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MAXIMIZING INSIGHT THROUGH THE ZEMA END-TO-END DATA MANAGEMENT SOLUTION

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## MAXIMIZING INSIGHT THROUGH THE ZEMA END-TO-END DATA MANAGEMENT SOLUTION

### Introduction: The Need for a Centralized Analytical Platform

There's no shortage of data out there. But how good and reliable is it and does your competition do it better? Decisions that drive a business into action hinge on how accurate and timely this data is. Maximizing insight from an organization's data is therefore a fundamental key business process for any industry. The ability to analyze both internally generated and external sources of data allow businesses to evaluate their current approaches, strategies and risk mitigation methodologies with reference to external market prices, volumes and forecasts. Businesses need to not only extract value from internal and external data, but also analyze their pooled data from a secure, entitled, transparent and centralized platform. A "data universe" is created for the organization for it to securely grow and expand reliably and having one such setup is a major challenge an organization has to contend with.

Analysis is changing for many industries. Where once siloed corporate data governance structures existed, the drive for self-serve entitlement and access to data now exists. Where once a single analytical application existed, now a multitude with a variety of strengths, features and abilities have sprung. Where once data was from very few sources, in a single format, location and type, the velocity, variety, veracity and volume of data has exploded. These changes provide challenges, but also opportunities across all data-centric industries.

One such opportunity is the centralized analytical platform. This would allow data professionals, such as data scientists, engineers, analysts, architects or statisticians, to get the high quality, centralized data they need into the tool they require. With this, the maximum amount of useful information can be wrung from an organization's data universe, maximizing the value and return on investment of a corporation's analytical tools and data assets.

### Analytical Challenges

Expansion of the overall data universe is rapidly expanding, and if current trends are anything to go by, will increase 40% per year well into the next decade (1, emc.com). This is just as true of a business's data assets, making a centralized repository of secure, entitled, high-quality and normalized data a business need for all organizations. For more on data, data management and how ZEMA secures and adds value to organizational Intellectual Property, please refer to the white paper "The Challenges of an Expanding Data Universe and the ZEMA End-to-End Data Management Solution" (2).

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With all this data coming into an organization, the expectation would be that now, more than ever before, businesses would be utilizing data-driven analysis and predictive, descriptive and prescriptive methodologies to garner the maximum amount of insight from this data. However, for most organizations this is not the case. There are several hurdles that organizations must overcome to be able to get the maximum value out of their data through analysis:

- Automation of reproducible reports and analyses
- Transparency through the business intelligence and analytical tool black box
- The wider approach to analytics

The ability for an analytical platform to automate reoccurring analysis, increase transparency throughout all data-driven processes and take a wider approach to analytical platforms are discussed in the following chapters.

### Automation

Manual data preparation, human data validation and hand-operated creation is not needed for most reproducible and consistent processes and reporting. If analysts, scientists, engineers, architects and statisticians continue to follow and promote independent, self-service data discovery, and this is deemed to be of importance to the organization's business and strategic development and growth, their focus shifts. This means that analysts will have less time to produce scheduled reporting or repeated analytical forecasts. This is where automation assists.

Automation simply allows businesses to do more with less. No longer should data professionals spend much of their time on data collection, preparation or normalization, as this can be automated by data management systems. They should not need to prepare and feed data manually into their chosen platforms or tools required to analyze their chosen data sets. Additionally, they should no longer waste their time on replicating analysis or reporting on a scheduled basis when this could be automated by robust and mature process and workflow automation engines, whether it is simple or complex in nature.

True return on investment for enterprise data management and analytical tools through automation are because of several reasons. Firstly, these valued and experienced data professionals can spend their time investigating risks and opportunities found through self-service data discovery that can greatly increase the value of an enterprise's data assets, accuracy of forecasts and mitigation of risks. Secondly, risk of human error

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is reduced. Finally, increased transparency and security of intellectual property. Automation in analysis and reporting can be achieved with the correct overarching enterprise data management approach and strategy, and will create a more efficient and effective business.

### Transparency of Analytics and Business Intelligence

Analytics in the past have been considered a ‘black box’, data assets go in, insight comes out. Understanding of the process that data goes through to create this actionable intelligence was always kept by the technical and mathematically inclined resources of an organization. With the proliferation of Business Intelligence (BI) tools and mathematical engines, along with the relatively new professions of Business Analyst and Data Scientist, a lack of transparency around mathematical and logical manipulation of data, along with the formulation of models and methodologies, has been found.

