PackHedge™ Product Introduction

by FinLab Solutions SA

FinLab Solutions SA is a software solutions company that develops, distributes and supports one of the world's most advanced investment industry solutions for Alternative/Hedge funds, Private Equity funds, Mutual/Traditional funds Equities, Bonds, Futures, Options, Commodities and many other investment instruments (UCITS, ETF, Real Estate, Forwards, Currencies, Art Collections, etc.) empowering quantitative and qualitative research and analysis, risk analysis, stress testing, factor analysis, scenario analysis, exposure analysis, contribution and attribution analysis, asset allocation, portfolio construction and management, shadow accounting for portfolios and managed accounts, with automated and/or manual reconciliation with custodians and/or administrators, liquidity and cash flow forecasting/analysis, due diligence, document management, workflow, CRM (client relationship management), compliance, KYC and financial innovation.

A series of state-of-the-art modular software tools in a single fully integrated platform, providing an unmatched data management model for multi-source, multi-currency, multi-frequency and multi-lingual qualitative and quantitative data.

PackHedge™ includes a unique data aggregation model, extensive statistical analysis & charting, breakdown & exposure tracking, a multi-dimensional query engine integrated with an easy to use extremely powerful and flexible custom reporting facility, a batch reporting tool, complete portfolio simulation, comprehensive portfolio management, document management, workflow management tools including setting limits and alarms, as well as an automatic import facility for custom due diligence questionnaires.

This is a unique and flexible solution that can be customized to meet both the functional and budgetary needs of every business, owing to its modular structure.

An overview of the PackHedge™ system architecture is described in the diagram below.

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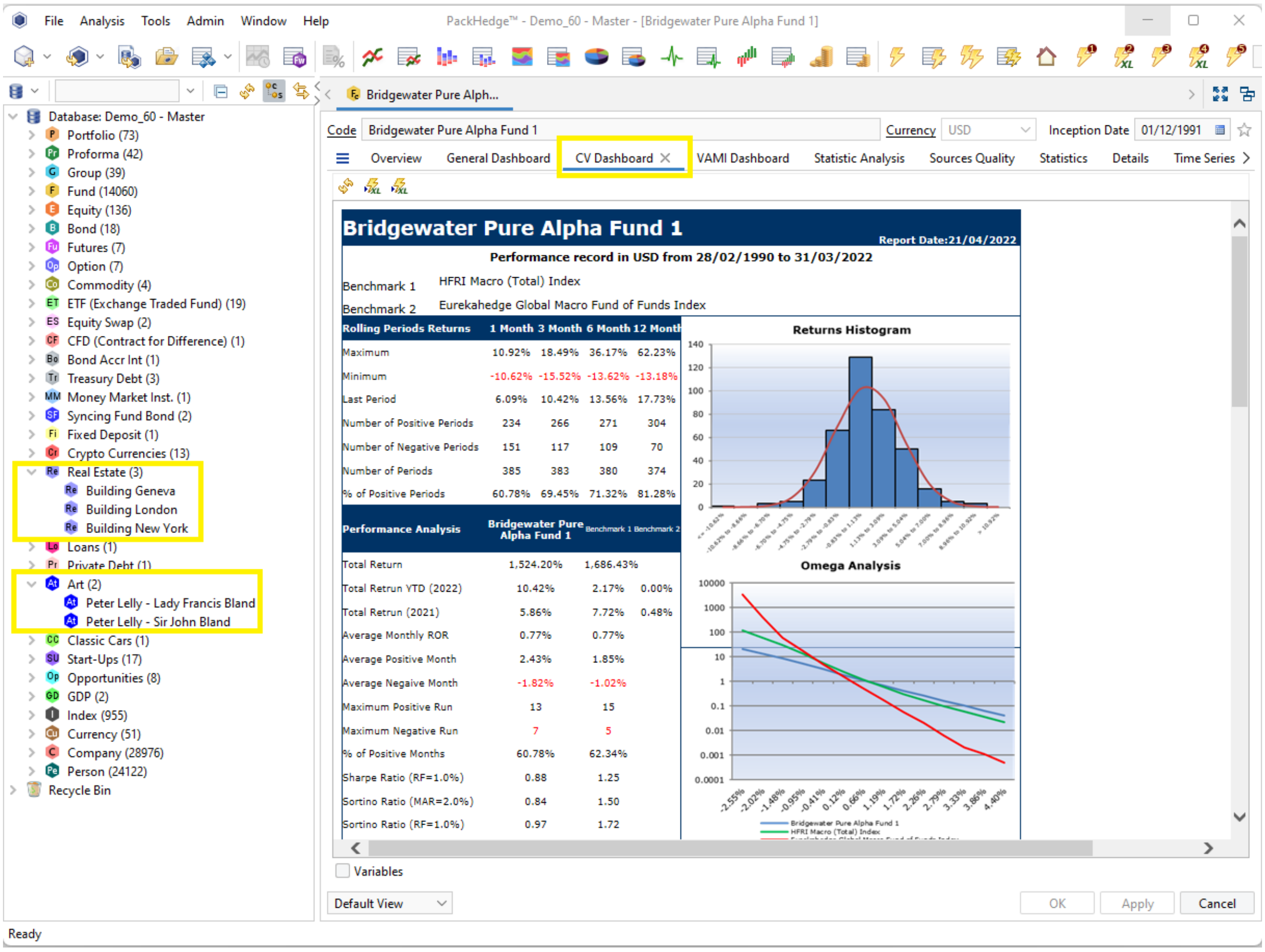
The key features of PackHedge™ include:

Customizable and User-Friendly Navigation

- Custom Views users can design their own Custom Views (Dashboards or Cockpits) providing windows containing the information they wish to have displayed on any asset.
- Custom Objects users can define any type of investment vehicle with a time series allowing portfolio construction and management of any types of assets.



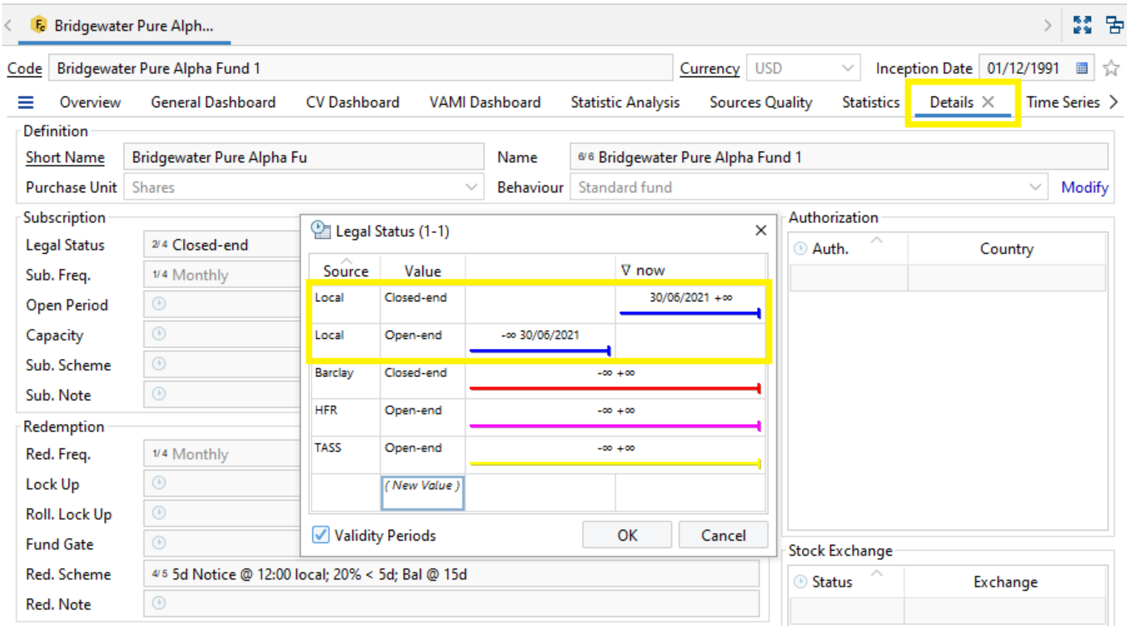
- Custom Fields & Custom Time Series allow users to define Custom Fields on a separate main tab within each object type. With field label and field type definitions encouraging structured data management which include; text, number, number/currency, date, drop-down-menus, etc. Custom Time Series can be used to track any type of time series.
- Customize the Browser, Object Manager & Tool Bar so that each user can define their working environment to ensure efficiency and productivity.
- Custom Flags provides at a glance a view of assets that are part of a category set up by the client, e.g. Green Flag = Invested Funds, Yellow Flag = Short Listed Funds, etc.

