Introduction

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AAR provides a risk specific destination site; bringing together the innovators, suppliers, users and buyers of risk management software in the risk management, compliance and trading domains aimed squarely at the Financial Services and Energy / Commodities trading markets.

We would like to thank EY for providing the foreword to the report on this years’ focused topic of compliance and regulation. This is the 9th edition of the AAR Risk Software and Services report with more than 50 risk software vendors involved. We would like to thank our sponsors: Paragon Energy Software and BearingPoint for their support this year.

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Foreword

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Fraud: The Evolving Risk

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Rachel is a Partner with Fraud Investigations & Dispute Services practice in London. She has over 20 years’ experience specialising in working with clients in the Financial Services sector.

She has successfully led multi-disciplinary teams working on some of the largest financial services regulatory investigations conducted in the UK, US, Germany and Switzerland in recent years. She is used to working internationally and understands and addresses the complexities of working across borders and with multiple regulators.

She has experience working with clients along with their internal and external counsel on large, complex economic sanctions, fraud, financial misstatement, anti-money laundering, anti-bribery and anti-corruption, cross-border tax and asset misappropriation investigations. Rachel has used the findings of these investigations to advise clients on strengthening their compliance frameworks and controls related to fraud, AML, sanctions and anti-bribery and corruption.
Fraud: The Evolving Risk

Over the past few years, many businesses, especially in the financial services sector, have focussed their resources on ensuring compliance with anti-money laundering, anti-bribery and corruption, export controls and economic sanctions regulations. This has been driven by ever-increasing regulatory scrutiny in these areas of financial crime compliance. The authorities have also created a tough regulatory enforcement environment by prosecuting breaches and levying steep fines for non-compliance.

In addition to that, the requirements and expectations from organisations have changed and evolved with each successful prosecution. These factors have created challenges for organisations to stay ahead of the curve. However, we are seeing that fraud is returning to the top of the risk agenda for many organisations. This is due to a number of factors but the most important is the new types of fraud that have been emerging, which have the ability to cause large losses very quickly. New fraud risks have also come along with changes to business operating models such as an increase in digital presence.

This article will examine the emerging fraud risks and trends and will look at how corporate governance and controls must adapt to address these emerging risks.

Fraud can be perpetrated against an organisation both internally and externally. Internally, it can be perpetrated by employees in a range of ways including, but not limited to, theft of data, goods or intellectual property, inflated expense reports or deliberate misstatement of sales or financial results. The risks of this type of fraud have been considered in most organisations in risk assessments and the appropriate systems and controls put in place to prevent and detect it. Although these systems and controls should be regularly tested to ensure that they are operating effectively, they do not need to be overhauled to address emerging risks.

The emerging risks are associated with fraud that
is perpetrated externally by customers or other third parties including organised criminal gangs. External frauds can be perpetrated in a number of ways including account takeover fraud, social engineering, and cybercrime which includes hacking to steal data. The Office for National Statistics reported in July 2016 that almost six million fraud and cybercrimes were committed last year in England and Wales. It also estimated there were two million computer misuse offences and 3.8 million fraud offences in the 12 months to the end of March 2016, suggesting that fraud is the most common type of crime.

Account Takeover Fraud

We have seen an increase in account takeover frauds and expect this trend to continue over the next year. An account takeover happens when a fraudster poses as a genuine customer, gains control of an account and then makes unauthorised transactions. Any account can be taken over by fraudsters, including bank, credit card and email accounts.

An online account can be taken over by intercepting post which contains the log-in details or by stealing the credentials online. To steal the credentials online, fraudsters hack into websites with weak security and are able to obtain usernames and passwords. The fraudsters can then take those compromised credentials and use them at other e-commerce websites, cognizant of the fact that about 55% of customers use the same set of credentials across all of their online relationships. Fraudsters are able to then take over bank accounts, investment accounts or e-commerce accounts where credit card details have been stored. This can result in losses both to the customer and the businesses involved.

Account takeover fraud can be counteracted by having a number of controls in place such as encouraging customers to change their passwords on a regular basis, using tokens which generate passwords rather than having fixed passwords and flagging unusual activity in accounts for further investigation.

Cybercrime

Cybercrime is often defined as criminal activities carried out by means of computers or the internet. Therefore, a whole range of criminal conduct can fall under this definition such as denial of service attacks, hacking and data theft, spoofing and phishing.

As technology evolves and people are living more of their lives online, fraudsters are employing new tactics to gain access to personal and financial

data. According to the Centre for Retail Research, British consumers are set to spend £60 billion online in 2016, up from £52 billion in 2015, a 15% increase. Mobile commerce, also known as ‘mCommerce’, is also growing with nearly 50% of online sales now made using mobile devices such as phones and tablets, according to the Interactive Media in Retail Group, the UK’s industry association for online retail.

The use of online and mobile banking is also increasing, with the number of log-ins to internet banking increasing by 10% over the past year to 9.6 million a day. These findings were reported in the second edition of “The Way We Bank Now”, a joint report by the British Bankers Association (BBA) and EY. The report also revealed that UK banking customers moved £2.9 billion a week using banking apps in 2015, up from £2 billion in 2014.

The increase in transactions being completed online and the increase in online banking, including funds transfers, is creating new opportunities for fraudsters to hack into systems to steal customers’ personal data such as bank account and credit card details. The cybersecurity around these systems must be robust enough to repel these attacks as hackers are constantly evolving their methods to break into systems. Businesses must therefore be aware of the changing risks and should review their cybersecurity systems and arrangements on a regular basis to keep them up-to-date.

Social Engineering

Social engineering is the manipulation of people into performing actions or divulging confidential information. This manipulation is done for the purpose of information gathering, fraud, or system access. It is usually only one of many steps in a more complex fraud scheme. For example, a customer may be tricked into revealing his or her password to a fraudster when the fraudster contacts the customer by phone or email, purporting to be from the organisation. This information is then used to perform fraudulent transactions.

Recently, it has been reported how accounting staff have been duped by an email or phone call from someone posing as the “boss” instructing funds to be transferred to an outside party in a very short timeframe. Fraudsters use publicly available corporate data gleaned from the internet to make the emails as convincing as possible, finding out who the bosses and senior financial officers are from social networks or other online resources such as the company’s own website. In the US, the FBI’s Internet Crime Center has been tracking “business email compromise” scams, as it calls them, and estimates about 7,000 companies have been defrauded of more than $740m over the last two years. The real figure is likely to be much higher though, given that companies may not want to report such incidents.

Staff should be trained to be aware and able to identify attempts at social engineering and encourage them to question unusual requests.
What should businesses be doing?

Frauds have always evolved to take advantage of weaknesses in businesses’ systems and controls. These weaknesses are caused when the business environment evolves and the business does not update and change its systems and controls appropriately. The changes in the business environment can include competitive pressure to move into new markets and launch new products, new technologies and new ways of engaging with customers.

Businesses need to respond by performing a regular risk assessment to identify new risks to the business based on changes since the last risk assessment. The frequency of which will vary based on the type and complexity of the business. Each business should determine how often it is appropriate to revisit its risk assessment.

Following on from the risk assessment, businesses should also ensure there is a strong corporate governance framework in place and that it is documented. Part of this governance framework must be how senior management and the Board are informed when incidents of fraud and regulatory breach are identified.

Relevant and reliable management information should be gathered and reported on a regular basis to ensure that the Board and senior management can monitor the business appropriately. There is a wealth of data generated in businesses and that data must be analysed and used to monitor the ongoing operations of the business. Forensic and advanced data analytics should also be considered to identify unusual activity. If the business has significant exposure online, its cybersecurity arrangements should be reviewed and tested on a regular basis.

A strong governance framework has never been more important to ensure that when frauds are identified, they are communicated to senior management and can be investigated in a timely and robust manner. The findings from each investigation must also be used to identify areas where controls can be strengthened to avoid future frauds from occurring. This framework will help to reassure regulators and other stakeholders that the organisation is well governed and when issues do arise that they will be dealt with in a timely manner with as little disruption to the business as possible.

Fraud will most likely continue to be an issue for businesses in the future but it is worth investing the time and resources to have a robust fraud risk management framework to prevent and detect fraud as early as possible.
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Credit and Liquidity Risk Management in the Energy Industry

Michael Carter – Paragon Energy Software

The deregulation of the energy industry has dramatically increased the risk in the energy market and ensured a constantly changing landscape for entities trading energy products. During this evolution, much attention has been focused on the trading effort and managing market risk. For example, there are far more ETRM/CTRM (Energy/Commodity Trading and Risk Management) systems, trade floor PhD’s, and other support resources dedicated to trading and market risk mitigation than for managing credit, liquidity, operational, and other exposures.
With changing technology altering the international energy landscape, increasing regulatory mandates, growing - and potentially dangerous - efficiency in energy markets, rising global economic concerns and numerous other factors, risk is now being viewed holistically and attention is growing for the need to manage the other exposures as well.

This is a welcome development as the effort to manage market risk typically creates credit, liquidity, and operational risks and those can often be more toxic to corporate health than simply living with market risk in the first place. For example, credit risks can easily reach into many millions for long dated fixed price trades common in the industry and liquidity risk can doom even a profitable company to default within days if it is unable to meet collateral demands.

Consider the physical power producer who wishes to fix the prices for his product for the coming year. As soon as he and his counterparty agree to fixed price terms which remove market (price) risk, both are suddenly faced with the possibility that the other will fail (credit risk). To address this concern, they typically agree to provide collateral if one party’s exposure exceeds a certain level (liquidity risk). Managing the logistics of such an arrangement throughout the term of the deal - confirmations, possible scheduling of physical commodity movements, bilateral (and often daily) collateral transfers, settlements, and etcetera - can present a significant challenge to execute promptly, accurately, and efficiently (operational risk).

Complicating matters by orders of magnitude, many firms trade large numbers of transactions with large numbers of counterparties in multiple commodities.

Depending on the entity and its primary line of business, transactions may be conducted on an exchange or bilaterally, for fixed or floating prices, for a physical commodity or a derivative, and with tenors ranging from minutes to decades. They can be done with a diverse group of counterparties including those which are public, private, governmental, non-profit, regulated, unregulated, large, small, strong, weak, capital intensive, or highly liquid. These can be large crude majors, small energy end users, trading shops, sovereigns, utilities, municipalities, or have numerous other corporate profiles with varying degrees of creditworthiness.

In addition to the enormous breadth of possible counterparty demographics, when you consider that traders routinely enter into deals which run well into the future, the sheer size of their trade book can also become staggering. For example, if a trader “scalps” a “Cal ’17 strip” - that is, they capture a small spread by both buying and selling a product for the entire year of 2017, he may consider his book balanced and the deal done. And it may be, from a market risk perspective. However, he has actually entered into 24 separate transactional legs which must now be administered daily by mid- and back-office support staff for the entire life of the deal. Now imagine entire teams of traders doing this for weeks, month, or years.
Adding additional complexity to the risk measurement and mitigation challenge, energy entities often trade multiple products such as power, natural gas, crude oil, and numerous others with the same entity or within a corporate family - often using multiple contracts which may or may not permit exposure netting.

Given that the transaction value - and therefore exposure - of each deal as well as the creditworthiness of each counterparty routinely fluctuates, the task of constantly monitoring and mitigating risks of the trade book on numerous fronts becomes clearer as does the danger of attempting to manage the effort with a thin staff armed with weak systems (or even spreadsheets).

So, how should this massive effort be managed? The best approach involves a mix of system and human resources. The daily risk management process usually involves a high volume of mundane but critically important tasks which must be accomplished before the risk staff can even begin to provide value-adding service. For example, exposures must be calculated and matched against credit limits, collateral balances, and finally contract terms before an analyst can even begin to initiate a margin call. This can represent a significant challenge as the exposure numbers usually change daily and margin calls are issued on the next morning following the end of the trading day when prices are settled. For an entity with hundreds or even thousands of counterparties and potentially hundreds of thousands or even millions of transaction legs, this requires a very efficient operation.

