Administrator**

- Can log in to a secure Admin Portal.
- Can view metrics on user base (total, paid).
- Can view last login dates for users.
- Need to list top 10 slides - Slide Name vs No. of users using it.
- Can export email addresses of active users for marketing/newsletter purposes.
- Can update the title for the 50 slides. Note that the admin can't update or modify any graph and update the category for the slide.
- Can manage content for the public-facing homepage (e.g., animation details, footer text) and newsletter signup settings.
- Can trigger manual updates for non-market data/slides if required.

- Cannot access Advisor-specific content or create decks on behalf of Advisors.
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### **3. Functional Requirements**

This section details the specific functionalities the Scatterplot platform must provide.

#### **3.2. User Authentication & Profile Module**

- **FR.006 - User Registration:** The system shall allow new users to sign up by providing their Full Name and Work Email Address.
- **FR.007 - Strict Paywall:** The system shall restrict all platform content and features (beyond the homepage) to paid subscribers only. No trial access.
- **FR.008 - OTP Generation:** Upon registration and subsequent login attempts, the system shall generate a One-Time Password (OTP).
- **FR.009 - OTP Email Delivery:** The system shall send the generated OTP to the user's provided work email address.
- **FR.010 - OTP Verification:** The system shall verify the entered OTP against the sent OTP for secure login.
- **FR.011 - Passwordless Login:** The system shall allow users to log in solely using the OTP sent to their email (no traditional password required).
- **FR.012 - User Profile Access:** Logged-in Advisors shall be able to access a dedicated profile or settings section.
- **FR.013 - Logo Upload:** Advisors shall be able to optionally upload their firm's logo (image file, max size TBD) to their profile.
- **FR.014 - Brand Color Selection:** Advisors shall be able to optionally select one brand color from a pre-defined color palette within their profile.
- **FR.015 - Disclosure Text Input:** Advisors shall be able to optionally input custom disclosure text (plaintext, max characters TBD) into their profile.
- **FR.016 - Profile Save:** Advisors shall be able to save their profile changes.

#### **3.3. Subscription Management Module**

- **FR.017 - Payment Gateway Integration:** The system shall integrate with a third-party payment gateway (e.g., Stripe) to process recurring subscription payments.
- **FR.018 - Subscription Status Check:** The system shall verify an Advisor's active subscription status before granting access to premium content/features.

#### **3.4. Chart & Deck Viewing Module (Advisor Dashboard)**

- **FR.019 - Dashboard Access:** Upon successful login, Advisors shall be directed to their main dashboard/chart library.
- **FR.020 - Left Panel Navigation:** The dashboard shall feature a left-hand panel displaying a list/thumbnails of all 50 available slides.
- **FR.021 - Slide Categorization:** Slides in the left panel shall be organized into 3-4 distinct categories (e.g., "Market Volatility," "U.S. Market Performance").
- **FR.022 - Magnified Slide View:** Clicking on a slide in the left panel shall display a magnified, full-screen version of the selected slide in the right-hand main content area.
- **FR.023 - Dynamic Content Update:** All displayed charts shall reflect the latest daily (for market-related) or monthly (for non-market related) data as processed by the backend.
- **FR.024 - Dynamic Branding Application:** All displayed charts shall automatically incorporate the Advisor's uploaded firm logo and chosen brand color.
- **FR.025 - "As Of Date" Display:** Each chart shall prominently display an "as of date" at the bottom, indicating the freshness of the data.
- **FR.026 - Talking Point Popup:** Each magnified slide shall have a clearly visible button that, when clicked, displays a modal or popup containing a pre-defined "talking point" text associated with that specific slide.

### **3.5. Custom Deck Creation & Management Module**

- **FR.027 - Slide Selection for Deck:** Advisors shall be able to select individual slides from the left panel using checkboxes (or similar mechanism).
- **FR.028 - Create New Deck:** Advisors shall be able to create a new custom deck from selected slides. This includes providing a name for the deck.
- **FR.029 - Save Deck:** Advisors shall be able to save their selected slides as a named deck.
- **FR.030 - Deck Limit:** Each Advisor shall be limited to creating and saving a maximum of 5 custom decks.
- **FR.031 - Auto-Updating Decks:** Saved decks shall automatically reflect any daily or monthly data updates to their constituent slides.
- **FR.032 - Deck Management:** Advisors shall be able to view, rename, and delete their saved custom decks.

### **3.6. Export Module**

- **FR.033 - PDF Export (Single Slide):** The system shall allow Advisors to download the currently viewed magnified slide as a PDF file.
- **FR.034 - PDF Export (Deck):** The system shall allow Advisors to download an entire saved custom deck as a multi-page PDF file.

