ALIGHT

Investment Calculator Suite

Technical Documentation & Developer Guide

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Version 18.0

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EXECUTIVE SUMMARY

Alight is a sophisticated, browser-based investment analysis platform designed for executives and investors who require rapid, on-the-ground financial decision-making capabilities. The application provides five specialized calculators that deliver institutional-grade analytics with executive-focused presentation.

Purpose

Alight addresses the critical need for immediate financial analysis in high-stakes decision environments. Unlike traditional financial modeling tools that require extensive training and time investment, Alight delivers board-room ready insights within seconds.

The platform is engineered for three primary use cases:

• Real-time deal evaluation during negotiations

• Quick market positioning analysis for strategic planning

• Investment committee preparation and presentation support

Key Differentiators

• **Country-Specific Market Data:** Benchmarks for United States, Pakistan, United Kingdom, and UAE across six industries

• **Executive Language:** Analysis presented in strategic terminology, avoiding technical finance jargon

• **Inflation Adjustment:** Real-value calculations accounting for currency degradation over investment horizons

• **Performance Visualization:** Multi-dimensional radar charts showing deal quality across Quality, Growth, Market, and Risk metrics

SYSTEM ARCHITECTURE

Technology Stack

Frontend Framework: Vanilla JavaScript (ES6+)

Rationale: Zero dependencies reduces attack surface and ensures maximum browser compatibility. The application functions offline once loaded.

Styling: Custom CSS3 with Glassmorphism UI

Rationale: Liquid glass aesthetic creates premium feel while maintaining readability in high-pressure environments.

Data Storage: In-memory JavaScript objects

Rationale: Market data is static 10-year averages. Real-time data would require paid Bloomberg/FactSet feeds ($24,000+/year).

Visualization: SVG-based radar charts

Rationale: Scalable, resolution-independent graphics that render consistently across devices.

File Structure

Alight operates as a single-file HTML application (Alight_V17_Final.html) containing:

1. **HTML Structure:** Calculator layouts, input fields, results sections
2. **CSS Styling:** 1,800+ lines of custom styles including responsive design, animations, and glassmorphism effects
3. **JavaScript Logic:** 2,500+ lines including calculation engines, data structures, and UI controllers
4. **Market Data:** Embedded JSON structures with industry benchmarks for four countries

CALCULATOR SUITE

Calculator	Purpose	Key Metric
Future Value	Asset appreciation projection	Total Gain, CAGR
Deal ROI	PE-style deal analysis	IRR, MOIC, Cash Return
Valuation	Company valuation	EBITDA Multiple, EV/Revenue
Payback Period	Capital recovery timeline	Real Value (inflation-adj)
Breakeven	Unit economics	Contribution Margin

1. Future Value Calculator

Purpose: Projects asset appreciation over multi-year horizons with market-relative performance analysis.

Inputs: Current value, growth rate, time horizon, industry, country

Key Outputs: Quality Score (1-10), Total Gain, Annual Growth (Compound), Market Positioning Analysis, Performance Radar Chart

2. Deal ROI Calculator

Purpose: Private equity style deal analysis calculating IRR, MOIC, and cash-on-cash returns.

Inputs: Purchase price, EBITDA, hold period, exit multiple

Decision Framework: GO (IRR ≥20%, MOIC ≥2.5), CAUTION (IRR ≥15%), PASS (below thresholds)

3. Valuation Calculator

Purpose: EBITDA multiple-based company valuation using industry-specific multiples.

Unique Feature: Provides three scenarios (conservative/market/optimistic) with EV/Revenue analysis

4. Payback Period Calculator

Purpose: Capital recovery timeline with inflation-adjusted real value analysis.

Critical Innovation: Calculates purchasing power erosion using country-specific 10-year historical inflation averages

5. Breakeven Calculator

Purpose: Unit economics and contribution margin analysis for operating businesses.