An optimized process would automate those “automatable” functions and subsidize the time staff must dedicate to the “non-automatable” duties. For an entity with large numbers of non-standard “structured” transactions, the challenge is even greater.

Historically, companies built credit systems internally and were plagued by the huge costs, risks such as the potential for model errors and departure of key personnel, latency (the time lag required to design and implement systems and periodic upgrades, etc.) to meet a rapidly changing business environment and corporate needs, and other problems associated with attempting to manage ongoing hardware and software projects rather than focusing on the core business effort. Alternatively, ETRM/CTRM systems have attempted to develop credit and liquidity risk management modules although such functionality was often outside of their core product line. An additional concern is that the module may be tied to that specific trading system and be unsuitable for other business lines or may be lost if that system is replaced.

More recently, dedicated third-party applications have been developed which are system-agnostic, sitting above an entity’s other systems. These can provide greater depth in the credit and liquidity risk management effort as they are purpose-built and able to act as system of record for counterparty, contract, and collateral data and handle exposures, reporting, and numerous other
tasks including risk analytics such as CVAR (Credit Value at Risk) and PFE (Potential Future Exposure).

Risk analytics is a very valuable risk mitigation tool but is often beyond the capability of the typically resource-constrained credit and liquidity risk management team. For example, calculating PFE involves subjecting existing transactions to various future market price scenarios to determine the resulting “potential future exposure” by counterparty. Comparing those simulated exposures to the counterparty’s contract terms will yield an estimated collateral requirement and alert the Treasury group to a potential liquidity shortfall under certain market conditions. As financial liquidity is a “portfolio level” issue, it can be even more important than market or credit risk. Companies can survive a market or credit loss - “à la carte events”, but if they run out of liquidity they may be unable to meet collateral demands or fund day-to-day operations and default in a matter of days. Obviously, applying the simulated market scenarios to all of the relevant price curves in the book and properly filtering the results through the contracts of individual counterparties to formulate the credit and collateral consequences is an amazingly complicated task. Having a system which can assist in this process is a tremendous enhancement to the risk management effort.

Having a system-agnostic credit and liquidity application which is not embedded in a trading system gives companies the freedom to operate their business without regard for the effects on the credit and liquidity management process. For example, they may enter and exit lines of business...
or change legacy systems such as accounting, trade capture, market risk analytics, etc. without completely losing functionality of the credit and liquidity system. “Changing your ETRM system? No problem. Just tell us where the new data will be maintained and we’ll point there instead.”

Studies have found third party systems to be a much more effective solution than an in-house build. Intuitively, it makes sense as well. In the same way you would not likely ask your IT group to develop a spreadsheet application - you simply go buy Excel. You are buying the benefit of countless thousands of man hours of development, routine enhancements, and specialist knowledge in a product which is quickly available and typically has the benefit of a supportive user community.

As the cost of a system need not reach seven figures and implementation may even be streamlined in a hosted solution if desired, managing the energy industry’s “forgotten risks” with a third-party application is the easiest decision of all.

Michael Carter

Michael is Head of Risk Advisory for Paragon Energy Software in Houston, Texas. He has over 30 years’ experience managing credit, liquidity, and other risks in the energy industry as a practitioner, consultant, and trainer for a number of the world’s largest energy companies.
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Products / Services:  Abacus Solution Suite

Eka Software Solutions

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OpenLink

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Products / Services: ERMAS Suite
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Products / Services:  ActivePivot

Quaternion Risk Management

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Products / Services:  Quaternion Risk Engine (QRE), Quaternion Risk Management Services
RedShift International Limited

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RedShift Automated Test Expert (RATE)

TMX Group - Razor Risk

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Products / Services: Credit Risk, Market Risk,
Amphora, Inc

Company & Product Profile:  Page 178

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Web        www.amphorainc.com

Products / Services:

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MORS Software

Company & Product Profile:  Page 185

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Tel        +358 9 6829 650
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Products / Services:

MORS Treasury, Liquidity & ALM solutions
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Products / Services: Abacus Solution Suite

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Products / Services: Paragon CRMS
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Products / Services:
Symphony

CURA Technologies

Company & Product Profile:  Page 182

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Products / Services:
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Enuit LLC

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Products / Services: BowTieXP, IncidentXP, AuditXP, BowTieServer

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Products / Services:  FiREapps Enterprise™,

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Products / Services:  B Wise
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Products / Services: RiskBusiness RiskIntelliSet
RiskBusiness Solutions Limited - The Risk Universe

the Risk Universe

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Products / Services: The Risk Universe

Amphora, Inc
Company & Product Profile: Page 178
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Products / Services: Symphony

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Company & Product Profile: Page 179
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Products / Services: Contextual market surveillance & analytics
CURA Technologies

Company & Product Profile: Page 182

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Products / Services:
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Xactium

Company & Product Profile: Page 186

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Products / Services:
Xactium Risk Management
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allaboutrisk.com
Regulatory Reporting

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Banking regulation continues to intensify the pressure placed on financial institutions, for example, with new requirements such as AnaCredit, BCBS 239 and IFRS 9. Fundamentally, we notice the following significant trends: the replacement of form-based reports with data cubes, an ever-increasing influence of regulation on banks’ product portfolios and the need to integrate regulatory KPIs into the bank’s management.

In light of this situation, BearingPoint has developed Abacus360 Banking – an innovative solution built with over 20 years of experience in RegTech and RiskTech, helping firms around the world to streamline processes and maximize efficiency and transparency in data collection, reporting, management and analytics.

Abacus360 Banking - an integrated platform for 360° reporting, risk calculation and controlling regulatory KPIs.

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Challenged by regulatory reporting burdens?
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BearingPoint, a global consulting and software provider, is one of the leading vendors of regulatory and risk technology (RegTech / RiskTech). Its well-respected Abacus Solutions Suite has been used by banks, financial services providers, insurers, regulators and central banks for regulatory reporting and risk purposes for more than 20 years.
Taking into account the constantly rising expectations of the European Banking Authority (EBA), coupled with new regulatory requirements such as AnaCredit, BCBS 239 and the Fundamental Review of the Trading Book (FRTB), it is clear that financial institutions will face substantial functional and technical challenges in order to comply with regulatory demands:

- An increasing interdependence between the areas of regulatory reporting, risk management, treasury and finance
- Consideration of regulatory KPIs in the overall bank’s management
- Intensified requirements for data granularity, availability and quality
- Requirements regarding data and functional consistency, data lineage resulting from BCBS 239 and cross validations

Based on a single data model, the Abacus360 Banking platform offers calculation, reporting and analytics functionalities for risk and finance data. Abacus360 Banking stands for a holistic 360° approach in two respects: first, the platform goes far beyond mere reporting and integrates comprehensive functionality for reporting, risk calculations and controlling of KPIs. Second, the new platform covers the requirements of all stakeholders along the regulatory value chain – it can be used by firms as well as by supervisor authorities and covers the different processes along the risk and regulatory management value chain.

This white paper focuses on the risk calculation functionality of Abacus360 Banking.
Credit Risk

Abacus360 Banking offers calculation functionalities for the full spectrum of regulatory and risk metrics. This includes a credit portfolio model for the computation of Credit Value at Risk and Expected Shortfall by analytical solutions or Monte-Carlo Simulation. The users have various parameterization options for, e.g., the method to be used, the confidence level or the time horizon. The risk parameters can be redistributed on the level of granularity of the delivery, e.g., single contract level. Based on the Gordy approach a credit calculator can be used for computing various risk KPI such as expected loss or unexpected loss.

Part of Abacus360 Banking Credit Risk is the computation of the risk-weighted assets (RWA) according to the Capital Requirements Regulation (CRR). This includes calculations for counterparty credit risk, credit valuation adjustment (CVA), privileging settlement via central counterparties as well as numerous (market) disclosure reports.

Abacus360 Banking users have the flexibility to choose between three levels of delivery:

- raw-data delivery
- partial result data
- aggregated result data

As part of the CoRep framework, all calculation and reporting requirements for large exposures (LE) and leverage ratio (LR) are covered by Abacus360 Banking. Abacus360 Banking also includes a modularized tool for credit-risk calculation according to the EBA/ECB stress-testing requirements.

All CoRep forms for capital adequacy (CA1-CA5) including the determination of capital instruments, RWA declarations, own funds key figures as well as the transition provisions (prudential filters, grandfathering and minority interests) are implemented according to the requirements of EBA. Abacus360 Banking provides automated derivation of the group solvency (GS), for credit risks according to CRSA and IRBA including settlement risks and IP Losses.

Furthermore, the reporting functionalities contain the granular-data-based reporting according to AnaCredit, MREL and other supervisory reporting requirements defined by the EBA/ECB or national supervisory authorities.

Market Risk

Abacus360 Banking includes the computation of all standardized approaches (e.g. duration, delta-plus, scenario-matrix method) for market risk according to CRR. As for credit risk, banks could deliver partial or aggregated result data for allocation to the CoRep market risk forms and submission to the central bank or supervisory authority.

For internal or regulatory purposes, calculation functionalities of VaR and Expected Shortfall via historic simulation or delta-normal method is offered on all levels of aggregation of the portfolio, for example, at trade level, on the basis of historically simulated present values or via scenario simulated present values and if necessary of the derived sensitivities.

Abacus360 Banking also includes valuation and simulation functionalities to calculate present values, sensitivities, discount factors and forward values for the full spectrum of plain vanilla, complex and exotic financial instruments.
Depending on the financial instrument, users can choose between various valuation models (Black-Scholes, binomial/trinomial tree, Hull-White model, etc.).

**Liquidity Risk**

The Abacus360 Banking solution uses a holistic approach for measuring liquidity risk and liquidity fore-casts.

**Cashflows**: The modularized engine calculates deterministic and stochastic cash flows for various applications (e.g., liquidity (risk) management, LCR, interest rate management).

**Supervisory Reporting**: The CoRep reports (LCR, NSFR, ALMM, Asset Encumbrance, Funding Plans) are included in the solution. The solution conducts all relevant calculation of metrics or allocations to the reporting forms.

**LCR management**: Abacus360 Banking offers a forecast-ing module for the LCR. The forecasts are depicted as a cockpit view. For example, the module could be used for analyzing the impact of planned trades.

**Liquidity risk management**: It offers a liquidity progress review delivering various types of cash-flow lists per product group. Furthermore, reporting tools for liquidity, cash-flow analysis, final maturity of securities, etc. are available.

**Finance and Accounting**

Abacus360 Banking covers the reporting requirements of the EBA for financial reporting. Forms of the FinRep framework are included. The solution fulfills the requirements for FinRep on group level (IFRS) and according to local GAAP for national reporting. It also includes forbearance, NPL calculation including pulling effect and prudential consolidation.