Screening & Reporting

- Integrated Screen & Report tool; the screening tool is integrated with the reporting tool and thus provides a rich, powerful and user-friendly environment for creating custom reports and enabling reports to be generated as a result of screening processes, on a single asset, portfolios or on multiple assets. The screen & report tool provides for extensive extremely flexible and very powerful parameter settings. Once defined, reports can be mass produced and/or scheduled to produce internal reports, analyses, fact-sheets, etc. in multiple languages with output in Excel, CSV, PDF, HTML and/or iReport formats.
- Advanced Screening (advanced query builder) provides an extremely powerful and flexible object-oriented interface for screening assets based on multiple qualitative and quantitative criteria. Query constraints can be Boolean (and/or) combinations of various sets of criteria, based on any mix of qualitative and/or quantitative information.

Qualitative Research & Analysis

- Qualitative information management and analysis is facilitated to enable maximum flexibility while ensuring data remains structured, so that research, analysis and reporting are optimized. Some key examples include; custom fields, custom definitions/taxonomy for classifications with synonyms mapped with data vendor classifications, fund series and fund class with field inheritance and/or field copy, notes by customer defined "Subjects" in any language, companies and people and all their contact and relevant information, fund allocation and exposure information, etc.



- Due Diligence; an extensive and flexible tool allowing users to design their own due diligence questionnaires and import all the information into PackHedge™ for in-depth individual and comparative qualitative analysis and reporting.
- Document Management System (DMS) allowing storage of documents and emails in the PackHedge™ DMS database. Provides a powerful text indexed search tool within all document types. Documents (including emails) can be dragged and dropped from Outlook or Windows Explorer folders onto the PackHedge™ Documents tab. Emails and documents can be uploaded to the PackHedge™ Documents tab using the Mail Robot or the PackHedge™ Outlook add-in, either on demand or based on rules. Comprehensive document revision management is provided. Documents and emails can be opened directly from the PackHedge™ Documents tab.

Quantitative & Risk Research & Analysis

- Quantitative analysis and charting functions, including all industry standard statistics (performance, correlation, ratios, contribution by any statistic/classification/exposure, attribution, Monte-Carlo, Fama-French, Principal Component Analysis (PCA), Cluster Analysis, etc.) and charting of all analyses (distribution, rolling statistics, bar-chart, snake, peer group, style analysis, portfolio optimization, etc.).
- Style Analysis tool uses multiple regression analysis and non-linear methods based on the generalized style analysis approach as developed by Lobosco and DiBartolomeo, with user settable approximation of Confidence Intervals, extensive parameter settings, Significance, Linearity and Confidence testing, parameters and settings for Rolling Periods, Equality Constraints and Proxies. One-click to create Proforma portfolio(s) for simulation, back testing and further iterations.
- Stress Testing, Sensitivity Analysis, Scenario Analysis, an integrated tool based on the Fundamental Factor Model and the AGARCH (Asymmetric Generalized Auto-Regressive Conditional Heteroskedasticity) model for higher frequency returns. Sensitivity analysis with model Reliability, Systematic, Idiosyncratic risk, VaRs, etc. User defined risk Factors and Views for Stress Testing and user defined historical scenarios for Scenario analysis. Results are provided using intuitive graphical navigation based on heat maps.

- Principal Component Analysis (PCA) derived using the orthogonalized space and the eigenvectors matrix of the asset's variance-covariance matrix. Choice of analysis on covariance or correlation and either a user defined or Lambda Ratio number of principal components.
- Cluster Analysis provides a choice of Complete, Average or Single Linkage and user defined Minimum Acceptable Closeness to classify assets in their appropriate categories that have the most common patterns and characteristics.
- Monte Carlo Analysis and Projection using the Sieve or the Simple Bootstrapping techniques available in the Performance Analysis tool with a choice of intuitive graphical charts and displays.
- Group and Peer Group creation & analysis allowing explicit (fixed) or implicit (dynamic) as defined by query criteria, group creation and percentile analysis. The Peer Group analysis tool provides for multiple estimators and customizable periods, floating bar charts graphically depict where any manager ranks with the strategy peers.
- Currency Hedging PackHedge™ is an intrinsic multi-currency solution. The research, analysis and reporting functions provide for currency hedging using either, "Free Hedge", "Interest Rate Differential", "Forward Rate" or "No Hedge" options.