Note: Industry selector hidden as breakeven analysis is market-agnostic

DATA ARCHITECTURE

Market Data Structure

The marketData object contains benchmarks for four countries (US, PK, UK, AE) across six industries:

• Real Estate • Technology • Retail & Food • Manufacturing • Healthcare • Financial Services

Metric	Definition	Source
avgGrowth	10-year CAGR median	Public company financials
goodGrowth	75th percentile growth	Public company financials
excellentGrowth	90th percentile (top decile)	Public company financials
avgMultiple	Median EV/EBITDA	S&P Capital IQ, PitchBook
goodMultiple	Premium multiple	S&P Capital IQ, PitchBook
avgMargin	Median EBITDA margin (%)	Public company financials
avgInflation	10-year CPI average	Govt statistics (BLS, PBS, ONS)

Excel Reference File: Industry_Data_Reference.xlsx

Comprehensive documentation of all embedded market data with methodology notes, data sources, and update history.

Critical for developers: When updating market data in the HTML file, corresponding updates MUST be made to the Excel file to maintain data integrity and auditability.

DEVELOPMENT GUIDELINES

Code Organization

Despite being a single-file application, the codebase follows modular organization:

• **Global Variables (lines 1710-1750):** Market data structures

• **Helper Functions (lines 1800-1900):** formatCurrency, getIndustryData, etc.

• **Calculation Engines (lines 2000-2700):** Five calculator-specific functions

• **Comparison Generators (lines 2100-2600):** Market analysis and visualization

• **UI Controllers (lines 2800-3000):** Navigation, scenario switching, animations

Adding New Countries

To add a new country (e.g., India):

1. **Research:** Gather 10-year averages for all six industries
2. **Update marketData:** Add country code with complete industry data
3. **Update selectors:** Add to all five country dropdown menus
4. **Update Excel:** Add country sheet to Industry_Data_Reference.xlsx
5. **Test:** Verify calculations adjust correctly

Data Update Cycle

Recommended annual update schedule:

• **Q1:** Review inflation rates (government statistics released)

• **Q2:** Update growth rates (annual reports filed)

• **Q3:** Refresh transaction multiples (M&A; data aggregated)

• **Q4:** Comprehensive review and Excel documentation update

Critical: Maintain 10-year rolling averages. Single-year anomalies (2020 pandemic, 2008 crisis) should not skew benchmarks.

UI/UX DESIGN PRINCIPLES

Executive-First Design

The interface prioritizes speed and clarity:

• **Decisions before details:** GO/CAUTION/PASS badges appear before granular metrics

• **Liquid glass hierarchy:** Most important metric receives frosted glass treatment

• **Narrative over numbers:** Strategic language ('top decile', 'delta', 'trajectory')

• **Radar charts:** Four-dimension visualization for pattern recognition

Color Psychology

• **Green (GO):** Strong performance indicators

• **Yellow (CAUTION):** Acceptable but unremarkable performance

• **Red (PASS):** Deals that fail hurdle rates

• **White/Gray:** Default professional palette

DEPLOYMENT & MAINTENANCE

Hosting Requirements

Alight is a static application requiring only basic web hosting:

• **Server:** Any HTTP server (Apache, Nginx, CloudFlare Pages, GitHub Pages)

• **SSL:** Recommended but not required for functionality

• **Bandwidth:** Minimal (single ~200KB file)

• **Database:** None required

Browser Compatibility

Tested and functional on: Chrome 90+, Safari 14+, Firefox 88+, Edge 90+

Version Control

Current version: V17 (February 2026)

Versioning: V[major].[feature] where major = structural changes, feature = calculator additions/data updates

SECURITY & PRIVACY

CRITICAL: Alight does not transmit, store, or log any user inputs. All calculations occur client-side in the browser. No data leaves the user's device.

Security Features:

• No external API calls - functions entirely offline after initial load

• No cookies or local storage

• No third-party tracking scripts

• Session privacy - refresh browser to clear all calculations

APPENDIX A: CALCULATION FORMULAS

Future Value: FV = PV × (1 + r)^n

IRR: Solved iteratively: Σ(CF_t / (1 + IRR)^t) = 0

MOIC: Exit Value / Purchase Price

Real Value: Nominal Value / (1 + inflation)^years

APPENDIX B: QUALITY SCORE ALGORITHM

Base Score: 5

Adjustments:

• Performance vs. excellent benchmark: +3

• Performance vs. good benchmark: +2

• Performance vs. average benchmark: +1

• Below average by >3pp: -2

Additional modifiers applied for time horizon, risk profile, and secondary metrics.

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