

# How the Accelerating Pace of Technology Innovation Is Spawning Breakthroughs in Capital Markets Solutions

The pace of innovation in technology is rapidly accelerating. This is a good thing, as it expands the capabilities for financial institutions to capitalize on the opportunities facing the capital markets. One avenue for accessing this innovation is through strategic fintech partnerships. These partnerships in the technology solutions space are established to create long-term value for market participants and to ensure they have access to the most innovative and comprehensive tools to meet their needs.

One such partnership exists between CubeLogic and Numerix. CubeLogic is a London-based provider of business intelligence enabled risk management products and services for the energy, commodity and financial markets. CubeLogic and Numerix share a passion for capital markets innovation and it is this joint mindset that triggers our drive to succeed for clients.

Karl Sees, managing director of financial services at CubeLogic, recently attended Numerix's NEXT 2021 Virtual Global User Conference, where he participated in a session titled, "Innovation Solving Complex Client Problems." During this session, Karl contributed some very perceptive remarks on topics related to technological innovation, crypto, blockchain technology and climate change risk, and also discussed some of the solutions delivered through the strength of the CubeLogic/Numerix partnership.

Here, we share Karl's insights and viewpoints on those themes.



## Innovation Requires Leadership

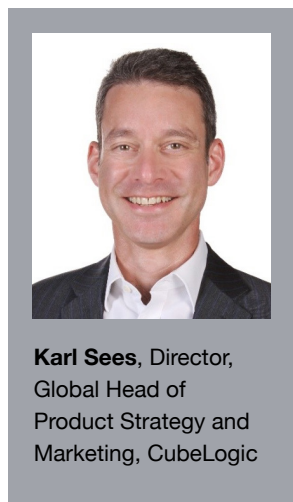
The definition of innovation that appeals to me is "the practical implementation of ideas that result in the introduction of new products or improvements in products." Our role, for both Numerix and CubeLogic, is to understand the challenges our clients face and to create real solutions to address those challenges. This means we have to be flexible, extensible, open minded and, importantly, have an open architecture ethos. That's what leads to innovation.

In our line of business, there is no innovation without leadership in innovative technology. Big tech changes are happening now, and the past year has seen a sharp increase in capital markets firms looking to take advantage of all the opportunities being offered.



## Cryptocurrency as a New Asset Class

The extensive flexibility of the CubeLogic/Numerix-combined product has enabled us to easily support crypto currencies as a new asset class alongside traditional ones. Small adaptations were required to support the peculiarities of cryptos—such as the different types of storage and wallets, and the insane volatilities and liquidity problems—in order to enable us to combine them with other asset classes into a single portfolio view of credit and market risk, and thereby creating a critical bridge between digital and traditional assets for our clients.



**Karl Sees**, Director,  
Global Head of  
Product Strategy and  
Marketing, CubeLogic

## Real-Time Risk

Coming back to the point about insane crypto volatilities, I believe Numerix and CubeLogic have together created a unique value proposition by combining the support for cryptos as an asset class with our joint real-time enterprise risk framework. This has been successfully deployed to solve the problems of micro-second pre-deal credit and margin checks, continuous 24/7 real-time margin

adequacy monitoring, real-time margin deficit alerts and client notifications and—as a last resort—ultra fast close-outs. These capabilities demonstrate how we have successfully combined themes, in a practical way, to solve real client problems over the last 18 to 24 months.

## Blockchain Technology: Putting Smart Contracts in a Risk Management Context

It is still early days but there are clear signs that blockchain technology is slowly starting to be adopted in both the capital markets and the energy and commodity sectors. One example is the recent launch of the first digital borrowing base credit facility for a major energy firm through a blockchain partnership partly owned by major trade finance institutions. The use of blockchain technology has clear benefits for these complex and data intensive deals. These include transparency, integrity, more efficient workflows and improved protection from fraud.

A key enabler for such innovations is the growing acceptance of consortium blockchain networks that address the problems of privacy, security and scalability of open networks. These private networks also enable the use of blockchain technology without having to incorporate crypto currency requirements, so it allows for a lot more flexibility.