Portfolio Management, Reconciliation, Construction, Simulation and Tracking

- Portfolio Optimization tools use the non-linear optimization method based on the Classical modern portfolio theory model and/or the Black Litterman model with user definable views and extensive constraints settings for min/max levels by any categorization, by user defined groupings and/or by Market Neutrality. Efficient Frontier with "Walking" mode. One-click to create Proforma portfolios for simulation & back testing & further iterations.
- Contribution Analysis to return and various Risk statistics as well as Attribution Analysis tools are available with all portfolio types, by asset, currency or any classification/segmentation.
- All Portfolio Management tools provide for any type of investment vehicles, valuation on any frequency (daily, weekly, monthly, quarterly, etc.), user defined Chart of Accounts for assets, cash accounts and liabilities to build, track, manage and analyze the historical evolution of portfolio balance sheet, P&L, portfolio summary, Total Amounts, Performance, asset breakdowns/segmentation, currency hedging, the use of proxies and/or proxy configurations, one-click portfolio duplication and PackHedge's™ full spectrum of analytics and reporting.
- Proforma Portfolio for portfolio construction, simulation and tracking based on any mix of percentages and/or amounts at any points in time (allocations), rebalancing, etc.
- Standard Portfolio for portfolio management, tracking and analysis based on simple transactions providing Portfolio NAV Price, performance, expenses, positions account statement, investments view, simple liquidity analysis, etc. Right-click to convert to Proforma for simulations.
- Advanced Portfolio module for shadow accounting providing both Proportional or Master/Feeder shadow accounting, NAV price, NAV status, performance, positions, an extensive range of transactions types, Fx forwards, equalization, expenses, fees (automatically calculated or manual), shares outstanding, collapsing fund series, easy handling of side pockets, shareholder transactions, etc. Right-click to convert to Proforma for simulations.
- Consolidated Portfolios are created by simply dragging and dropping selected Portfolios into a Consolidated Portfolio providing a global view and analysis of shareholder positions, asset allocations, performance, exposure, balance sheet, profit & loss, cash flows, etc...
- Advanced Liquidity Analysis providing comprehensive Portfolio liquidity analysis and projections with/without early redemption penalties, simulated transactions, etc. Facilitating informed decisions and scenario analysis.
- Private Equity fund & portfolio, Funds can be created defining Purchase Unit as "Amount" as opposed to "Shares". The Amount Fund type can be used for Private Equity, Real-Estate Funds and other investment vehicles based on investment amount versus shares/price. One or any number of P.E. fund(s) can be included in either a Standard Portfolio or an Advanced Portfolio so that the necessary information such as Commit-

ments, Contributions, Distributions, etc. can be captured as transactions. All Portfolios can also contain any mix of any types of investment vehicles (P.E. Funds, Real-Estate, Hedge Funds, Traditional Funds, Equities, custom instruments, etc.).

- Automated and/or Manual Reconciliation with custodians and/or administrators allows clients to download and merge reconciliation files via SFTP/FTP using the Data Feed Update tool. The setting up process requires that accounts and positions are matched between the reconciliation files and the Portfolio(s) using the matching tools via either/or the Portfolio Summary or the Transactions tabs. Automatic matching based on ISIN, Bloomberg, or other codes and transaction IDs. Once matched, only new accounts/positions need to be matched at each subsequent reconciliation period.
- Cash Flow Analysis & Projections available with the Advanced Portfolio module provides a comprehensive cash flow analysis and projections, with all the relevant P.E. performance, ratios and PMEs as well as What-If scenarios.