In addition, risk accounting modules of Abacus360 Banking offer the computation of loss-free valuation for interest-bearing instruments according to German law as well as accounting CVA/DVA calculations. A module for IFRS 9 impairment calculation is currently under development.
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<td>Dr. Werner Gothein</td>
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<td>Jason Wells</td>
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Products / Services: BowTieXP, IncidentXP, AuditXP, BowTieServer

Eka Software Solutions

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OpenLink

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Products / Services: Endur - V15, Findur - V15, RightAngle - V15, IRM - R8, SMARTsoft - 18.00.04, CubeIntelligence - V3.2

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Products / Services: ERMAS Suite
Quartet FS

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Products / Services:  ActivePivot

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Products / Services:  Quaternion Risk Engine (QRE), Quaternion Risk Management Services
RedShift International Limited

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Products / Services: Credit Risk Consultancy and Testing Services, RedShift Automated Test Expert (RATE)

RiskBusiness Services Limited

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Products / Services: RiskBusiness RiskIntelliSet
RiskBusiness Solutions Limited - The Risk Universe

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Products / Services:  The Risk Universe

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Products / Services:  Credit Risk, Market Risk,
Amphora, Inc

Company & Product Profile: Page 178

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Products / Services:

Symphony

b-next holding AG

Company & Product Profile: Page 180

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Products / Services:

CMC:eSuite

CURA Technologies

Company & Product Profile: Page 182

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Products / Services:

GRC

MORS Software

Company & Product Profile: Page 185

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Products / Services:

MORS Treasury, Liquidity & ALM solutions
### Xactium

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- **Contact:** Steve Birch  
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**Products / Services:**

- Xactium Risk Management

### Aadroit Systems Limited

**Products / Services:** Riskenomics

**Web:** [www.riskenomics.com](http://www.riskenomics.com)

### ACL

**Products / Services:** ACL GRC, ACL Analytics, ACL Analytics Exchange, ACL Direct Link for SAP ERP & SAP CRM

**Web:** [www.acl.com](http://www.acl.com)

### ACTICO GmbH

**Products / Services:** Credit Risk Rating Platform

**Web:** [www.actico.com](http://www.actico.com)
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**Arachnys**
- Products / Services: Arachnys D3

**FERNBACH Financial Software S.A.**
- Products / Services: FlexFinance Risk Provisioning

**FIS**
- Products / Services: Ambit, APT, Prophet

**GFT**
- Products / Services: Enterprise-wide Risk Business Consultancy

**Invoxis**
- Products / Services: Compliance+ & Client Onboarding

**Knadel Software Solutions Ltd**
- Products / Services: SupplierVision

**Maclear**
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**MBRM – MB Risk Management**
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BearingPoint

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Products / Services: Abacus Solution Suite

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Products / Services: Paragon CRMS
Eka Software Solutions

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Products / Services: FiREapps Enterprise™,
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Products / Services:  ActivePivot

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Products / Services: Credit Risk, Market Risk

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Products / Services: GRC

MORS Software

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Products / Services: MORS Treasury, Liquidity & ALM solutions
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CGE Risk Management Solutions

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Products / Services:  BowTieXP, IncidentXP, AuditXP, BowTieServer

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FIREapps

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Products / Services: FiREapps Enterprise™,

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Products / Services: Bwise
OpenLink

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Products / Services: Endur - V15, Findur - V15, RightAngle - V15, IRM - R8, SMARTsoft - 18.00.04, CubeIntelligence - V3.2

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Products / Services: ERMAS Suite
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Products / Services:  RiskBusiness RiskIntelliSet

RiskBusiness Solutions Limited - The Risk Universe

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Products / Services:  Credit Risk, Market Risk

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Products / Services:  vsRisk™
Ancoa

Company & Product Profile: Page 179

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Products / Services:
Contextual market surveillance & analytics

b-next holding AG

Company & Product Profile: Page 180

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Products / Services:
CMC:eSuite

CURA Technologies

Company & Product Profile: Page 182

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MORS Software

Company & Product Profile: Page 185

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Products / Services:
MORS Treasury, Liquidity & ALM solutions
Xactium

Company & Product Profile:  Page 186

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Products / Services:

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Eka Software Solutions

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FIREapps

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Products / Services: FiREapps Enterprise™,
OpenLink

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Quartet FS

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Products / Services: ActivePivot
RedShift International Limited

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Web        www.redshiftint.com

Products / Services:  Credit Risk Consultancy and Testing Services,
                      RedShift Automated Test Expert (RATE)
Amphora, Inc

Company & Product Profile:  Page 178

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Tel  646-438-4990
Web  www.amphorainc.com

Products / Services:

Symphony

Ancoa

Company & Product Profile:  Page 179

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Tel  +44 20 8408 1610
Web  www.ancoa.com

Products / Services:

Contextual market surveillance & analytics

Enuit LLC

Company & Product Profile:  Page 184

Contact  David Good
Title  Managing Director - Global Operations
Email  dbgood@enuit.com
Tel  713-857-9808
Web  www.enuit.com

Products / Services:

Entrade
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allaboutrisk.com
IT Security / Cyber Risk
CGE Risk Management Solutions

Contact  Jeroen van Dommelen
Title     Sales Director
Email     +31 88 100 1350
Tel       jeroen.van.dommelen@cgerisk.com
Web       www.cgerisk.com

Products / Services: BowTieXP, IncidentXP, AuditXP, BowTieServer

Eka Software Solutions

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Nasdaq

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Web     www.bwise.com

Products / Services:  B Wise

RiskBusiness Services Limited

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Tel      +44 7721 969 224
Web     www.riskbusiness.com

Products / Services:  RiskBusiness RiskIntelliSet
RiskBusiness Solutions Limited - The Risk Universe

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Tel: mike.finlay@riskuniverse.com
Web: www.riskuniverse.com

The Risk Universe

Products / Services: The Risk Universe

Vigilant Software

Contact: Julia Dutton
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Email: servicecentre@vigilantsoftware.co.uk
Tel: 44 (0) 845 003 8228
Web: www.vigilantsoftware.co.uk

Products / Services: vsRisk™
Ancoa

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Tel  +44 20 8408 1610
Web  www.ancoa.com

Products / Services:

*Contextual market surveillance & analytics*

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CURA Technologies

Contact  Lavanya Vuddaraju
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Tel  9642047997
Web  www.curasoftware.com

Products / Services:

*GRC*

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Xactium

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Title  Business Development Manager
Email  steve.birch@xactium.com
Tel  (0)114 2505 315
Web  www.xactium.com/
     risk-management-software

Products / Services:

*Xactium Risk Management*
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BearingPoint

Contact: Dr. Werner Gothein
Title: Partner
Email: Werner.Gothein@bearingpoint.com
Tel: +49 69 13022 7163
Web: www.reg.tech

Products / Services: Abacus Solution Suite

Paragon Energy Software

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713.542.6395
info@paragonenergysoftware.com

Contact: Ian Tobin
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Web: www.paragonenergysoftware.com

Products / Services: Paragon CRMS
CGE Risk Management Solutions

Contact  Jeroen van Dommelen
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Tel      jeroen.van.dommelen@cgerisk.com
Web      www.cgerisk.com

Products / Services: BowTieXP, IncidentXP, AuditXP, BowTieServer

Eka Software Solutions

Contact  Peri Pomposello
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Tel      +1 203 671 2926
Web      www.ekaplus.com

FIREapps

Contact    Roberto Guerrieri
Title      Senior Director, Global Marketing
Email      rguerrieri@fireapps.com
Tel        480-443-7333
Web        www.FIREapps.com

Products / Services:  FiREapps Enterprise™,

Nasdaq

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Web        www.bwise.com

Products / Services:  BWise
OpenLink

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Title       EVP, Product Management
Email       info@openlink.com
Tel          1-877-401-OPEN
Web         www.openlink.com


PROMETEIA

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Products / Services: ERMAS Suite
Quartet FS

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Tel: +33 1 40 13 67 09
Web: www.quartetfs.com

Products / Services: ActivePivot

Quatemon Risk Management

Contact: Caroline Tonkin
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Tel: +44 7900 287361
Web: www.quatemonrisk.com

Products / Services: Quaternion Risk Engine (QRE), Quaternion Risk Management Services
RedShift International Limited

Contact: Ian Tobin
Title: Managing Director
Email: itobin@redshiftint.com
Tel: +44 (0)207 078 7485
Web: www.redshiftint.com

Products / Services: Credit Risk Consultancy and Testing Services, RedShift Automated Test Expert (RATE)

RiskBusiness Services Limited

Contact: Mike Finlay
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Web: www.riskbusiness.com

Products / Services: RiskBusiness RiskIntelliSet
RiskBusiness Solutions Limited - The Risk Universe

Contact: Mike Finlay
Title: Publisher
Email: +44 7721 969224
Tel: mike.finlay@riskuniverse.com
Web: www.riskuniverse.com

Products / Services: The Risk Universe

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TMX Group - Razor Risk

Contact: Gavin Banks
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Email: gavin.banks@razor-risk.com
Tel: +1 416 947 4278 / +1 647 235 7893
Web: www.razor-risk.com

Products / Services: Credit Risk, Market Risk,
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<td>Amphora, Inc</td>
<td>178</td>
<td>Rick Nelson</td>
<td>President</td>
<td><a href="mailto:rick.nelson@amphorainc.com">rick.nelson@amphorainc.com</a></td>
<td>646-438-4990</td>
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<td>Lavanya Vuddaraju</td>
<td>Director Program Management</td>
<td><a href="mailto:lavanyav@curasoftware.com">lavanyav@curasoftware.com</a></td>
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Products / Services:

- Amphora, Inc: Symphony
- b-next holding AG: CMC:eSuite
- CURA Technologies: GRC
- Enuit LLC: Entrade
### MORS Software

**Company & Product Profile:**

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<td>Email</td>
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<td>Tel</td>
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**Products / Services:**

*MORS Treasury, Liquidity & ALM solutions*

### Xactium

**Company & Product Profile:**

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<th>Contact</th>
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<td>Title</td>
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<td>Email</td>
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**Products / Services:**

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BearingPoint

Contact  Dr. Werner Gothein
Title     Partner
Email    Werner.Gothein@bearingpoint.com
Tel      +49 69 13022 7163
Web      www.reg.tech

Products / Services:  Abacus Solution Suite

With its RegTech and RiskTech products BearingPoint is a leading international provider of innovative technology and services along the Regulatory Value Chain for Financial Services.

Customers representing 4,400 firms worldwide, among them large international banks, a major part of the largest European banks, leading insurance companies as well as supervisory authorities and central banks, trust BearingPoint’s RegTech products and services.

We work closely with regulators and actively contribute to the process of standard setting. BearingPoint is member of the XBRL Consortium along with other standardization bodies and works closely with supervisory authorities. We combine this regulatory expertise with our proven, reliable and future-oriented software solution suite and expert consulting capabilities as well as training seminars and managed services.

Our products, built with over 20 years of experience in regulatory reporting, help firms around the world to streamline reporting processes and maximize efficiency and transparency in data collection, management and analysis.

- Abacus Solution Suite: Regulatory Management, Analytics and Reporting
- ABS+: Investor reporting for securitization
- FiRE: Regulatory reporting
- FiTAX: Tax authorities reporting for QI/EUSD/FATCA/UK-FATCA and CRS
- EasyTax: Country specific client tax reporting
Product Name: Abacus Solution Suite            Version:  Abacus360 Banking 6.0

With the Abacus Solution Suite, BearingPoint offers banks, insurers, financial services providers, central banks, and supervisory authorities innovative Risk & Regulatory Technology (RiskTech / RegTech) along the regulatory value chain. Over 240 customers from approximately 1900 domestic and foreign reporting entities trust the Abacus Solution Suite products. BearingPoint provides unrivalled experience and a unique product and service offering in the area of regulation, ranging from consulting to managed end-to-end services, from proprietary specialist reporting software to ongoing training.

Enterprise-wide Risk
Abacus360 Solutions Suite provides enterprise wide risk management by taking into account all the different risk KPI which are calculated for internal and external risk reporting. Abacus360 Banking 6.0 provides offers simulation and scenario analyzes along all the different key risk figures and connects the internal and external risk and regulatory reporting requirements with finance data.

The Abacus360 Solutions Suite enables the valuation of financial instruments by generating present values and sensitivities covering a broad spectrum from loans to complex and exotic financial products. The valuation functionalities uses analytic, tree and Monte-Carlo-Simulation methods for pricing.

Like the valuation engine the cashflow generator serves as the basis for many other risk calculation tools. It generates floating and synthetic cash flows for various banking applications such as the Interest Rate Maturity Statement and the Liquidity Gap Analysis.

Credit Risk
The credit risk can be examined for the determination of the valuation yields under consideration of different credit risk ratios, as PD adjusted Present Value calculation, unexpected loss and equity backing.

