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A Collabera Digital Company

Success Story

Market valuations, trading and risk management solutions for gas and power

SEFE

SEFE Marketing & Trading as part of the SEFE Group is an agile multi-commodity trader and trading partner. It seeks to create value – both on a proprietary basis and for its partners – in the gas, LNG, power, and environmental products markets. It has deep experience in derivatives, digital and analytics.

Over the last 20 years, the SEFE Group via its subsidiary SEFE Marketing & Trading (SM&T) has established itself as a successful energy trader. In that time, it has focused on deepening its analytics capabilities, developing successful trading businesses as part of a single portfolio business model, diversifying income streams to deliver sustainable earnings in challenging and volatile markets, and developing an operating model that is efficient and has strong operational resilience.

SM&T has worked collaboratively with Digiterre since 2014 on a range of projects. The first of these was the Market Risk Management (MRM) system, which was completed in just five months. This was made possible due to three key factors: Digiterre's deep domain experience, combined with technical expertise and the close-knit nature of the Digiterre-SEFE team which supported a highly effective co-working style.

Projects carried out with Digiterre

- Market Risk Management (MRM) [2013-2014]
- High Performance Computing Grid (HPCG) [2012-2014]
- Attributes in Real Time Curves (ARC) [2017]

This case study explores two of these initiatives, MRM and ARC, and describes the evolution of the technology used to support market valuations, trading and risk management for gas and power from 2014 onwards.

> ***"Digiterre has a reputation for having people on their team who know what they are doing. They presented the opportunity to get the right resources on site quickly, understand the problem that needed solving and get the project moving fast. And that's just what they did."***

Cuan Brown
Head of Trading IT, SEFE Marketing & Trading

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Market Risk Management (MRM) Project Background

Up until 2014 SM&T used an in-house, bespoke trading system. This was originally a curve repository but was adapted over time to also store trades, and to provide valuations of simple gas trades. Power trading was subsequently added to the platform, while gas trading was later transferred into a vendor-based ETRM.

> ***We ended up with a situation where we needed a level of aggregation across the ETRMs so the risk programme came about from a need to create a centralised place to manage risk, exposures and VaR; the likely medium-term future was to have multiple sources of data. For this reason, it made sense to create a risk programme that consolidated data, stored it in a centralised place for centralised exposure and from which to calculate VaR, perform scenario modelling of all associated risks and to run quant models.***

James Ronnie
Digital Trading Manager – SEFE Marketing & Trading

The output of this initiative was the centralised Market Risk Management (MRM) platform, built collaboratively by SM&T and Digiterre. It incorporated a user-friendly interface (UI) which replaced a legacy end-user compute solution.

The new UI allowed users with limited technical skills to interrogate the data multi-dimensionally to create and model new scenarios, look at book structures and to see the exposure on those book structures.

The MRM project had the following goals

- Creation of a new core risk management platform with a new set of Monte Carlo VaR models, to handle more complex linear trades and larger processing volumes.
- Improved accuracy in key areas of existing marketing and trading risk systems.
- Access to additional metrics, such as Monte Carlo Potential Future Exposure (PFE), Earnings-at-Risk, Cash Margin at Risk, and improved stress testing.
- Improved extensibility, to enable the system to be enhanced in the future.
- Improved maintainability.

Project Approach

Digiterre applied an agile approach to the project and divided the work into two distinct phases.

- **Phase 1:** Creation of the core risk management platform which incorporated new Monte Carlo VaR models, to handle the more complex, non-linear trades and larger processing volumes.
- **Phase 2:** Delivery of additional metrics e.g., Monte Carlo PFE, Earnings at Risk, Cash Margin at Risk and Stress Testing.

Key Project achievements

- Delivery within aggressive timescales, ideally suited to an agile approach.
- Aligned standards and practices.
- Optimised platform performance.