Process & Workflow Management

- Workflow Management tools to custom define workflow steps and periods for monitoring, tracking and reporting, setting limits and alarms on any quantitative and/or qualitative parameters (including custom fields, custom time series, documents, etc.). Enabling the setup of custom views and tabs for dashboards/cockpits for quick monitoring of general overviews, risk overviews, due diligence overviews and many other monitoring/reporting capabilities.
- Mail Robot integrated with the PackHedge™ DMS (Document Management System) module can be configured to process incoming emails and extract emails or attached documents. Trigger conditions can be set on sender, subject or email content… Multiple actions are available: add email or attached items to the DMS, add email content in PackHedge™ Notes or add email hyperlinks to PackHedge™ Document Linking. The Mail Robot can be configured locally or at the server level on any IMAP account. A Wordpress Interface is available to track changes and update to/from a Wordpress Website and PackHedge™.
- Outlook Sync allow comprehensive email/document uploading and two-way synchronization of contacts, Companies & Persons between MS Outlook and PackHedge™. Synchronization with any number of users. Custom categories for Companies & Persons in PackHedge™.
- Scheduler module that allows multiple tasks to be scheduled for periodic execution at predefined date/times, substantially improving productivity. These tasks include; report production, query production, production of all PackHedge™ analytical functionalities, Proforma portfolio, Standard Portfolio and/or Advanced Portfolio valuations/calculations and the automation of data vendor downloads, import and merge.

Rules & Alarms

Alarm	Rules	Last Run Date	Status	Remarks
☐	Application			
☑	DEMO FINLAB Portfolio	18/06/2015 14:42:45	1/3	
☑	Allocation: Rule 5/10/40			
☑	Redemption: No Redemption Notice within the n...			
☑	Liquidity: 3 Month Cash >= 50% AUM			
☑	DEMO Proforma	18/06/2015 14:41:19	0/1	
☑	Allocation: EUR<30%, USD<30% and GBP<10%			
☑	UCITS Demo	10/11/2015 15:11:58	1/3	
☑	Redemption: No Redemption Notice within the n...			
☑	Liquidity: 3 Month Cash >= 50% AUM			
☑	Allocation: EUR<30%, USD<30% and GBP<10%			
☑	Portfolio Multi Asset Type		0/1	
☑	Annual Average Return > 10.0% AND Annual Vola...			
☑	x-DB Thakrar Portfolio II	29/08/2016 20:38:08	1/2	
☑	Liquidity: 3 Month Cash >= 25% AUM			
☑	Allocation: Rule Asset Weight : 25%			

Data Management

- <u>Data Aggregation</u> via automated import of qualitative and quantitative data from external data sources such as Albourne, Bloomberg, Edgefolio, Eurekahedge, HFI, HFR, Prequin, Lipper-TASS, Morningstar-on-Demand (Altvest), MSCI, S&P (MicroPal), Yahoo! Finance, Quandl, Excel, XML and Access files, Custom Due Diligence forms, multi-instrument time series import tool, transaction import tool as well as manual data gathering.
- <u>Data Storage</u> in a powerful and unique integrated multi-source database allowing data to be used from one or multiple sources, according to user preferences, for both qualitative and quantitative information.
- <u>Audit Trail</u> PackHedge™ traces every aspect of every piece of data regardless of its source including the feeder, company and individual, the date and time it was captured and all changes of every element of data, providing complete trace-ability and audit-ability.
- <u>Efficient Data Management</u>, the seamless use of NAV Prices and/or NAV Returns on a daily, weekly, monthly, quarterly, etc., including NAV Status (estimated, final, audited, etc.), Bid/Ask Prices/Premiums, AUM, Corporate events, Allocations/Exposures and Custom time series. Allowing Multi-Currency conversions, Multi-Asset classes for Funds/Classes/Series, Managed Accounts, Funds of Funds, Real & Simulated Portfolios, Currencies, Indices, etc.
- <u>Data exchange</u> via multiple mechanisms for the import or export of information including PAC files (XML), PAC tools (Excel), Custom Due Diligence forms, Excel files, Import Transactions tools, the Web-Services API (Application Program Interface), and the Excel Add-In tool.
- <u>Data Feed Update manager</u> that provides automated download, import and merge of feeder files, streamlining the many aspects of data management.

The Solution for all Fund Industry and Investment Management businesses

<u>BUY SIDE</u>: If you are on the buy side of the investment industry (asset management, investment management, managed accounts, fund of funds, family office, private equity fund, hedge fund, or traditional fund among others), FinLab's comprehensive qualitative and quantitative research and analysis solution PackHedge™, provides dramatic improvement to the productivity, efficiency, quality, portfolio management, risk management and compliance of your research, analysis, due diligence and reporting workflows.