A CreditRisk+ Model is available to approach the portfolio credit risk, which calculates Credit Value at Risk (CreditVaR) and Expected Shortfall as well as risk contributions, on different hierarchies. The method is based on an analytical formula, as well as on a high-performing Monte-Carlo-Simulation.

More frequently there is also a need in Financial Accounting to have credit risk ratios, which are calculated on the basis of financial mathematical processes. An example is the Credit Value Adjustment/Debt Value Adjustment (CVA/DVA) of derivatives or the loss-free credit evaluation according to German GAAP regulation (BFA3).
Market Risk
The common risk measures (e.g. Value at Risk or Expected Shortfall) are determined on different aggregation levels (single transaction, all portfolio levels or other hierarchy criteria). The method is based on simulated Present Values, which are either based on historical data or calculated with the help of the variance/covariance method (delta-normal method). The regulatory demanded standard methods (two leg approach, Delta Plus, scenario/matrix method, Preprocessing/interest risk optimization) are completely covered.

BearingPoint also offers a configurable high-performance engine to cover the new market risk regulations of the Fundamental Review of the Trading Book (FRTB). The solution includes a modularized pre-processing module which calculates differences in present values and sensitivities as well as the computation of the capital requirements for each risk category.

Liquidity Risk/ALM
The liquidity risk can be depicted and transparently represented through diverse simulation possibilities via different configurable risk factors and market scenarios. Thereby automated assumptions, for example, the calibration of consumer behavior and stress testing, scenario-simulations and inverse stress testing, are conducted.

Regulatory Reporting
Our product covers the requirements of CRD IV / CRR I and EBA ITS on Reporting (CoRep, FinRep, etc.) but also statistical and granular reporting in multiple jurisdictions and enables financial institutions to comply with regulatory requirements in efficient manner. Renowned financial institutions representing more than 800 reporting entities trust on Abacus products among them renowned financial institutions and a major part of the most important European Banks under supervision of the Single Supervisory Mechanism (SSM).

With the TR (trade repositories) and MMSR (money market statistical reporting) modules, our product covers reporting for trade repositories in accordance with EMIR (European Market Infrastructure Regulation) and reporting for specific money-market transactions to the NCB/ECB (National Central Bank/European Central Bank) in accordance with Regulation concerning statistics on the money markets. In anticipation of fulfilling the additional reporting requirements from the new European reporting components, MiFID II/ MiFIR and SFTR, and the Swiss derivatives reporting according to FMIA/FinfraG to the trade repository RegisTR, the modules of Abacus360 Banking will be continuously enhanced and extended.

ABACUS/Solvency II covers the complete workflow from data import, to validation, sign-off process and transfer of Quantitative and Qualitative Reports in XBRL format. The product is widely used by companies across Europe to meet their reporting requirements under Basel III, EMIR and other directives.
Risk Analysis

The Analytics Toolset includes the following:

- **KPI Manager** component offers analytical functions for defining, displaying and analyzing regulatory KPIs, and it consists of the KPI standard library and the KPI designer. The core components are numerical and graphical data preparation, export of KPIs in the CSV format, monitoring of KPIs via threshold values and KPI - Individual management of user authorizations.

- **Report Factory** makes it possible to integrate values from Abacus360 into self-defined Word or PowerPoint documents, in order to be able to, among other things, create management reports and manage disclosures (disclosure management).

- **Smart Cubes** provide technically-structured views of data. Abacus360 features standardized Smart Cubes for specific regulatory areas, but customized Smart Cubes can also be created. Customized Smart Cubes can be created with the help of the Smart Cube Designer, or through a process involving both the Data Model Designer and the Calculation Designer.

- **The Smart Cube Analyzer** is the application for analyzing and preparing the data from the Smart Cubes contained in Abacus360. This covers the display of Smart Cube data in pivot-views that can be assembled freely, as well as the depiction of the data in the form of graphs. This can also be done across multiple reporting dates (incl. reporting date comparison operations). The user interface of the Smart Cube Analyzer can be used to assemble, execute and store these views. All the Smart Cubes are available as a data basis for the queries, along with the dimensions and attributes of the Smart Cubes (in the form of dimensions and filters).

- **Smart Cube Mass Export** can be used to export multiple data from Smart Cubes. All the selected data views or Smart Cubes are exported in a tabular form, in the form of a zipped CSV file. The user can directly call up this functionality from the user interface of the Smart Cube Analyzer. Alternatively, the export can be done directly through the view of the Smart Cubes.

- **Smart Cube Designer** is used to create data structures for Smart Cubes. It allows the user to create, modify or delete individual Smart Cubes. Standard Smart Cubes can also be modified.

- **The Template Designer** is the design tool used for administration, creation and design of customer specific templates used for internal or ad hoc reporting or analytic purposes. Beside the possibility to import predefined templates (e.g. those provided by the reporting authorities), using The Template Designer allows the creation of customized, multidimensional templates.
# Paragon Energy Software

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<td><a href="mailto:info@paragonenergysoftware.com">info@paragonenergysoftware.com</a></td>
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**Products / Services:** Paragon CRMS

## About Paragon Energy Software

Comprised of industry experts who each have an average of over 15 years of experience in energy trading and risk management, our promise is to be reliable, responsive and to deliver - forming a strong and lasting partnership with our customers. We are dedicated to providing the best and most cost effective, usable solutions both in credit risk management and broader energy trading & risk management. With our fully functional, innovative, and easy to use software solutions, we deliver on our commitments and have our customers up and running in weeks not months, providing them with significant value for a reasonable investment.

Paragon aims to provide the industry’s best and most comprehensive solutions on the market complete with ease of use, technical and configuration innovation, an affordable cost of entry, lower total cost of ownership and overall customer satisfaction. Our unparalleled focus on the customer and their needs in terms of product flexibility, delivery and support is what sets us continually apart from the rest of the market. Our customers experience this commitment, dedication and responsiveness every day of every week as we go the extra mile to deliver what was promised. Please explore our website and find out more about what it really means to partner with Paragon.
Product Name: Paragon CRMS  Version: 4.1

The Paragon Credit Solution is known as the leading credit risk management solution for today’s complex and fast-paced energy trading environment. Used by energy companies of all sizes, Paragon provides that comprehensive set of tools, analytics and critical information needed by credit risk professionals in a sophisticated and intuitive, yet affordable, solution. Whether delivered via the web from a world-class hosting facility or installed within your site, Paragon’s class leading capabilities combined with Paragon’s experienced and dedicated consulting and support teams will ensure you are in control of all the risks associated with managing credit in the complex and dynamic energy markets today and into the future… all at a price that is accessible for companies of every size and ensures the lowest TCO of any competitive product.
About CGE Risk Management Solutions B.V.

CGE Risk Management Solutions is the leading provider of barrier based risk management solutions. CGE focusses on delivering state of the art and user friendly “standard of the shelf software to clients. CGE has more than 1500 clients” in 78 countries on all continents. These client are active in a wide range of industries: oil & gas, energy, chemicals, aviation, mining, transport, rail, maritime, production, healthcare, water, nuclear, defense, IT, finance and insurance.

CGE works closely with more than 200 partners worldwide. CGE believes in educating and sharing knowledge with partners and clients. Because of that CGE is involved in about 100 events, conferences, seminars, round tables, training sessions and workshops around the world. We have an extensive partner program, and a development program with selection of industry leading clients and partners. CGE’s vision is to provide the right information to the right audience, to allow them to work safe and efficient - and to deliver high quality and be compliant at the same time. This can be achieved by understanding and managing your core processes from a “barrier based risk perspective”.

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Products / Services: BowTieXP, IncidentXP, AuditXP, BowTieServer
Product Name: BowTieServer

BowTieServer is an enterprise platform that allows organizations to assess and manage risks using a “barrier based risk management” approach. This approach is based on the BowTie method. Organizations can monitor and manage important “barriers” or “controls” in their critical operations. This can be done with Incident Analysis, Audits and Compliance Management. With the Action Management module audit findings, non-conformities, improvements and incident findings can also be used to improve the management system. Closely linked to BowTieServer is the desktop software BowTieXP – with the AuditXP, IncidentXP and LOPA (Layers Of Protection Analysis). BowTieXP has been introduced in 2004, AuditXP and IncidentXP in 2010 and BowTieServer in 2014. CGE is striving for constant innovation, which is reflected in the product roadmap.
Eka is the global leader in providing Smart Commodity Management software solutions. Eka's analytics-driven, end-to-end Commodity Management platform enables companies to efficiently and profitably meet the challenges of complex and volatile markets.

The company's best-of-breed solutions manage commodity trading, enterprise risk, compliance, procurement, supply chain, operations, logistics, bulk handling, processing, and decision support. Eka partners with customers to accelerate growth, increase profitability, improve operational control, and manage risks and exposures.

Leading the evolution in the development of the next-generation in Commodity Management, Eka has developed a solution to not only cope with the complex contracts, pricing structures, and financial derivative instruments that are needed to manage commodity supply chains, but also to provide advanced commodity intelligence and decision support. Providing all the analytic tools needed by companies that manage commodities, Eka's next-generation solution turns large sets of data into actionable insights and foresights. The solution can be delivered on premises, as a hosted solution, or in the cloud.

The software platform is suitable for a wide range of commodities in the ags, consumer products, metals, and energy fields, including biofuels, agriculture, power, fertilizers, oil, metals & mining, coal, and natural gas.
Eka is a team of 315 staff with offices in the Americas, Asia, Australia, and EMEA, serving a rapidly growing global client base across multiple commodity segments.

**Commodity Analytics Cloud**  
Version 8

Commodity Analytics Cloud is an advanced analytics solution that brings commodity specific analytics to all business users. Users can download prepackaged apps or customize their own apps. Harnessing data from both internal and external sources, Commodity Analytics Cloud brings all the data needed together in one place to answer the most important questions for commodities companies.

• Benefits of Commodity Analytics Cloud include:
  • Make better, faster, fact-based decisions
  • React to market changes before competitors
  • Concentrate efforts of data analysis, not data collection
  • Unlock insights trapped in systems
  • Reveal previously invisible risks

Due to Eka’s deep domain knowledge of the commodities markets, Commodity Analytics Cloud provides the commodity specific intelligence needed by today’s commodities companies. Eka’s unique Pace technology provides unprecedented speed and processing power to handle commodity transactions. The apps are available on mobile devices (smartphones and tablets) as well as laptops.

**Product Name: InSight CM - Agriculture**  
Version 8.4.1

**Smart Commodity Management for Ags**

Eka’s Smart Commodity Management platform, InSight CM, is an end-to-end transaction management platform built on a next-generation architecture that provides all the analytics and decision support tools needed by companies that manage commodities.

Eka’s InSight CM platform includes all the required functionality for managing physical trading, procurement, logistics, storage and handling, processing, risk, and compliance across the agriculture supply chain.

Whether it is a local farmer supplying a physical commodity or a large global organization exporting the commodity, Eka offers the right solution for local and global sourcing and distribution.
InSight CM - Agriculture

InSight CM - Agriculture gives you everything you need to manage physical trading, position, P&L, derivatives, risk, logistics, and finance across softs, grains, feeds, edible oils, oilseeds, livestock, and other agriculture-based businesses.

Benefits of InSight CM - Agriculture include:

- Manage both physical contracts and derivatives on one platform
- Assess your current position with real-time information
- Identify exposures and act proactively to mitigate risk
- Create effective hedging strategies that mitigate the effects of price volatility
- Provide everyone within your organization a current, transparent view of all positions and exposures

InSight CM - Agriculture is a comprehensive trading and risk management software solution for managing the entire agriculture and softs trade lifecycle. The solution addresses the needs of different participants across the agriculture and softs supply chain.

Product Name: InSight CM - Commodity Planning & Procurement

Version 8.2.1

Smart Commodity Management for Manufacturing

Eka's Smart Commodity Management software platform, InSight CM, captures, analyzes, and manages demand, budgets, forecasts, coverage, procurement, and hedging while providing real-time scenario and intelligence capabilities to optimize decision making.