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Why Digiterre? When time is of the essence

The risk programme followed on from several prior and significant investment programmes, involving the implementation of both ERP and an ETRM instance. Once budget was approved, delivery of the risk project had become critical to support ongoing operations and the approved budget needed to be spent within a tightly defined timeframe. With much of the technical capability within the SEFE team still very heavily occupied by early-life support of the new ERP and ETRM systems, the technology team realised that they needed to look externally for the necessary software and data engineering skills, particularly the High-Performance Computing (HPC) knowledge, together with the required high levels of market domain experience.

> ***Digiterre had a reputation for having people on their team who knew what they were doing. They presented the opportunity to get the right resources on site quickly, understand the problem that needed solving and get the project moving fast, and that's just what they did. Digiterre's reputation had been established some time earlier, as members of our team had experience of Digiterre during stints at EON and Centrica, so there was a degree of cross-fertilisation and the knowledge that Digiterre was a safe pair of hands to get the job done.***

Cuan Brown
Head of Trading IT, SEFE Marketing & Trading

Developing Agile ways of working

Back in 2014, few organisations were truly agile, and many had yet to start their agile ways of working journey. Digiterre already had over a decade of agile experience at that point and was able to help further develop agile working practices at SM&T.

"I remember a conversation at the time being, we can operate with these guys, they won't tie us down to traditional methodologies because in order to get this done on time we need to move in an iterative way. And that totally suited us and our aims." *Cuan Brown.*

Together, Digiterre and SM&T formed a well-integrated, tightly knit project team to maximise the chances of a successful collaboration and to optimise knowledge transfer in both directions. The resultant platform was to become the client's technical asset, and naturally they needed their team to acquire sufficient technical knowledge throughout the development lifecycle, to be able to support and further enhance the system once Digiterre had completed its engagement.

Digiterre's approach was in direct contrast to the organisation's experience of some of the multi-national consulting firms which had tended to operate on a command-and-control basis at odds with the ethos of the SM&T team. Furthermore, the successful design, build and completion of the High-Performance Computing (HPC) grid project, on equally tight timescales, to provide the necessary computational capabilities for MRM, was a feat in its own right.

> ***The project was a big success. Phases 1 and 2 were delivered on time. The commercial reality for the business was that it needed to complete the project, resource it externally and deliver on time – and this is exactly what happened.***

James Ronnie
Digital Trading Manager – SEFE Marketing & Trading

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What have been the business benefits of implementing the MRM platform?

"It certainly made a big difference to our trading and risk management, to have one of the very best risk management tools in the industry available to support us, in the form of MRM." *Cuan Brown.*

"The MRM platform has enabled us to make the right decisions in terms of the optimisation of our portfolio and our exposure to the markets, to potential credit exposures under the current price, at a time when prices have risen, and margin percentages have gone up. It really is business critical to optimise for these factors and MRM allows us to do that." *James Ronnie.*

Attributes in Real Time Curves (ARC) Platform 2017

Up until 2017, a bespoke tool was the curve repository of choice for the business. However, there was a plan to adopt a vendor-based curve management tool, which aggregated market data, provided analytics, and automation price curves.

The fundamental problem with this approach was that there was a whole swathe of tools, systems and capabilities that needed direct or API access or SQL access to be able to consume time series curves and price data, and the vendor product did not support that level of system integration. This meant that although it was a great product, it was unusable by the rest of the organisation.

The decision was made to build a pricing curve repository (with Digiterre's help) to overcome these problems and to ensure pricing data was attributed systematically and correctly according to type, date, country, and currency. The aim of the project was to create a solution that was operationally more efficient than the vendor tool, while also creating a much improved user experience. This was achieved by aggregating all the required source data into a platform which successfully incorporated all the direct, API and SQL access points into a single, consistent, controllable platform.

The result was Attributes in Real Time Curves (ARC), a highly performant curve repository that managed and correctly attributed all the required data and curves to the correct consuming systems. ARC is still in use today.

> ***"The ARC project was very successful. To this date, many years on, we've never had a complaint that the ARC curve repository is too slow. I genuinely think it's about the best piece of inhouse developed software I've seen. The business perception of it is still high, which in a world of big-name software product brands, I think is phenomenal. But ARC has managed to survive that."***
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> ***Cuan Brown***
> Head of Trading IT, SEFE Marketing & Trading