This opaqueness around analytical processes has several consequences. The first is a lack of trust. Given data-driven processes and decisions are made using these analytics, how can these decision-makers have confidence in the information from analysts if no understanding of what data has gone into this ‘black box’, what manipulation has taken place, or how accurate and robust the used models were (3)? Furthermore, how can effective data governance happen within an organization when data collection, validation, analysis and integration data flows are not transparent, centralized and administered through a single point of access?

Secondly, this lack of transparency means increasing the risk of lost intellectual property. With models, validation techniques and analytical methodologies locked away, how can this information be effectively and completely transferred to the next generation of analysts, scientists, architects or engineers? This is especially pertinent now, with intellectual property, skills and knowledge transfer from experienced professionals to the newer generation being needed to continue operations within many organizations, along with the population in these professions aging.

Lastly, with ‘self-serve data discovery’ on the rise, and business processes and workflows becoming more data-centric, the lack of transparency in BI moves an organization in the opposite direction to current corporate culture. Cross-functional groups, inter-disciplinary jobs, collaborative teams, all these lead to a transparent, efficient and effective enterprise. Transparency allows these teams to operate better, make more accurate, collaborative, data-driven decisions, and allow the management or responsible parties to have more confidence and trust in the outcomes.

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### Centralized Analytical Platform Approach

It's estimated that 80 % of the time and effort invested into any Business Intelligence (BI) project is spent on the data acquisition process (4 universe). Reliable and accurate data is the key ongoing struggle for most data professionals. Data professionals (Data Scientists, Data Engineers, Data Architects, Data Analysts and Statisticians), utilizing an organization's data assets are demanding a better, and faster, way to get the data they need on a daily basis. The trend should focus around garnering useful information out of an enterprise's data, but now it's getting the data into a suitable form for enhanced analytical processing to gain market intelligence. Companies serious about mastering their data, covet and protect it and in the process create their own "data universe" that is highly valued, is depended upon by data professionals within their organizations to use it to derive actionable insights.

These derived actionable insights require analysis tools to delve into an organization's data assets and generate information that can be used in data-driven decision making. Today, no single analytical tool has assumed supremacy or dominancy within the Business Intelligence and Analytical tool sphere. Microsoft's Excel is the single tool that has long dominated the market. Now, space for a wide array of purpose built tools, with different core competencies, attributes and new abilities, has opened up. There has never been a more exciting time, from a data professional's perspective, given the expansion of the choice of analytical tools on the market. The challenge that comes with choice is the need for a wider approach to integration of these tools with the data universe and data management platforms.

Two key factors allow data professionals to optimize their performance by using tools that promote self-serve data-discovery:

- The ability to manage an organization's data assets into a centralized, secure, accessible, normalized and validated data universe.
- The ability to make this data easily ingestible by any tools that these data professionals require. This challenge applies equally to BI tools, trade-risk management systems, ERPs, statistical or mathematic modelling platforms, along with many others.

Thusly, a wider approach to analytics is needed for enterprise level IT architecture. No longer will a single tool suffice, an organization's data assets must be able to feed a multitude of BI-tools, mathematical engines, in-house or proprietary systems, along with downstream applications such as trade and risk management

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systems, or feed market data to distributed file systems such as Hadoop. This way, an enterprise's data universe becomes available to the tool of choice, for the analytical methodology chosen, for any data at any time. Enterprise data management solutions should enhance integration, automation and analytical flexibility, not provide restrictions on data access, analysis or tools used.

### ZEMA, the End-to-End Data Management Solution

ZEMA, ZE's industry-leading end-to-end data management solution, is an all-in-one solution that is proven to be robust enough to handle the most data heavy industries on the planet. ZEMA provides automated processes to collect and validate data, and allows this data to be easily analyzed or be sent downstream to integrate with any 3rd party system. ZEMA was launched in 1995, and has received sustained recognition, not only from clients and partners, but from Energy Risk, The Bloor Group, CIO Review and other widely acknowledged experts. With over 20 years' experience in the end-to-end enterprise data management space and many clients who are known for being leaders in diverse marketplaces like Insurance and Reinsurance, Oil, Gas, Agricultural Commodities, Utilities, Energy and others, ZE PowerGroup and ZEMA are synonymous with data management.