Another interesting aspect of blockchain technology, albeit also still in the very early stages, is the concept of smart contracts. These are pieces of self-executing code that enable pure STP (straight through processing) via blockchain technology in a way that mimics traditional contracts and strips out manual processes. Examples include option exercise, margin exchange, handling of letters of credit, transaction execution and counterparty closeout based on margin triggers. In fact, the universe of trigger-based events that could potentially be covered is vast.



While some firms have already started to experiment with smart contracts, there is some way to go before they become widely accepted. Critically, there are a number of risks associated with smart contracts that have not yet been fully addressed. These include:

- Legal risk: There is no legal precedent around enforcement and legal liability remains unclear.
- Cyber risk: Generally, smart contracts are very vulnerable to cyberattacks.

- Human error: Error handling and robust testing are required to mitigate potential risks of bad code.

In terms of legal risk, smart contracts are analogous to self-driving cars: who is responsible if there is a crash? The driver? The car manufacturer? The software engineer? These legal principles need to be resolved before mass adoption of smart contracts is realized.

In short, there are a lot of things we need to work through as an industry, but I certainly think that in the not-too-distant future smart contracts will become an integral part of risk management technology.

Lastly, one further issue with blockchain technology is its enormous energy usage. This is rather ironic in light of my final innovation topic: climate change risk.

- What problems are we now going to have to solve for user groups that we didn't have to solve in the past?

At a high level, these issues boil down to a couple of things. First, in the credit risk space, what is the impact of climate scenarios on the credit worthiness of borrowers and counterparties, and the value of collateral? And, second, in the market risk space, what is the impact from sudden price falls, spikes in volatility, or breakdown in correlations driven by new information on climate scenarios coming onto the market? These are the questions that are driving firms and regulators in their attempts to formulate new regulations and market best practices. While the pace of change differs across countries and sectors, regulators are now starting to issue best practice expectations around things such as climate-driven macroeconomic scenarios in stress testing and IFRS 9 provisions (an International Financial Reporting Standard published by the International Accounting Standards Board that addresses the accounting for financial instruments).



## Addressing Climate Change Risk in Portfolios

Another phenomenon rising to the top of the risk management agenda is how to address climate change risk in portfolios. Climate change certainly can't be ignored, as it brings both risks and opportunities for investors.

There are a lot of academic and economic discussions going on, and I like to think about it in terms of how climate change risk affects our clients in practical ways. For example:

- How does it affect our core user groups in credit and market risk?

So far, credit risk has been the main focus in the banking sector as it is the biggest consumer of capital. That is not to say that no progress has been made in the market risk space, but it has generally received less attention than its larger cousin. Current best practices in credit risk are still very top down. Examples include:

### • Portfolio & Sectorial Exposures

- Qualitative and quantitative measures of carbon emissions and water shortages by sector
- Mapping exercise—looking for climate risk concentrations
- Heatmaps

• **Transition Risks**

- Assessments of how each sector will be affected by the transition to a low-carbon economy. In many cases, carbon footprint is used as a proxy for transition risk
- Impact assessment of stranded assets
- Indicators relating to “greenness”

• **Physical Risks**

- Mapping of geographical risk concentrations and types of hazards, including estimates of probability and severity
- Geospatial mapping to assess exposure to physical risks, e.g., flood risk assessment of mortgage portfolios

Other more emergent and bottom-up techniques include the analysis of an individual counterparty’s exposure to both physical and transition climate risks. Currently, this is usually done separately from the standard credit risk assessment. For example, an analyst will assign a “climate risk rating” based on sectoral characteristics (see above) adjusted for company-specific factors.

## Closing Notes

The culmination of an unstable global environment as well as increasing competition coupled with tighter regulatory scrutiny could be viewed as challenging and as a strain to the financial services industry. However, the truth of the matter is that with the accelerating pace of technological innovation, there is a significant opportunity to the various stakeholders. This is time to reinvent business processes (e.g., transition from fossil energy towards renewable energy), automate lower value tasks (e.g., via distributed ledgers), and transition the respective business lines so that they align with forecasted growth areas, such as ESG.

*To speak with Numerix and CubeLogic about how their partnership solutions can assist your trading and risk management needs, contact [sales@numerix.com](mailto:sales@numerix.com)*