Unprecedented volatility in commodity, energy, and packaging costs along with evolving regulatory requirements are key challenges faced by food and beverage, consumer products (CP), and industrial manufacturing companies. Volatility of input costs can adversely affect cost structures and forecasts, putting significant pressure on profit margins and management.

InSight CM - Commodity Planning & Procurement

Whether it is a small manufacturer buying a single commodity or a large global diversified organization having exposures across different commodity groups and regions, Eka offers the right solution for local and global sourcing and distribution.

Benefits of InSight CM - Commodity Planning & Procurement include:
Eka’s platform provides greater control over procurement of commodities, energy, and packaging. Advanced analytics and decision support tools are used for improved management of risks and exposures.

**Product Name: InSight CM - Oil, InSight CM - Natural Gas, InSight CM - Power, InSight CM - Coal, Insight CM - Biofuels, Insight CM - LNG**

**Version 8**

**Smart Commodity Management for Energy**

Eka’s Smart Commodity Management platform, InSight CM, provides a complete physical commodity trading and risk management solution. The software provides comprehensive management of physical trading, logistics, and storage management with efficient confirmation and settlement processes that are easy to use. Advanced analytics and decision support tools are also included for improved management of risks and exposures.

Whether it is a small independent producer or a large international supplier, Eka offers the right solution for local and global sourcing and distribution.

**InSight CM**

InSight CM is a fully integrated multi-commodity energy trading and risk management software platform for crude and refined products, natural gas, natural gas liquids (NGL), liquefied natural gas (LNG), power, coal, and biofuels covering the entire transaction lifecycle from capture through confirmation, operations, settlement, and risk management.

Benefits of InSight CM include:

- Gain real-time P&L data throughout the day instead of waiting to run end-of-day reports
- Manage exchange and OTC derivatives, foreign exchange, and interest rate derivatives
- Automatically maintain audit logs that track all users and activities including new deals being entered, feeds from external exchanges, and deals being edited
- Track transactions and any edits made to them, including confirmations
- Assess your current position with real-time information
- View deals in real-time including mark-to-market valuation, value at risk (VaR), backtesting, stress testing, and P&L

**Product Name: InSight CM - Metals, InSight CM - Concentrates**

**Version 8.2.2**

**Smart Commodity Management for Metals**
Eka Software Solutions

Eka’s Smart Commodity Management platform, InSight CM, provides a complete physical commodity trading and risk management solution. The software provides comprehensive management of physical trading, logistics, and storage management with efficient confirmation and settlement processes that are easy to use. Advanced analytics and decision support tools are also included for improved management of risks and exposures.

Eka's InSight CM platform includes all the required functionality for managing physical trading, procurement, logistics, storage and handling, processing, enterprise risk, and compliance across the metals supply chain.

InSight CM
InSight CM is a comprehensive multi-commodity platform specifically designed to handle requirements of different metal products such as base metals, precious metals, ferro-alloys, steel, secondary/scrap, concentrates, and other raw materials.

The software is an end-to-end trade and risk management platform for the metals and mining industry covering mining, smelting, processing & fabrication, and trading.

Benefits of InSight CM include:
• Manage both physical contracts and derivatives on one platform
• Assess your current position with real-time information
• Identify exposures and act proactively to mitigate risk
• Create effective hedging strategies that mitigate the effects of price volatility
• Provide everyone within your organization a current, transparent view of all positions and exposures

Product Name: InSight CM - Risk Advanced  Version 8.3.3

Eka’s InSight CM platform is an advanced solution for managing risk across multiple commodities. The comprehensive risk management solution controls price, counterparty credit, regulatory, and operational risk.

Price Risk
To protect against market price risk, companies can run various simulations to determine the effect on a company’s bottom line. Eka provides real-time position and mark-to-market P&L across physicals and derivatives, identifying exposures and enabling timely decisions and actions. The solution provides
sophisticated analytic and visualization tools to support scenario optimization, “what-if” deals, stress testing, VaR, and other advanced risk management techniques. Eka’s flexible platform allows users to set up and monitor business units and portfolios, customized to the level of granularity needed, for example by individual or commodity.

Credit Risk
With Eka’s advanced risk management solution, real-time counterparty credit monitoring is supported, and users can set up alerts and notifications to highlight potential breaches or contract milestones. This comprehensive feature of Eka’s InSight CM platform is very flexible, allowing users to define levels of notifications for various breaches and perform trend analysis on breaches.

Regulatory Risk
Eka’s InSight CM platform provides comprehensive hedging capabilities for commodity market participants and protects these companies from regulatory risk. Eka’s next-generation CTRM software allows companies to meet compliance requirements across commodities and foreign exchange derivative instruments. To enable companies to comply with the Dodd-Frank Act, the software automatically submits reports to trade repositories and maintains a complete audit trail—who, when, what.

Operational Risk
Companies using individual spreadsheets or siloed systems of information are exposed to operational risk. With Eka’s InSight CM platform, vital information is brought together in a single, central system to enhance decision making and protect against these risks. With a single, integrated platform that includes all front, middle, and back office functions, everyone in the company has the information needed.
FIREapps

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Products / Services:  Fireapps Enterprise™

About FIREapps

Whether you’re a treasurer, controller, CFO or CEO, you know the struggle between “only knowing what you know” and eliminating unwanted FX surprises. As former consultants, treasurers and corporate FX jockeys ourselves, rest assured– we’ve been there.

That’s why we created FiREapps, the leading provider of corporate currency analytics and FX exposure management technologies. Established in 2000, FiREapps developed the first solution to automate foreign exchange exposure management for multinational companies, no matter how complex their currency environment.

Through a combination of software solutions and expert analysis, FiREapps helps companies to accurately measure and manage their FX exposures with deeper insight than ever before. More and more Fortune 500 companies rely on FiREapps technology every day to help them reduce FX risk, increase efficiency and access their data faster than ever before.
At a Glance

• Founded: 2000
• Employees: 50+
• Headquarters: Scottsdale, AZ
• Locations: Portland, OR; London, UK; Frankfurt, Germany

What Our Customers Say

“If FiREapps hadn’t been easy to implement, scalable, and spot on in terms of capabilities, I might still be suffering through the spreadsheet process. But it was all of those things, and I’ve never looked back.”

- Dennis Close, Treasury Director, Nuance Communications

“I would highly recommend FiREapps to any company that is starting an FX program from square one. Even if you have a lot of knowledge in this area, if you have multiple diverse systems from which you need to pull and analyze data, FiREapps is a very easy, very intuitive way to do it.”

- Howard Wardlow, Director, Finance & Treasury, Hubbell

FiREapps products are easy to use and require no IT maintenance. With FiREapps, you’ll always have a single, trusted truth for your exposure – no matter how many ERP systems, data sources, or currency pairs you have to deal with.

Product Name: FiREapps Enterprise™

Some of the most demanding and sophisticated companies in the world rely on FiREapps Enterprise™ to support their mission critical FX programs. Whether your goal is to streamline and automate your end-to-end FX program or capture exposure data from a wide variety of ERP systems, FiREapps Enterprise™ is the proven, scalable solution.

FiREapps Enterprise™ enables the aggregation and analysis of exposures in balance sheet, cash flow, and revenue & expense data. Whichever sources of data you want to examine, FiREapps Enterprise™ leverages the FiREapps FlexEngine™ and FiREapps’ data management services to aggregate and normalize your data. This means that you can simply pick and choose what you want to analyze based on the questions you need to answer and forget about manually parsing through different sets of data for each analysis.
FIREapps

Key features include:

- Multi-currency accounting data integrity analytics and controls
- Comprehensive exposure data extract
- Dynamic query structure
- Rules-based filtering and exception reporting
- Role-based access controls
- Re-measurement environment validation analysis
- Period-over-period multi-currency accounting balance variance analysis
- Transaction currency-local currency integrity analytics
- Intercompany transaction integrity analytics
- FX gain/loss analytics
- End-to-end audit reporting

With FiREapps Enterprise™, you spend more time analyzing your currency flows and exposures without the burden of worrying about aggregating or validating your data. FiREapps’ unique “bottom up” approach to capturing transaction currency detail from accounting systems and forecasting processes provides you with the data and analytics required to gain in-depth insight into currency exposures and risks.

Key views include:

- Summary-level exposure and risk views
- Period-over-period views
- Customizable multi-period flow and exposure forecast views
- Forecasted to actual trend analysis
- FX gain/loss and exposure variance analysis
- Hedge performance analysis
- Volume and rate impact analysis
- Budget to actual variance analysis

Bottom line: FiREapps Enterprise™ helps global finance teams improve accuracy, efficiency, and speed with automated data capture and straight-through processing.
### Nasdaq

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**Products / Services:**  
*BWise*

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### About Nasdaq

Nasdaq provides market-leading technology solutions and intelligence to help businesses and investors succeed in today’s global capital markets. BWise is the cornerstone of Nasdaq’s GRC technology portfolio.

The Nasdaq BWise teams are known for their ability to execute successful implementation projects based on expertise, experience, transparency and effective partnerships during implementation. The BWise Academy offers a comprehensive range of training services and the Support Team is available 24 hours a day, 7 days a week.
Product Name: BWise

BWise is the cornerstone of Nasdaq’s GRC technology portfolio and offers a range of world leading GRC software solutions for Risk Management, Internal Audit and Compliance. All BWise software solutions are best of breed utilizing the rich functionality they offer and can be implemented as stand-alone. In addition all BWise software solutions share the same underlying platform which allows integration and data sharing amongst the various GRC functions.

The BWise software solutions are 100% configurable and no custom code development is required for any customer project. This reduces the implementation time and costs and enables partners and customers to have the flexibility to make changes to the configuration easily without vendor involvement. BWise continuously introduces new releases, and since all customers use the same code base, upgrading is an easy exercise which results in low Total Cost of Ownership.

The BWise software solutions are used by large and international organizations as well as by mid-size companies across all industries worldwide. Projects are either based on customer requirements or on the BWise delivery best practices.
OpenLink

About OpenLink

OpenLink is the global market leader for Transaction Lifecycle Management (TLM) software, and pioneered the development of cross-asset trading and risk management platforms. In terms of its offering, OpenLink is the only vendor with the capacity to be a one-stop-shop for firms looking to improve their energy as well as non-energy trading and risk management (for example as treasury management system). OpenLink boasts 600 clients worldwide, and its solutions are used by 37,000+ users internationally.

It is the only vendor in the space with strong capabilities across all energy-related commodities, as well as the ability to deliver end-to-end systems that help businesses with every part of the energy value chain and financial asset modeling, from well-head through to financial trading. Its offering is also the most sophisticated on the market, with advanced analytics and risk management tools that far outstrip those offered by competitors.

Its solutions are uniquely scalable due to the ease with which new functionality can be integrated with existing systems - OpenLink’s clients are able to easily grow their capabilities over time in line with their business needs. Thanks to its size, expertise, history, and client base, OpenLink is able to go above and beyond for clients, and support them in ways that exceed the bare bones of the traditional TLM service.
OpenLink has received numerous industry awards and recognition, including citations as the industry leader by Gartner, Chartis, Risk Technology and first-in-class ranking by Energy Risk Magazine for Commodity/Energy Trading and Risk Management (C/ETRM) systems.

**Product Name:**

OpenLink’s award-winning transaction lifecycle and risk management solutions support full product lifecycle coverage including pre-transaction decision support/analytics, trading/position management, collateral/margin management, risk management/compliance, settlement/clearing, accounting, treasury management and reporting.

Risk functionality includes market/credit/liquidity risk management, limits monitoring, stress testing, regulatory reporting and market data modelling.