- **FR.035 - Branded PDF Output:** Generated PDFs shall include the Advisor's firm logo, selected brand color, and the disclosure text (on the last page for deck exports).
- **FR.036 - Latest Data in PDF:** Generated PDFs shall contain the most current data available for the charts at the time of export.

### **3.7. Backend Data Processing & Chart Rendering Module**

- **FR.037 - Daily Market Data Ingestion:** The system shall automatically fetch daily market data from Finnhub.io API.
- **FR.038 - Daily Economic Data Ingestion:** The system shall automatically fetch daily economic data from FRED - St. Louis Fed API.
- **FR.039 - Data Processing & Storage:** The system shall process, clean, and store ingested data in a structured database suitable for rapid retrieval and chart rendering.
- **FR.040 - Automated Server-Side Chart Rendering:** The system shall, on a daily basis, automatically render all 50 pre-defined charts using the latest processed data and a headless browser or server-side charting library. These rendered charts (likely as images) shall be stored and made available to the frontend.
- **FR.041 - Monthly Non-Market Data Updates:** The system shall handle monthly updates for non-market related slides when new data becomes available (manual trigger via Admin Portal or scheduled automated pull if API available).

### **3.8. Admin Portal Module**

- **FR.042 - Secure Admin Login:** The Admin Portal shall require secure authentication for administrators.
- **FR.043 - User Metrics Display:** The Admin Portal shall display:
  - Total number of users.
  - Breakdown of paid vs. newsletter-only users.
  - User growth over time (sign-ups, churn).
  - Last login date for each user.
- **FR.044 - Slide Usage Analytics:** The Admin Portal shall track and display which slides are most frequently added to user-created decks.
- **FR.045 - Active User Email Export:** The Admin Portal shall provide an easy way to download (e.g., CSV export) email addresses of active users for newsletter and marketing purposes.
- **FR.046 - Slide Content Management:** Administrators shall be able to:
  - Upload/update definitions or templates for the 50 core charts.
  - Input and modify the "talking point" text associated with each slide.
  - Manage and assign categories (3-4 sections) to slides.

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## 4. Non-Functional Requirements (NFRs)

### 4.1. Performance

- **NFR.001:** The homepage and login pages shall load within 2 seconds on a standard broadband connection.
- **NFR.002:** Authenticated dashboard and slide Browse/viewing should load within 3 seconds.
- **NFR.003:** Daily data ingestion and server-side chart rendering for all 50 slides shall complete within a specified window (e.g., 2-4 hours, or by 6 AM EST daily).
- **NFR.004:** PDF generation for a single slide shall complete within 5 seconds.
- **NFR.005:** PDF generation for a 5-slide deck shall complete within 15 seconds.
- **NFR.006:** The system shall be capable of handling concurrent usage from at least 100-200 active advisors without significant performance degradation.

### 4.2. Security

- **NFR.007:** All data transmitted between the client (browser) and server shall be encrypted using HTTPS/SSL.
- **NFR.008:** User data (personal info, uploaded logos, disclosures) shall be encrypted at rest in the database.
- **NFR.009:** OTPs shall be securely generated and validated, with appropriate rate limiting to prevent brute-force attacks.
- **NFR.010:** The system shall implement robust input validation to prevent common web vulnerabilities (e.g., XSS, SQL injection).
- **NFR.011:** Access to the Admin Portal shall be strictly controlled and logged.
- **NFR.012:** Third-party API keys (Finnhub, FRED) shall be securely stored and accessed.

### 4.3. Usability

- **NFR.013:** The user interface shall be intuitive and easy to navigate for financial advisors with varying technical proficiency.
- **NFR.014:** The "PowerPoint-like" slide viewer should be familiar and simple to operate.
- **NFR.015:** Error messages shall be clear, concise, and provide actionable guidance.

### 4.4. Scalability

- **NFR.016:** The system architecture shall be designed to scale vertically and horizontally to accommodate future growth in user base and data volume.
- **NFR.017:** The data ingestion and chart rendering pipeline shall be scalable to handle an increase in the number of charts or data sources in the future.

#### 4.5. Reliability

- **NFR.018:** The platform shall aim for 99.9% uptime (excluding scheduled maintenance).
- **NFR.019:** The daily data update and chart rendering process shall have robust error handling and alerting mechanisms in case of failures.
- **NFR.020:** Data backups shall be performed regularly.

#### 4.6. Maintainability

- **NFR.021:** The codebase shall be modular, well-documented, and follow industry best practices for ease of future development and maintenance.

#### 4.7. Compatibility

- **NFR.022:** The platform shall be responsive and accessible on modern desktop web browsers (Chrome, Firefox, Safari, Edge) and major tablet devices.