<u>SELL SIDE</u>: If you are an important player on the supply side of the investment industry (hedge fund manager, private equity fund manager, traditional fund manager, structured product provider or a prime broker among others) PackHedge™ provides you with all the tools you need to monitor performance, conduct competitive and peer group analysis as well as client support activities including presentations, XML reporting, etc.

The benefits of PackHedge™

PackHedge™ software provides its customers and users with the following major benefits:

- ***Dramatic improvements in regulatory compliance (AIFMD and others)***
- ***Consistent improvement of workflow and methodologies***
- ***Significant protection of the investment in and retention of intellectual capital***
- ***Major enhancements to client support & marketing effectiveness***
- ***Dramatic increase in productivity***
- ***Important streamlining of workflows and reduction in operational risks***

The Unique competitive Advantages of PackHedge™

PackHedge™ is designed for asset managers across the spectrum from family offices, managed accounts, fund of funds, banks, pension funds, insurance funds, endowments, investment advisors/consultants, private equity, real estate, mutual and hedge fund managers, etc. Whether your firm simply wants to quickly generate key statistics client presentations and quality reports, or must capture Due Diligence information, or needs to aggregate multiple sources of hedge fund data into one clean "duplicate-free" platform for conducting in-depth screening, portfolio construction/monitoring, proformas or portfolio shadow accounting, etc.

PackHedge™'s sophisticated suite of tools can be implemented and priced to meet your specific needs. No other product on the market can offer comparable or **greater functionality** than PackHedge™ **for a lower price**.

1. **Data Management:** "Garbage-In equals Garbage-Out".
   At the core of PackHedge™ is a unique and extensive data model for qualitative and quantitative information that merges and aggregates multiple data sources, multiple data frequencies, multiple data types, multiple languages and multiple currencies to provide one optimal aggregated series (OAS) of data. The OAS is the most accurate and most complete data available across all the data sources with a complete audit trail. Additionally, PackHedge™ provides interfaces with Bloomberg, Yahoo and the majority of the data vendors that allows for direct data imports into the PackHedge™ platform.

2. **Research & Analysis:** "Where is that golden egg".
   Offering a sophisticated query engine with a user-friendly drag and drop selection process, PackHedge™ allows for in-depth screening on thousands of qualitative and quantitative data points. Statistical analysis, Risk Analysis and charting can be conducted on single or multiple assets for identifying potential investments and monitoring current ones. Extensive analysis tools are available, such as Peer Group Analysis, Style Analysis, Performance Analysis, Monte-Carlo, Fama-French, etc.

3. **Portfolio Management:** "It's all in the mix – Which mix".
   To assist in portfolio construction, monitoring, modelling and testing, PackHedge™ provides a series of tools to enhance the investment decision process. Portfolio simulations, including rebalancing and asset allocation and exposures can be calculated in the Proforma object. Transaction based Portfolio (Standard, Advanced and Consolidated) allow you to keep track of all your positions by Account, Investment, Currency, Style, etc. for each Portfolio as well as any mix of your Portfolios in Consolidated Portfolios. Analysis such as Cash Flow modelling and analysis, Portfolio optimization, Stress Testing, Attribution and Contribution Analysis, Liquidity Analysis and more are there to help you to manage your portfolio(s).

4. **Workflow Management:** "Where on earth am I".
   Status Flags, Categorizations, Custom Fields, Transaction States, Notes, Documents, Customized Rules with thresholds and alarms and the Mail Robot are all examples of features PackHedge™ offers to manage your workflow.

5. **Reporting:** "A picture tells the best story".
   PackHedge™ provides a user friendly extremely powerful and flexible reporting tool for creating simple or complex reports on single and/or multiple assets, over multiple time periods, multiple languages, including multiple statistics/analysis and/or data points. With quick and easy mass production of reports in Excel, CSV, PDF and HTML formats, PackHedge™ can easily produce snapshot reports or reports suitable for distribution to current and potential investors.

6. **Due Diligence:** "Know Your Customer – Know Your Play".
   Use the PackHedge™ tool to design a custom Due Diligence Questionnaire(s) (DDQ) and with a simple click all the DDQ information is captured in the PackHedge™ database and available for all the analysis and reporting that may be required.