**Market Risk**
Highlights:
- Trade processing and valuation for financial and physical trades including exchange traded, OTC derivatives, exotic options and structured products (commodity, energy, FX, fixed income, equity, credit).
- Analytics: Valuations, VaRs (parametric, monte carlo, historical), greeks and sensitivities, P&L attributions, known/projected cash flows, duration/convexity.

**Credit Risk**
Highlights:
- Represents legal structures, managerial hierarchies, etc.
- Legal agreements (netting rules, CSA). Calculates exposure values.
- Collateral management includes agreement and legal documentation, initial and variation margin management; collateral optimization for OTC bilateral and cleared trading.
- Advanced credit analytics/measures (future exposure, expected positive exposure, credit VaR, stressed VaR).
- Regulatory reporting (RWAs, CVAs).
- Business Intelligence tool aggregates credit risk data; counterparty credit risk reports.
OpenLink

Limit Monitoring
Monitors credit/market risks and compliance rules including limit/exposure measures (notional, duration, VaR, maturity, MTM, Greeks, cash flow, PFE).

Regulatory Reporting
OpenLink works closely with clients, regulators, clearing houses, clearing members, service providers, execution platforms and trade repositories to keep pace with the rapidly evolving derivatives landscape.

Stress Testing
Risk shocks applied via simulation engine to prices, rates, volatilities, horizon dates, credit ratings, changing pricing models/model attributes, operational events.

Market Data Modelling
Fixed income, currency, energy, credit, commodities and equity markets. Tools for pricing curves, volatility/correlation surfaces and time series.

Risk as a Service
OpenLink’s Risk Report Service leverages the award winning OpenLink risk platform to provide clients with cross-asset, consolidated, and enterprise-wide risk management in efficient and cost effective cloud based offerings. Clients can use OpenLink provided standard exposure data format and associated pricing models, or use their own customized exposure format and pricing models to perform Value-at-Risk, Stress Testing, and Sensitivity analysis.
About Prometeia SPA

We are a leading provider of consulting services and IT solutions focused on Enterprise Risk & Performance Management. With over 600 industry experts, we serve more than 200 financial institutions in 20 different countries, through a network of branches in Europe, Russia, Turkey, Middle East and Africa.

Our unique business model combines innovative software solutions, implementation support, extensive consulting services and methodological training for risk practitioners. A ‘one-stop shop’ for all buyers of risk technology and services.

We have been acknowledged as the best risk technology firm for our solutions in “Liquidity Risk & ALM” by the 2016 RiskTech100® ranking by Chartis, where we also stand among the top three companies in the customer satisfaction category.
ERMAS Suite is our integrated platform designed to support the active management of enterprise risks and maximize value generation, while meeting the requirements set by national and supranational regulators.

ERMAS’ modular architecture allows to activate each module independently, to fill a specific gap of the bank’s risk infrastructure, and to benefit from one integrated solution, based on a common data warehouse and state-of-the-art technology.

ERMAS supports active balance sheet management and reporting in compliance with BCBS regulatory standards, by integrating Credit, Funding and Market risk into a methodologically consistent framework. In this perspective, ALM becomes a key strategic process to steer the banking business and foster the financial performance of the bank.

Standard features include:

- Advanced cash-flow modelling techniques for the analysis of funding and interest rate risk, integrating clients’ behaviour, market scenarios and new business assumptions
- Multidimensional views of the balance sheet structure, maturity and composition, including gap profile, duration analysis and funding ratios
- Balance sheet, P&L and Capital Requirements forecasting, explicitly designed to support strategic planning, portfolio optimization and medium-term budgeting
- Interactive simulation of future banking and market scenarios, defined by product type, organizational units and other analytical dimensions, based on alternative business strategies, portfolio mix, spread and pricing assumptions
- Static and dynamic sensitivity analysis for Market, Credit and Liquidity Risk indicators, coupled with parametric and stochastic scenarios generation, designed to support stress and reverse stress testing
- What if analysis of alternative hedging strategies and assessment of optimal funding mix, instrumental to operational ALM and active credit portfolio management
- Full coverage of FX risk through static and dynamic analysis, including currency mismatch, basis points values and other market risk values

Flexible system setup, supporting group consolidation, complex divisional structures and allocation of ALM exposures via Fund Transfer Pricing models.
Quartet FS

About Quartet FS

Quartet FS was started in 2005 by former founders of Summit Systems with the goal of providing innovative software services for risk management, collateral optimization and regulatory compliance.

This is achieved by using a highly flexible software architecture that can accommodate all types of financial products, integrate and consolidate data from virtually any source and apply to it any sort of calculation or classification required by the course of the business.

ActivePivot, the product suite of Quartet FS, is thus ideally suited to provide market risk, credit risk or P&L attribution data as well as regulatory reports on-the-fly.
Product Name: ActivePivot      Version: 5

ActivePivot is an in-memory database and calculation engine. With its ability to aggregate objects (not just simple numbers but vectors as well), and ActivePivot can provide real-time market risk, credit risk, P&L attribution, position keeping and events dashboards directly to the users' desktop. Users visualize and analyze data using Excel or any other user interface alternative of their choice.

What's more, ActivePivot allows clients to plug-in their own business logic at every step of the aggregation process and manipulate complex objects so IT can deliver what the business requires.

In 2016, Quartet FS has extended the ActivePivot suite to include an interactive and highly-customizable UI as well as a NoSQL persistent storage solution. They have also modules to enable banks to quickly and easily comply with recent regulations such as BCBS 238 and FRTB.
Quaternion Risk Management

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Web       www.quaternionrisk.com

Products / Services: Quaternion Risk Engine (QRE), Quaternion Risk Management Services

About Quaternion Risk Management

Quaternion Risk Management Ltd was founded in 2010 by three senior banking professionals with extensive capital markets experience. It is an Irish registered company.

Increasing demand for Quaternion services worldwide is driving rapid growth of the Quaternion team and led to the formation of UK and German subsidiaries in 2011, and a US subsidiary with offices in New York and Boston in 2015.

Our clients are all participants in the capital markets around the world. They encompass investment banks, the capital markets arms of universal banks, state-sponsored financial institutions, insurance companies, hedge funds and asset managers.
Product Name: Quaternion Risk Engine (QRE)

The QRE provides pricing risk analytics for large portfolios covering a wide range of vanilla and structured products spanning all asset classes. We can reconcile models used for trading with those for regulatory purposes.

The QRE is based on the open source library for quantitative finance, QuantLib (www.quantlib.org) - providing transparency and extensibility.

The QRE comprises:

- The core pricing library in C++ and based on QuantLib, optimised for performance and extended by Quaternion to cover further products and efficient pricing methods;
- The integration module provides database access, data staging, data parsing, object construction and object repository, as well as interfaces to other systems;
- The core risk engine providing scenario generation (risk-neutral and real-world), repeated portfolio valuation under scenarios through time using parallelization techniques for optimal usage of multi-core and multi-CPU environments; it contains configurable analytics components (VaR, ETL, CVA/DVA/KVA/FVA, PFE ...) as post-processors of the valuation cube data;

The engine has been integrated into clients’ infrastructures including (amongst others) Summit, QuIC/Markit Analytics, Numerix, Reuters Kondor+ and Murex, as well as bespoke systems.

Analytics support:

Credit Risk

- Credit Portfolio Loss Analysis - Parametric and Monte Carlo Credit VaR,
- PFE,
- XVA Calculation (CVA/DVA/KVA/FVA) with Netting using our generic Monte Carlo approach,
- Semi-analytical CVA/DVA calculation,
- Risk-neutral and real-world measures
Quaternion Risk Management

Market Risk

- Parametric VaR
- HVaR
- ISDA SIMM and SIMM attribution
- Monte Carlo VaR and Expected Tail Loss
- Scenario Analysis and Stress Testing

Liquidity Risk

- Cash flow projection under scenarios; simulations take into account Evolution of Funding Cost and Mix; Asset Default and Changes in Liquidity; Exercise of Termination Options and Break Rights; Exercise of Options with Cash and Physical Settlement

Calculation of measures such as the Liquidity Coverage and Net Stable Funding Ratio

Product Name: Quaternion Risk Management Services

Services range from senior advice to concrete implementation with a focus on the quantitative aspects of the risk management, trading and finance functions. Our services are backed by the extensive experience of senior Quaternion consultants and partners in the areas of risk organisation remediation, quant analysis, software solutions, project and programme management, and training.

1. Consulting Services

- Quantitative analysis for derivatives and other highly structured products
- Pricing and risk system implementation, design, training

2. Validation Services

- Independent pricing and risk model validation and review
- Valuation of complex asset and derivative portfolios
- Review of in-house quantitative development
- Independent stress testing and backtesting
3. Some Major Business Requirements Supported

- Integration of Front office, Middle Office, Treasury, Risk and regulatory systems - workflow, processes, models
- Regulatory and Audit compliance: IMM, Basel, CRD IV, UCITS (reporting on fair value of derivatives), IFRS13 (market and credit risk analytics - CVA/XVA and XVA risk, PFE), FRTB, IFRS9 (Quantitative requirements), CCAR…
- IM/VM calculation for centrally cleared and non-centrally cleared trades, ISDA SIMM and SIMM attribution, Dynamic Initial Margin (DIM)
- P & L attribution
- CVA risk
- CSA restructuring
- Handling negative interest rates
- Portfolio optimization
RedShift International is a specialist trading & risk consulting company that offers expertise and services for the Financial Services, energy and commodity markets. We have direct experience of over 30 trading & risk projects ranging from small single site organisations to enterprise wide corporations.

We can offer advice on system selections, project budgets, realistic timescales, project organisation and project structure. Our aim is to show real benefits from any engagement as quickly as possible for our clients and recommend a choice of strategic routes that fulfil the business requirements. We work closely with the business, IT and infrastructure teams and act as liaison with the vendors where applicable.

**Industry Knowledge**

RedShift has many years of energy and financial markets experience, with detailed knowledge of credit processes, risk polices, workflow configuration, trading system integration, exposure calculations, margining and risk mitigation processes.

**Markets**
- Commodity
- Energy (Physical/Financial)
- Treasury (Fixed income/FX/Financial)
- Securities

**Contact**

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**Products / Services:**  
*Credit Risk Consultancy and Testing Services, RedShift Automated Test Expert (RATE)*
Risk, Exposure & Credit Processes

- Market Risk/Position keeping
- Counterparty Management
- Credit Scoring
- Limit setting processes/policies
- Trade valuations & Pre-deal checking
- Exposure measurement & application of netting rules (EFET, ISDA etc)
- Stress testing/scenario management
- Credit analytics (PFE, CVaR)
- Monte Carlo Simulation

Services Name: Credit Risk Consultancy and Testing Services

We offer the following:

- Business transformation
- System selection - RFI/RFP production
- Business case production
- Programme/Project management
- Trading/Credit system implementation
- Independent automated and scenario testing
- Business analysis & subject matter expertise
- Quantative analysis
- Report writing (SQL Server/Oracle)
- Documentation - manuals/guides/on-line help

In addition RedShift specialises in automated testing of risk systems utilising Selenium and HP Quality Centre and using professional testing consultants who have at least 5 years testing experience. If needed the consultants can bring added value through the RedShift Automated Test Expert (RATE) - a suite of integrated and configurable credit exposure and margining models that are proven to save project costs and time.

We can offer advice on project budgets, realistic timescales, project organisation and project structure. Our aim is to show real benefits from any engagement as quickly as possible for our clients and recommend a choice of strategic routes.
RepRisk

RepRisk is a leading business intelligence provider specialized in dynamic environmental, social, and governance (ESG) risk analytics and metrics.

Harnessing a proprietary, systematic framework that leverages cutting-edge technology and hands-on human intelligence in 15 languages, RepRisk curates and delivers dynamic risk information for an unlimited universe of companies.