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### 5. Assumptions & Constraints

#### 5.1. Assumptions

- The client will provide all specific financial data logic and criteria for each of the 50 charts.
- The client will provide all final visual designs or detailed benchmarks for the 50 charts.
- The client will provide all "talking point" textual content for each slide.
- The client will provide all legal content (Privacy Policy, Trademark info, Terms of Service, Advisor Disclosures).
- The client will provide valid API keys and access details for Finnhub.io and FRED APIs.
- The client will handle all external marketing and sales efforts.
- Third-party API services (Finnhub, FRED) will remain stable and continue to provide required data formats.
- Monthly data for non-market slides will be consistently available from client or an accessible source.

## 5.2. Constraints

- **Fixed Chart Designs:** Advisors cannot edit chart data, types, or elements beyond logo and color.
  - **Limited Custom Decks:** Advisors can save a maximum of 5 custom decks.
  - **Specific APIs:** Initial data sources are limited to Finnhub.io and FRED.
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## 6. Future Considerations (Out of Scope)

These questions delve into functionalities that are desirable for a mature product but often add significant complexity and should be considered for **future phases** or explicitly excluded from the initial release scope.

### 1. User Feedback & Issue Reporting

**Q:** If an advisor finds that a graph's information appears incorrect (e.g., data discrepancy, a visual error), what is their desired process to flag this? Do they need an in-platform 'report an issue' button, or is using standard support channels (e.g., email) sufficient for the initial launch?

- *Why out of scope for initial?* Implementing an in-platform flagging system requires dedicated backend logic to receive reports, a database to store them, an admin interface for reviewing them, and potentially a notification system for your internal team. This is a mini-ticket management system.

### 2. Advanced Sharing & Collaboration

- **Q:** "Beyond downloading PDFs, do advisors need to 'share' charts or decks directly from the platform via a link? If so, what kind of control is needed over these shared links (e.g., password protection, expiry dates, view-only vs. downloadable)?"
  - *Why out of scope for initial?* Requires generating unique, secure shareable URLs, managing access permissions for non-users, and potentially tracking viewership of shared content. Adds significant backend and security complexity.
- **Q:** "Do advisors need the ability to collaborate on decks with other advisors within their firm (e.g., shared access to a draft deck, comments, multi-user editing)?"
  - *Why out of scope for initial?* Multi-user collaboration, real-time editing, and granular permissions are extremely complex features, requiring robust concurrency handling and sophisticated backend architecture.

### **3. Personalized Insights & Recommendations**

- **Q:** "Will Scatterplot eventually need to 'suggest' or 'recommend' charts to an advisor based on their past usage, saved decks, or typical client needs (e.g., 'Clients often ask about X; here's a chart for that')?"
  - *Why out of scope for initial?* Implies building a recommendation engine, user behavior tracking, and potentially AI/ML capabilities, which are advanced backend and data science endeavors.
- **Q:** "Do advisors need the ability to upload their *own client's specific portfolio data* to generate personalized charts directly within Scatterplot (beyond the fixed 50 slides)?"
  - *Why out of scope for initial?* This shifts the platform from a content delivery system to a personalized data visualization tool, requiring secure handling of sensitive client data, complex data ingestion pipelines for arbitrary data, and a dynamic chart builder, which is a massive scope increase.

### **4. Deep Analytics & Usage Reporting for Advisors**

- **Q:** "Will advisors need their own personal analytics on how their clients engage with the materials (e.g., if a shared PDF was viewed, how long a client spent on certain pages if shared via a web link)?"
  - *Why out of scope for initial?* Requires integrating analytics tracking into shared content, building user-specific dashboards for advisors, and potentially integrating with email tracking services.

### **5. In-Platform Communication & Notifications**

- **Q:** "Beyond the OTP for login, do you envision any other in-platform notifications for advisors (e.g., 'Your daily charts are ready,' 'New categories of slides available') or an internal messaging system?"
  - *Why out of scope for initial?* Adds notification management, preference settings, and potentially an internal messaging infrastructure.

### **6. Advanced Admin Features**

- **Q:** "For content management, do you envision the ability to A/B test different versions of 'talking points' or chart designs based on user engagement metrics?"
  - *Why out of scope for initial?*- Implies building a dedicated A/B testing framework within the CMS and robust analytics integration.

- **Q:** "Will the Admin Portal need the ability to manage or provide support for individual advisor billing issues (e.g., pause subscription, issue refunds, change plans) directly, or will that be handled through the payment gateway's portal?"
  - *Why out of scope for initial?* - Requires integrating billing management directly into the admin portal, which duplicates features often available in payment gateways and adds security implications.

## 7. Mobile Application Development

- **Q:** "While the initial platform will be web-based and responsive, is there a long-term vision for dedicated iOS or Android mobile applications for advisors?"
  - *Why out of scope for initial?* - Building mobile apps is a completely separate development effort