On top of being the one-stop-shop for any and all external market data, along with the ability to collect, store, secure, normalize, validate and centralize internally generated proprietary data, ZEMA provides a variety of tools to create a centralized analytical platform of any and all industries. The tools focused on analytical insight within the modular solution ZEMA are Market Analyzer, Data Direct and Dashboard.

### Market Analyzer

This is the primary tool through which users extract, apply logic to, and analyze data stored within a business's ZEMA database. This analytical solution has been developed and expanded on by client-request for over 15 years, and has a large breadth of functionality. Firstly, any data extracted and logic applied to it can be saved as a Profile. This profile can be set to have a dynamic range, so that analysis conducted every day, week, month, quarter or year can be set-up a single time, and will produce the correct results every time this Profile is run. Remove the time-intensity of data preparation by having correct, complete and timely dynamic data within all analyses.

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Secondly, this application has an unparalleled catalog of general and market-specific formulae and functions. With over 140 inbuilt functions, Market Analyzer allows users to apply the logic they require to any data set, whether it is volatility calculations, crack spread, dynamic or moving averages, to arbitrage free blending. Even more generally, Market Analyzer has been integrated with the statistical package R for enterprise clients. Users can leverage the function R\_PROC() to call any function available within R libraries, or even write and call their own. Additionally, ZE's Business Solutions team is working on proprietary libraries for R, so that complex data sets such as options can be easily analyzed within the Market Analyzer application, utilizing the strengths of R.

Finally, given that data within a ZEMA database is normalized with a consistent nomenclature and properties, the ability to compare disparate data sources is easy within this application. Want to compare Forecasted load to Natural Gas pricing, precipitation to pipeline flows, exchange rates to macroeconomic indicators, all these are easily displayed within Market Analyzer. With the use of Series Options, which can aggregate, interpolate, extrapolate, shift, slice, align or filter data, data series of any type can be compared and analyzed. Additionally, generation of forward curves, analysis or contract conversion is simply two clicks away from any user.

### Data Direct Excel Add-In

This application allows users to embed dynamic data directly into spreadsheet analysis models. No more will users have to copy and paste data, with this application any data stored within the database, or any profile made within Market Analyzer, can be embedded into a spreadsheet model. This data will refresh, either on a scheduled basis, or when the spreadsheet is opened, allowing Excel users to always work with the most up to date data.

On top of this embedded dynamic data, ZE PowerGroup has developed many specific ZE formulae, which increases the functionality and integration of Excel with ZEMA. Thusly, users can automate analysis and reporting within Excel. This functionality has greatly improved efficiency and effectiveness of Excel-based methodologies for many of ZE's clients.

### Dashboard

The last application within ZEMA that specifically focuses on analysis is Dashboard. This application allows users to create a workspace that can mashup different media. Whether a user refers to a profile built within

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Market Analyzer, an Excel spreadsheet, PDFs, Weather Maps, video's, RSS news feeds, Spotfire analytics, raw data reports or images, this mixed media can be easily viewed side-by-side.

Furthermore, these dashboards can easily be shared around an organization. This way, users can all be (literally) on the same page in terms of frequently used analytics or operational data. This application has been used by many clients to create operations dashboards, or executive reporting tools.

### An Integrated Approach to Analytics

ZE has learned through its 20 years of industry experience that a wider, broader approach to analytics within an organization is needed. Given that ZEMA has an ability to collect any digital information, the ability to push (or pull) this data into any downstream, 3rd party system is a requirement.

Popular tools, such as Tableau, Spotfire or IDC FutureSource use phrases like 'data-discovery', 'self-service' and 'visualizations' to distinguish their roles, strengths and weaknesses from other Business Intelligence (BI) tools. On top of the current BI tools, users with a mathematical or statistical foundation use Matlab, R and other heavy-duty computational and analytical engines. It is clear that no single tool will be able to single-handedly provide all the abilities that these data professionals require. ZE understands that these purpose built tools allow users to fulfill specific roles and generate specific insights. Analytical tools, as well as supporting data management, need to be flexible to accommodate the changing and diverse needs of the continually evolving marketplace.