Since 2006, RepRisk has built and continues to grow the most comprehensive ESG risk database that serves as a due diligence, research, and monitoring tool in risk management, compliance, investment management, corporate benchmarking, and supplier risk. The database currently includes risk profiles for over 70,000 listed and non-listed companies, 18,000 projects, as well as for every sector and country in the world.

Headquartered in Zurich, Switzerland, RepRisk serves clients worldwide including global banks, insurance providers, investment managers, and corporates, helping them to manage ESG and reputational risks in day-to-day business.

About RepRisk

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Web  www.reprisk.com

Products / Services:  RepRisk ESG Risk Platform, RepRisk Data Feeds, RepRisk Reports and Briefs
Product Name: RepRisk ESG Risk Platform

Based on the world’s most comprehensive database on ESG risks, the RepRisk ESG Risk Platform serves as a due diligence, research, and monitoring tool. Used by risk and compliance managers, investment professionals, public policy, corporate responsibility, and communications teams, as well as supply chain managers, the Platform supports data-driven decision-making by providing extensive analytics and proprietary metrics across a wide range of entities. It allows the user to dynamically identify and assess the ESG risks related to companies, projects, sectors, countries, and other entities that may present compliance, reputational, and financial risks.

RepRisk’s analytics and metrics are also available in the following formats:

Product Name: RepRisk Data Feeds

For screening and monitoring of large sets of data in a dynamic way, RepRisk Data Feeds are ongoing exports of quantitative data that can be customized to the client’s needs and integrated into internal systems and processes. Data Feeds can be delivered on a daily, weekly, monthly basis and are delivered by CSV/XML/XLS file via a secure FTP setup by RepRisk. An unbroken time series of data from 2007 is available.

Product Name: RepRisk Reports and Briefs:

For regular screening of investment portfolios or supplier lists, RepRisk offers various solutions for asset managers and asset owners (Portfolio Monitoring Reports) as well as for procurement and supply chain managers (Supplier Monitoring Briefs) that can be customized to the client’s needs and delivered on a quarterly or monthly basis in a convenient PDF format.

For those interested in just one or a few companies, RepRisk Company Reports can be purchased directly from the RepRisk Webshop: https://platform.reprisk.com/webshopsearch. Company Reports display RepRisk’s analytics and metrics as well as all of the risk incidents (news) from 2007 to the present, for an individual company in a convenient PDF format.

For more information on RepRisk solutions, please visit: https://www.reprisk.com/our-solutions or download the RepRisk Corporate Brochure: https://www.reprisk.com/content/static/reprisk-corporate-overview-brochure.pdf
RiskBusiness Services Limited

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RiskBusiness is an international risk advisory firm specialising in the design and delivery of industry leading customised operational and enterprise risk management solutions for small, medium, large and globally active firms. Staffed by highly experienced industry practitioners, our objective is that RiskBusiness will provide the financial services industry with the most accurate, unambiguous, relevant and current risk information, focussed on facilitating risk awareness and cross-organisation comparability. In doing so, RiskBusiness will add analytical input, framed with experience and knowledge, to facilitate informed decision making amongst our clients and subscribers, such that no risk-based decision is made without the incorporation of RiskBusiness content, information, advice or derived data being included somewhere within the decision-making process.

Risk Advisory - We partner with our clients at both corporate and business line levels to align stakeholders, review and critique existing risk programmes, design customised content specific to their needs, provide risk tools and design, pilot and implement enhanced risk programmes.

Risk Content Services - We offer industry leading taxonomies and integrated classification structures. These are designed to facilitate the successful adoption of risk programmes by business management and to enable the integration of governance, risk and compliance programmes, through the use of a common language and structure for the organisation of risk information. Our content include libraries of risks, controls, causes and processes taxonomies; risk measurement/management metrics; scenarios; and regulations.
Risk Information Services – We offer infrastructure and operational capabilities to support secure benchmarking of a wide range of risk, loss and/or business data, to support data exchanges and peer group comparison and analysis.

Risk Tools - We offer a comprehensive suite of risk, governance, compliance and audit tools, delivered to our clients under either a software-as-a-service (SaaS) model, where the application and supporting databases are hosted for the client by RiskBusiness, or as stand-alone internal implementations within the client site.

Our principal advisory locations are London, New York, Zurich, Amsterdam, Hong Kong, Toronto, Buenos Aires and Lagos.

Product Name: RiskBusiness RiskIntelliSet Version: NextGen 6.10

The RiskBusiness RiskIntelliSet™ is a comprehensive solution for both large and small firms across all aspects of financial services and suitable for most other industries as well, offering support not just for the typical operational risk programmes usually on offer in commercial software solutions, but including enhanced support for many surrounding business requirements, ranging from litigation management, outsourcing management, business resiliency management, risk appetite management and control, internal audits, compliance to process and control documentation and management.

Built on strong data encryption technologies supported by multi-level user access rights provision and control, the firm can decide exactly whom gets access to what and when, supported by audit trails, alerts and second stage authorisation activities.

The RiskBusiness RiskIntelliSet™ has been used by over 225 subscribing firms since its initial launch in 2005 and, as at 04 March 2015, the RiskIntelliSet™ had 9,128 defined users with an average of 372 unique logins per day, with the maximum logins on a single day to date having been 1,474. The RiskIntelliSet™ has processed 271,161 individual KRI data submissions, 548,957 loss events, 9,584 scenario assessments, 4,037 risk assessments and 4,074 risk profiles for its subscribers and been used to manage 7,199 remedial action items. These significant statistics illustrate that the RiskIntelliSet™ is capable of supporting from the smallest to the very largest of firms.

With no upfront license fees, no investment required in hardware, operating system or database software, no ongoing technical services assistance around data backup, version management or ongoing support and with an annual subscription fee which is typically less than the annual maintenance fees charged on traditional installed software, the RiskBusiness RiskIntelliSet™ is a compelling alternative for your operational risk solution needs – full of functionality, content and the flexibility of easy implementation.
Managing operational risk is challenging. Although operational risk management as an individual risk discipline was only formally introduced a little over a decade ago with the introduction of Basel II, firms are still struggling to meet even the most basic requirements – risk assessments, collecting meaningful and truthful operational risk loss data, which they are also struggling to classify accurately. The myriad of regulatory change being implemented following the global financial crisis is also challenging firms’ resources and ability to conduct business as usual. The Risk Universe helps risk managers from every industry to better manage their operational risk and helps guide them through all of the regulatory changes.

Unlike some business-to-business publications, The Risk Universe is run by industry professionals and is advised by an editorial board consisting of regulators, financial services practitioners, and industry experts, to ensure that its content remains fresh, up-to-date and answers the questions that operational risk managers need to know. The Risk Universe gets to the operational risk root of the story, providing new angles and approaches to old and new challenges.
Because The Risk Universe is a digital publication there is no more waiting for weeks for the hard copy of the magazine to arrive full of out-of-date information. The latest issue of The Risk Universe can be read the moment it is published via the PDF reader embedded on our website, which can be accessed on any device and even downloaded and printed as a hardcopy PDF. The content is also archived on our website for reference. For our readers who prefer to have a hard copy of the magazine, we do also offer a print-copy addition to the digital subscription.

The Risk Universe fills a market void with editorial staff able to write about the things that companies need to know in order to make informed risk management decisions.
TMX Group - Razor Risk

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Products / Services:  Credit Risk, Market Risk,

About TMX Group - Razor Risk

TMX Group is an integrated, multi-asset class exchange group. TMX Group's businesses operate cash and derivative markets for multiple asset classes including equities, fixed income and energy. We also provide clearing facilities, data and risk products in addition to other services to the international financial community.

Product Name: Credit Risk  Version: 3.8

Razor Risk's Credit Risk Product has been designed to accurately measure counterparty credit risk across all asset classes in a portfolio. Razor enables risk managers to take appropriate action in preventing major losses from occurring. The core analytics function is a high performance credit exposure and capital calculation platform. The scenario analysis function provides on-line, what-if analysis on a trade or position level, as well as full stress testing functionality with the extensive ability to apply shocks across a complete data set. Razor Risk has implemented various notification tools such as its pre-deal check capability, ensuring new deals conform to credit policy. The limit and excess management function, also allows risk managers to set credit limits for key areas of concentration and excess management capability if credit policy is infringed. The mixed risk aggregation function supports user-specific views of risk and can define the dimensions for aggregation enabling limitless portfolio definition. The extensibility
function meets the risk model needs of each client, is scalable to new business requirements and is extendible so new products can be integrated (i.e. new or current pricing models). Finally, Razor Risk’s credit risk solution is able to be deployed within any financial institution.

Calculation methodologies include PFE, MTM + Add On, CVA/DVA, regulatory measures including EE, EEPE, EEE and EPE. Capital can be calculated using FIRB, AIRB or an IMM approach.

Razor Risk continues to invest in its CCR product by extending its limit management workflow capabilities, in order to provide users with a task oriented solution, enabling firms to deploy more efficient risk management business processes.

In addition, Razor Risk is extending its analytics by building a high performance xVA framework covering CVA, FVA, CollVA, KVA and MVA as well as extending support for the upcoming SA-CCR and FRTB-CVA regulations.

**Product Name: Market Risk**

Razor’s Market Risk solution provides functionality to enable large financial institutions to fully meet internal and regulatory market risk management requirements. Value at Risk and Expected Shortfall are the foundations of the Market Risk product, using historical and Monte Carlo methodologies and leveraging Razor’s efficiency to obtain accurate results. Razor’s ‘drill down’ capability allows aggregation and workflow functions to isolate VaR at interest rate, FX, equity or volatility risk levels. Additionally, clients can define the sources of risk in their VaR calculations. Scenario Analysis, a core competency of the market risk, can apply data from historical market shocks (i.e. Lehman, LTCM) as just one of the ways Razor can configure a ‘what-if’ scenario. User-defined stress tests are also fully supported, allowing users to stress any of the input market data. Razor’s regulatory back-testing functionality adheres to BIS’ internal model guidelines. The distributed risk framework and sophisticated credit migration modelling provides risk managers the ability to rapidly implement an IRC model and modify the methodology when needed. Finally, Razor Risk’s market risk solution is able to be deployed within any financial institution.

Calculation methodologies include VaR (Historical Scenario Parametric, Monte Carlo, Taylor Series or P&L grid based), ES, sensitivity analysis, stress testing, Greeks and hedge ratios.

Razor Risk is building support for the FRTB regulations in addition to enhancing its aggregation and reporting capabilities, enabling users to generate on the fly custom reports aggregated across any dimension and providing the ability to add available key risk indicators and time series data. These features will give the users unique power to view different measures of risk across the organization, and to enable fast and efficient enterprise level stress testing.
Vigilant Software

About Vigilant Software

Vigilant Software aims to make the implementation of cyber security, information security and risk management straightforward and affordable for all.

Drawing on years of experience in developing and deploying risk management tools and services, our product range eliminates the complexity of a cyber security implementation project.

vsRisk™, our flagship information security risk assessment tool, was introduced in April 2007 and has simplified and automated the information security risk assessment process for hundreds of organisations globally.

vsRisk was specifically designed to help organisations quickly and easily carry out an ISO27001-compliant risk assessment.

Vigilant Software, with its significant investment in the information security and risk assessment and compliance sectors, is committed to a long-term product development strategy.

We build on our early success by creating and delivering superior risk management tools and accessories, making Vigilant Software the premier risk management brand within the cyber and information security management arena.

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Products / Services:  

vsRisk™
Built without unnecessary levels of complexity to further burden the user, our team ensures top quality support throughout the implementation of an Information Security Management System (ISMS).

Vigilant Software is owned by IT Governance Ltd: globally acknowledged as a leading authority on IT governance and information security.

All Vigilant Software Ltd shipping and logistics are handled by IT Governance Ltd

www.itgovernance.co.uk

**Product Name: vsRisk™  
Version: 2.6**

vsRisk presents a simpler, better and faster way to conduct cyber security risk assessments, and ensures compliance with the information security standard ISO 27001:2013.

