TATA CONSULTANCY SERVICES

Augmented Reality: A Boon for Digital CROs

Abstract

Augmented reality (AR) — the next big thing in technology — has already started making inroads into the banking and financial services industry with a few global banks building AR-enabled mobile applications. AR has seen a wider application in retail banking, especially to improve customer service, however, its use in risk management is still at a nascent stage.

This paper analyses how AR can help chief risk officers (CROs) better manage risk using AR and highlights areas where it can be successfully deployed.

Introduction

Imagine a Monday morning, when risk executives at a bank detect a cyber-attack. The news spreads rapidly on social media. At stake is not only the reputation of the bank but also the possibility of deposits being run-off, other losses as well as a funding crisis. The situation is exacerbated by the inadequacy of traditional tools to accurately assess the crisis and provide real-time insights to risk executives and their teams on forward action.

In such situations, access to data and right insights are crucial for organizations to respond in an agile manner. The data and insights also need to be available in a format conducive to analysis; impact analysis in real-time and a quick and effective response will require efficient data visualization tools. Traditional two-dimensional tools used by banks, however, lack the ability to perform multi-dimensional analysis based on multiple variables, leading to delays in decision-making in a crisis. New age technologies like augmented reality can help in such circumstances by enabling effective data visualization. In our view, risk management functions at the banking firms led by CROs must explore the use of AR for effective data visualization.

AR can be used to superimpose the bank's risk data onto the user's view of the real world. A simple example can be the risk executives holding an AR-enabled cell phone integrated with risk data mapped to different geographies over a world map. When the risk executives hold the cell phone over Europe or any other geography, they can see funding exposures or other risk exposures in that particular region. Using AR in risk management enables multidimensional data analysis as opposed to the traditional two-dimensional data analysis afforded by bar graphs, pivot tables and so on. Instantaneous data access and effective data visualization for changing risk exposures in real-time will help risk executives take faster preventive action thereby minimizing the possibility of a loss.

Let's examine a few areas for AR use.

Early Warning Indicators

Combining AR with machine learning (ML) tools can help trigger automated alerts for impending risks across different areas such as market risk, liquidity risk and credit risk. For example, using AR and predictive analytics, risk professionals can generate insights about future events. On receipt of the early warning signals or alerts, risk managers can leverage AR to perform multi-dimensional data analysis in real-time facilitating faster corrective action. Effective data visualization

also enables risk management teams (second line of defence) to proactively challenge the decisions taken by risk owners (front-end functions), thus further aiding risk avoidance.

Stress Testing

AR adoption can significantly simplify stress testing, which is currently an exhaustive and resource-intensive exercise. Risk executives can use AR to simulate different stress scenarios and witness the impact in real-time. Different stress scenarios can be simultaneously projected on multiple screens to enable executives to identify scenarios that have the potential to create liquidity gaps or severely impact the capital ratio. We believe AR adoption will reduce costs and free up resources from time-consuming stress testing activities by enabling banks to monitor real-time impact and proactively perform multi-dimensional analysis.

Risk Limits

Risk concentrations across geographies, counterparties and so on may marginally go over the risk limits at times, and require a quick decision on whether the risk limit must be increased. Traditional tools cannot handle the multiple data elements required to make such decisions. With AR, multiple parameters can be examined to assess the impact of the marginal risk and take a quick decision on whether or not to raise the limit.

Risk Reporting

Data plays a critical role across risk functions and is used to produce several two-dimensional risk reports to spot trends and identify emerging risks. For example, during stressed market conditions, banks will need to quickly assess capital ratios to check compliance with Basel III regulations. In such cases, the complex, data intensive calculations can be performed quickly on the cloud with near real-time data and, AR-enabled devices can be used to assess the impact on capital ratios. Similarly, AR devices can be used to quickly analyse key risk metrics for various possible 'what-if' scenarios facilitating the delivery of superior and intuitive business insights during times of market stress. Compared with the traditional two-dimensional reports viewed on flat screens, which limit the amount of information that can be absorbed, multi-dimensional data visualization facilitated by AR-enabled devices help make reporting more interactive. Improving data visualization will also help reduce the number of internal risk reports as a single data set can be used across multiple dimensions. Risk managers can 'play' with the multi-dimensional data-sets and filter and drill down to specific granular aspects as per their preference.

Easing the Life of the CRO

CROs take care of banks' risk management function by way of strategic decision making for risk boundaries and appetites, overseeing all risk-related operations and adjusting to the evolving market and regulatory landscape. They serve as the second line of defence in mitigating risk in business-as-usual as well as future events. These decisions can have organisation-wide impact and hence need to be evaluated with utmost care. Adopting AR can help CROs better discharge their duties.

Using meeting rooms equipped with advanced AR devices can make CRO meetings with risk heads more intuitive and interactive. Executives at different locations can access the same multi-dimensional data through AR devices and slice the data per their preference for further analysis. For example, the CRO can use a dashboard with data on all the different risks (market risk, credit risk and liquidity risk). Such a dashboard will allow the CRO to communicate simultaneously with each risk head to better understand the exposures and initiate decisive action to mitigate further proliferation when a particular risk exposure looks set to cross pre-determined risk limits.

Artificial intelligence (AI) powered AR devices can provide contextual information so that the CRO does not always have to tell a computer what to do. The AI enabled AR device will understand what the CRO is looking for and proactively provide contextual insights enabling faster decisions. For example, if the CRO is drilling down on a particular geography to check funding exposure, the AI enabled AR device would understand the context and pop up the dollar amount exposures and different types of funding in that geography.

AR Adoption: From Theory to Action

Clearly, AR can deliver tremendous benefits to risk executives and banks must equip themselves with AR capabilities to thrive in the fast-paced digital era. Taking some preparatory steps will enable seamless adoption:

- Identify the digital programs required to transform complex legacy IT infrastructure and make underlying risk processes AR-ready; some of the key programs could include:

  - transforming traditional data warehouses to data lakes

  - enabling continuous real-time data integration to replace existing batch processes

  - enabling centralization of risk data across credit risk, market risk and liquidity risk with the long term goal of using the same data for risk and finance functions

- implementing cloud and robotic automation technologies
- adopting agile methodologies

- Run a pilot to identify implementation challenges; some of the challenges could include:
  - lack of resources to implement change programs given the need to ensure business-as-usual; a special team can be formed to focus on digital initiatives
  - non-availability of high quality integrated risk data due to IT infrastructure silos; a well thought out data strategy that spans extraction of data from source systems to loading data into risk systems can overcome this

Looking Ahead

Digitalization of the risk management function is still an emerging area, and AR is as yet an unexplored territory. However, underestimating the potential of AR to enhance risk management will result in banks losing their competitive edge. In addition, with other divisions of banks hopping on to the AR bandwagon, the risk management function too will need to follow suit to ensure harmonious synchronisation needed for effective collaboration with other divisions. AR adoption will require investment and effort to overcome implementation challenges but we believe that the benefits will far outweigh the costs. Banks that want to evolve into the 'bank of the future' must not baulk at the costs but focus instead on the opportunities to drive transformational growth and unlock exponential value that AR will offer.

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