Thusly, alongside having robust and mature analytical applications within the ZEMA solution, ZE supports the integration of data into other applications and tools. Whether the integration needed is through web service-layers, direct database connections, or push-based prepackaging of data, ZEMA supports a multitude of integration methods. This way users can get the timely, correct and complete data they need into the tool they require. Through this self-service data-discovery process, a company's return on investment on both their 3rd-party or proprietary analytical systems and methodologies, and their ZEMA solution, will be maximized through minimizing risk and maximizing efficiency and effectiveness.

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### Other Analytical Benefits

Finally, through a centralized analytical platform, other benefits to enterprises become clear. The first is increased transparency. As data-driven processes become transparent through ZEMA, the 'black-box' of Business Intelligence is lifted, so that data governance now has the ability to track what data sets are ingested, and what insights come out. On top of this, through the entitlement application Admin Console, entitlement and data governance standards from all clients, for all vendors, are always within compliance. This audit trail will also allow an organization to minimize costs associated with data, so that only the users requiring and using expensive sources such as Argus or OPIS are entitled to it.

Risk mitigation is also a benefit associated with a centralized analytical platform powered by ZEMA. Through automation of data collection, validation and potentially analysis, human error is minimized with ZEMA. Automation of data collection and repeated analysis will save an organization time and resources, while making human error a negligible risk. Other risks through use of ZEMA's distributed cloud can include IT risk (Disaster Recovery, Managed Services), Operational Risk (industry-leading Service Level Agreements, Recovery Point Objectives and Recovery Time Objectives), data risks (robust validation, vendor partnerships, data interfaces maintained by ZE), regulatory risks (protection of business IP, extremely high compliance and transparency standards), along with others.

Other key differentiators between other vendors and ZE PowerGroup include:

- Industry-leading report and source data capture.
- Platform independent, web based GUI for user-friendly analysis capabilities.
- Robust metadata layer for consistency across data within a ZEMA environment.
- Bi-directional integration with any 3rd party or proprietary system.
- Multiple deployment options (On-site, ZE Hosted and Subscription).
- Capture of published data directly from the source, with data quality assurance and audit trails.
- Open architecture ODBC/JDBC database.
- Strong security model including LDAP/Active Directory compatibility.

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- Scalable and flexible solution which can develop as the business grows.
- Fully customizable, automated data management workflows.
- Fixed annual license escalation rate, with optional Managed Services.
- Any data stored within a ZEMA environment is owned solely by the client, and termination of licensing means that all data contained will be exported and given back to the organization.
- 24x7x365 customer support and service recognized as industry-leading.

### Conclusion

Gaining actionable insight from data with accurate and integrated self-service data-discovery analytics can be achieved with the right solution. Manual data manipulation and reporting can be streamlined with automated ones, freeing up valuable data professionals. These professionals, namely data scientists, architects, engineers, analysts and statisticians can now focus on their core job, using analysis to increase an organization's profitability and revenue. With decisions in organizations becoming more and more data-centric, including business processes, practices, analytical methodologies and risk mitigation strategies, the accurate analysis of data is becoming an increasingly important factor in IT investment.

ZEMA, the premier, end-to-end data management solution from ZE PowerGroup, not only off-loads the resource-intensiveness of data collection, validation, normalization and centralization, it increases an organization's capacity for analytics. This includes making scheduled or replicated analysis and reporting automated, and increasing the transparency and auditability of business processes such as forecasted pricing, transactional analysis or calculation of 'what if' scenarios. Finally, ZE takes a wider approach to integration. With the multitude of tools, applications, analytical methodologies and data varieties on and in the markets today, no single analytical tool can be all things for an organization. This is why ZEMA integrates with all applications, allowing a business's data assets to be used where, when and how the business needs them to be.

Simply put, the complete data management solution ZEMA should be implemented to increase an organization's ability to adjust to variable market factors through analysis and forecasting. Initial data-heavy industries such as oil and gas, or reinsurance, have already mitigated risk and cost, while capitalizing on their increased flexibility, scalability and transparency. Maximize your ability to analyze and forecast the market by using any data you need, in whatever tool you need it in, by utilizing ZEMA, the true enterprise data management solution.

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