Spreadsheet-based assessments take time to complete and analyse, and the risk of getting it wrong is pretty big. With vsRisk, you are assured of consistent, valid and comparable results that can be repeated year after year.

In fact, vsRisk is so straightforward and quick to use that your consultant probably won’t tell you about it!

vsRisk 2.6 features an updated sample risk assessment, allowing the user to quickly get started by customising and applying the example.

The sample provides a prepopulated list of assets, assigned to a standard set of asset owners, for a typical organisation. Each asset further features a series of potential preassigned risks, as well as the corresponding controls from ISO 27001.

vsRisk helps you identify all the relevant threats and vulnerabilities, enabling you to have greater visibility of the potential information security risks you face.

A built-in ISO 27001 documentation toolkit enables you to upload and customise policies and procedures against the selected threat response.

vsRisk Multi-user allows you to collaborate with multiple asset or risk owners across the organisation, thereby further speeding up the task of the risk assessor.

vsRisk’s simple and user-friendly interface, combined with a new dashboard and multiple types of reports, enable you to see critical risks that require immediate attention, due dates for the implementation of controls, and graphical charts about risk responses taken and controls applied.

vsRisk includes seven control sets, including ISO 27001:2013, PCI DSS, NIST SP 800-53, Cloud Controls Matrix and Cyber Essentials.

Support and update contracts provide full user support and updates for 12 months.
Amphora, Inc

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Products / Services:  

Symphony

About Amphora Inc

Amphora Inc. is the leading software solution and service provider for energy and commodity trading, risk management and logistics execution. With an impressive client list of global trading organizations, Amphora offers trading software depth, rapid and reliable delivery, and outstanding customer service. Our innovative software solutions cover the entire business process of a trading including trade capture, logistics, settlements, risk management and reporting.

Product Name: Symphony  
Version: 3.0

Symphony provides multi-commodity trading and risk management functionality for global organizations. By providing a unique & powerful formula-based deal capture to model any pricing structure, configurable logistics and settlement workflows and real-time position and P&L functions, Symphony is able to offer our customers unparalleled sophisticated functionality. Symphony has robust audit and control capabilities, giving businesses complete operational confidence. Symphony features a highly intuitive user-configurable interface, fast back-end performance, and powerful visualization capabilities. Amphora is proud to be releasing in 2016 an enhanced Risk Analysis capability, amongst other innovative features, to empower our customers’ to achieve a level understanding unique in the market.
Ancoa provides contextual surveillance and insightful analytics for exchanges, regulators, buy and sell-side firms. Our highly sophisticated, yet easy to deploy and simple to use, monitoring and surveillance platform helps firms take full control of their regulatory, reputational and operational risks across markets, functions and asset classes.

We help improve market integrity by providing greater visibility over trading behaviour. Our independent and real-time approach to monitoring, analytics, alerting and reporting, using powerful visualisation tools, enables firms to identify and manage potential risks of market abuse, fraud and operational shortcomings on a single platform.

Founded in 2010, Ancoa’s management team brings together a strong pedigree & track record in capital markets, technology, surveillance, analytics and entrepreneurship.

**Product Name: Contextual market surveillance & analytics**

Monitoring for manipulative trading practices to prevent market abuse is a regulatory requirement. The Ancoa platform encompasses the capability to surveil both traditional and nontraditional information streams. Real-time monitoring of trading behaviour is mapped against historic trading data to establish if any behaviour is irregular and requires further investigation. Traditional data sets can be contextualised against financial news as well as electronic communications, [email, instant messaging, voice communications and social media interactions] in order to detect potential market abuse and efficiently gather relevant evidence to investigate and submit a case.

Ancoa is cross market, cross asset class with a specific focus on the FICC (Fixed Income, Currencies and Commodities) markets.

In terms of roadmap development, in 2016, Ancoa will be migrating to a web version, will introduce new APIs (Application Programming Interface) and extended real-time operational monitoring functionality.
b-next holding AG

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About b-next

b-next is a specialist provider of proven multi-venue, multi-asset class, Capital Markets Surveillance and Compliance software solutions to meet regulatory mandates, manage risk and drive trading efficiencies. Its powerful, scalable solutions cover the total spectrum of compliance requirements for capital markets, enabling you to identify suspicious trading while raising overall efficiency and driving competitive advantage. The b-next Capital Markets Compliance (CMC) solution is a single integrated compliance platform for detection of Market Abuse, Insider Trading, Conflicts of Interest, Derivatives/OTC Monitoring, Best Execution reporting and monitoring of trading activity.

b-next provides clients with options for an onsite or Thomson Reuters Elektron hosted solution. Both offer rapid deployments with pre-built integration for Thomson Reuters Market Data and low monthly investments.

b-next has provided capital markets solutions for more than 25 years, it has a growing international client base, supported by offices in Europe, the US and Asia.

For more information, visit www.b-next.com
Product Name: CMC:eSuite

b-next’s CMC:eSuite solution offers a single integrated compliance platform with over 100 different scenarios for the detection of Market Abuse, Insider Trading, Conflicts of Interest, FX Benchmarking, Derivatives/OTC Monitoring, Best Execution Monitoring and Reporting of Trading Activity. It supports a diverse range of global clients including banks, brokers, asset managers, exchanges, regulators, funds and energy utilities.

The modular nature of CMC:eSuite offers financial institutions a highly effective, accurate and proactive means of detecting potential attempts at market manipulation. CMC:eSuite can be used to help institutions identify complex, dangerous trends and suspicious patterns in trading behaviour. CMC:eSuite’s integrated case and workflow management tools enable compliance officers to take early stage preventive action, thereby reducing the potential of both regulatory sanctions and catastrophic control failures. For 2016, a new Digital Communications Analytics module incorporates Verint Speech Analytics allowing search and analysis of voice call recordings, which meets Market Abuse Regulation (MAR) requirements.
CURA Technologies

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Products / Services:

GRC

About CURA Technologies

CURA Software is the perfect GRC Software Solutions (Governance, Risk and Compliance) built for all intents and purposes that enables mitigating and monitoring of facts-reliable facts, filling gaps of connectivity and communication between and among the hierarchy in any Business or Organisation. CURA roots its purposes on Certified Standards for Business Management like ISO, COSO, COBIT, HIPPA, SOX, KING III, and BASEL that makes it reliable and the most trusted Brand and has been in the industry from the past 16 years.
CURA Software Solution is:

**Agile.** Being agile is more than being fast - it is being nimble, flexible, and adaptable to a changing business environment. CURA enables agility by allowing organizations to monitor and manage risk in a continuously fluctuating environment. CURA is the most agile solutions available in the market to manage risk. It allows clients to be agile by delivering on time and on budget too.

**Intuitive.** Clients do not need to send staff through huge amounts of training and certification programs anymore. CURA delivers intuitive, engaging, and easy to use GRC at the business level as well as the back office of risk management and other areas of GRC. CURA achieves high value and results at the earliest time where organizations spend lots of time to get things working. Organizations can now focus on process, reporting, and improving - and not trying to make things work around a tool that is difficult to use and adapt.

**Value.** CURA delivers results. The value of CURA can be measured around efficiency, effectiveness, and agility. We make organization more efficient in GRC through human and financial capital efficiency, in mitigating risk and meeting objectives. Organizations become more agile in keeping current with changing risks, opportunities, business, and regulatory environments as well as more responsive in discovering and resolving exposures to risk before they become big issues.

**Depth.** CURA has a competitive and feature rich solution. It has been built out carefully, instead of haphazardly put together to meet promises made in an RFP that did not really exist.

CURA being the Pioneer of its kind, was established in 2001 and has been successful in providing solutions to Clients from all over the World till date. Over 250 Clients depend on CURA for their GRC Solutions that include iconic brands like Thiess, Anglo American plc, Westfield, Allianz, V/Line, De Beers, Glaxo SmithKline, Standard Bank, Virgin Blue, Vodafone, Alexander Forbes, Kellogg's to name few and Governments & Consulting Firms worldwide.
Enuit LLC

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Products / Services:

Entrade

About Enuit

Enuit was founded in 2008 with one goal in mind: To provide reasonably price E/CTRM application software to support the needs of trading operations across all commodities. Enuit’s product, Entrade, is Enuit’s vision of the future of E/CTRM systems. Enuit is based in Houston, Texas, and has one other office in Beijing, China. It was founded and wholly owned by David Meyers and Ken Han. David Meyers is one of two original founders of Nucleus, an ETRM product to gain some notoriety in the 1990’s. Ken Han, before founding Enuit with David Meyers, was Senior Vice President of software development for Sungard Energy.

David Good joins Enuit’s management team, after working many years with various other ETRM software companies, to lead sales and marketing. Enuit current supports many clients in the use of its product, Entrade, in Crude, Products, Natural Gas, Electricity, and Retail energy operations.

Product Name: Entrade

SINGLE PLATFORM. Entrade is an E/CTRM application platform built to support the needs of trading operations. Entrade is ready out-of-the-box front-to-back office functionality that captures deal terms, calculates both physical and financial positions, schedules cargos and shipments, actualizes and settle cargos and shipments, tracks credit risk, prints invoices, calculates Value at Risk, and many other important functions for crude oil, oil products, natural gas, electricity, metals, agricultural commodities, coal, and LNG. Entrade is built with state-of-the-art Microsoft technology: C-sharp and .NET. Its reporting capabilities are unmatched. It easily interfaces with other systems, and can be extended without much effort to support a company’s proprietary business processes. Entrade even has a retail module to support natural gas and electricity retail operations. All of this software capability is available within one homogeneous application platform and development framework. Entrade can be deployed stand-alone or via the Cloud.
MORS Software

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Products / Services:

**MORS Treasury, Liquidity & ALM solutions**

About MORS Software

MORS Software - Real-time Intelligence for Banks


Monitoring, managing and optimising all internal and external constraints are the key drivers for using MORS solutions for Treasury and Balance Sheet Management in today’s financial institutions.

MORS solutions are based on intelligent and powerful in-memory analytics, offering real-time analysis and reporting throughout the entire bank, integrating both treasury and banking book sides of the bank.

Product Name: MORS Treasury, Liquidity & ALM solutions  Version 5.50

MORS Treasury, Liquidity & ALM solutions

MORS Software provides a complete set of real-time Treasury, Risk Management, Liquidity Management and ALM solutions for banks.

MORS Treasury Manager - a front-to-back treasury solution, including real-time risk management and reporting.

MORS Liquidity Manager - a real-time liquidity risk management solution, with forecasting and stress-testing, including any LCR, NSFR, Rating agency and Internal liquidity metrics.

MORS Balance Sheet Manager - a real-time ALM solution, including Net Interest Income (NII), Net Interest Margin (NIM) and Interest Rate Risk in Banking Book (IRRBB) analytics.
Xactium

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Products / Services: Xactium Risk Management

About Xactium

Xactium is a cloud based Risk Management software vendor that is changing the way that Financial and other regulated organisations evaluate and manage their risk.

We helping a new generation of Risk Managers to drive efficiency, demonstrate the value of risk management and influence key decisions across the business.

Product Name: Xactium Risk Management

Xactium is a cloud Risk Management solution. Our flexible and collaborative platform ensures that organisations such the FCA, Direct Line Group, JLT and Homeserve can stay up to date and respond rapidly to both business and regulatory change.

Our advanced reporting capability provides a centralised, real-time view of all your risks, controls, actions and incidents. Flexible analytics and workflow tools enable timely and accurate information for decision making and rapid response to escalating issues and risks.

In addition, Xactium can analyse and monitor key control, risk, and performance indicators through self-defined dashboards to provide real-time status updates and an early warning system on all risks.
<table>
<thead>
<tr>
<th>Company</th>
<th>Web</th>
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<tbody>
<tr>
<td>Aadroit Systems Limited</td>
<td><a href="http://www.riskenomics.com">www.riskenomics.com</a></td>
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