Bank of 2030: The digital future of securities exchange operations
Global securities and futures exchanges have heavily invested and continue to invest in technologies to support high-frequency trading, colocation venues, and direct market access for trading partners. However, digital improvements to nontrading operations are lagging.

Exchanges that automate nontrading operations as part of a larger digital transformation may gain significant benefits, including increased efficiency, reduced operational footprint, and support for future growth.

The exchange of the future will be characterized by new revenue streams, streamlined operations, and a symbiotic network of ecosystem partners made possible by emerging digital shifts.
Today there are over 130 global securities exchanges that are trading equities, options, exchange-traded funds (ETFs), futures, swaps, and derivatives for cash, energy, and commodities. All are operating in an industry being reshaped by business challenges, strategic choices, and the possibilities that emerging technologies offer. Current drivers include:

- **Revenue pressures** from regulatory mandates and restrictions (for example, fee transparency for market data services, connectivity) and a squeeze on traditional exchange users due to the knock-on effect of quantitative easing; also, **tightening margins** from increased competition (easy access to new exchanges and products) and lower switching costs driven by technology advancements.

- **Exacerbating legacy operational inefficiencies** and technology debt as older and traditional exchanges face stiffer competition from new, nimble exchanges.

- **Heightened regulatory activity** globally, with particular focus on transparency, oversight, and robust operational controls and risk management processes; scrutiny of operational resilience and risk spanning surveillance, recovery, and ability to handle stressed markets.

- **Constant and evolving cybersecurity** threats, requiring laser focus on protecting data and technology ecosystems.

- **Significant consolidation of exchanges** emanating from technological, legal, and competitive changes and the need to expand into new markets, products, and service offerings.

- **An evolving digital ecosystem** incorporating blockchain, big data analytics, cloud, artificial intelligence, cognitive, and other emerging technologies.
As securities and futures exchanges pursue better margins and improved shareholder value, we are seeing evidence of investments in technologies to support high-frequency trading, colocation venues, and direct market access for trading partners. Not keeping pace are digital improvements to exchanges’ nontrading operations (figure 1); many functions remain dependent on spreadsheets, manually intensive operations, and a limited control environment.

Exchanges that automate these nontrading operations as part of a larger digital transformation may gain significant benefits, including increased efficiency for traditional trading activities, a reduced operational footprint, and support for future growth via alternative mechanisms for revenue generation and an enhanced customer experience.

Figure 1. Securities exchange nontrading operations
Journey to digital transformation

Over the past few years, some global exchanges have embarked on digital transformation journeys to reshape their business models, redefine and refresh the customer experience, support new product and service offerings, and strengthen regulatory compliance. Among key focus areas for technology enablement:

- **Reduce manual operations.** Automate processes through digital interventions across member onboarding, payments, and listings.
- **Provide data on demand.** Develop models that provide data and information to help clients make efficient trading decisions and better manage capital.
- **Reduce latency for various services.** Minimize turnaround time for high-volume activities, including risk and regulatory reporting.
- **Launch digital products and services.** Reduce time to market for blockchain, chatbots, and other offerings.
- **Access global exchanges.** Partner to provide additional benefits for companies, such as dual listing and increased investor reach.
- **Enhance market surveillance.** Better identify market manipulation, fraud, and compliance issues with minimal manual intervention.

Transformation is being enabled by a portfolio of emerging technologies that address current front- and back-end challenges while also making exchanges “future-ready” (figure 2).

**Figure 2. Emerging technologies enable digital transformation**

<table>
<thead>
<tr>
<th>Reimagined</th>
<th>Open APIs</th>
<th>Big data and analytics</th>
<th>Robotic process automation</th>
<th>Artificial intelligence and cognitive</th>
<th>Distributed ledgers</th>
<th>Cloud services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reimagined, state-of-the-art user experience for end customers, members, and employees</td>
<td>• Modular architecture and reusable components at UI, domain, and system levels</td>
<td>• Enhanced insights (trading patterns, audit trail, market behavior, etc.)</td>
<td>• Increased operational productivity; ability to deploy staff on value-added activities</td>
<td>• Improved customer experience supported by digital virtual agents</td>
<td>• Enable reduction of information asymmetry and greater compliance</td>
<td>• Reduced CapEx</td>
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<tr>
<td>• Any-time, any-place, any-device access to key customer-end user touchpoints</td>
<td>• Seamless, yet controlled integration with exchange’s core systems</td>
<td>• Improved compliance through surveillance and fraud analytics</td>
<td>• Improved customer service enabled by increased processing accuracy and faster response times</td>
<td>• Predictive operational risk controls</td>
<td>• Enable transparency, trust, and increased operational efficiency across the network</td>
<td>• Flexible consumption models</td>
</tr>
<tr>
<td>• Critical component to enable a “marketplace” of “plug-and-play” services</td>
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<td>• New revenue stream enabled by data monetization opportunities</td>
<td></td>
<td>• Increased resiliency through predictive maintenance of IT systems</td>
<td></td>
<td>• Unprecedented access to innovation and decreased time to market</td>
</tr>
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The securities exchange of the future will be characterized by new revenue streams, more efficient operations, and a symbiotic network of ecosystem partners made possible by emerging digital shifts (figure 3).

**Figure 3. Securities exchanges of the future**

- **New and alternate revenue streams**
  - Monetization from raw transactional feeds, curated historical data, and analytical models
  - Application hosting platform for fintech and other ecosystem players
  - Small market exchange platform providing a suite of “soup to nuts” listing and secondary market services
  - Direct market access targeting specific customer segments (e.g., targeting VCs to trade in small market stocks)

- **“Retail-like” customer experience of the future**
  - Intuitive and seamless customer experience focused on exchange to exchange “retail-like” customer journeys
  - Any-time, any place, any-device access for applicable customer interfaces and interactions

- **Enhanced and automated controls**
  - Automated operational controls supported by state-of-the-art dashboards that allow for proactive risk identification and mitigation

- **Focus on new-age products**
  - Focus on listing, trading, and settlement of digital products (e.g., ICOs)
  - Focus on digitizing physical assets through tokenization to enable efficient transactions processing

- **Supported by next-generation scalable architecture**
  - An operating environment architected on next-generation technology platform
  - Systematic focus on innovation and reduction of technology debt
  - Shift from legacy systems to platforms and ecosystems supported by emerging technologies

- **Run by an augmented workforce**
  - Human and digital labor working symbiotically, performing core operations processing at scale and with precision
  - Automated workflows, with exceptions-based middle- and back-office processing
In this future-state model, exchange operators should be well-equipped to engage in numerous initiatives to enhance revenue generation and streamline operations. Potential application areas include IPO listing and continued-listing compliance; securities lending and borrowing (SLB); data monetization; small market “storefronts;” complete value-chain coverage for small and midsized enterprise (SME) institutions; open API–enabled platforms; shared Know Your Customer (KYC) compliance; market surveillance; and continuous model validation for clearing and margin.

While the journey to digital transformation will not be easy, exchanges risk being displaced should they not move forward. An important initial step is to answer questions that will guide overall strategy and prioritize functions for modernization.

- Which strengths and capabilities do we have today? Which are core or unique and should be retained? Which do we need to build and/or buy to enable a next-generation exchange?

- How do we eliminate friction points to improve our customer experience—make it more seamless, personal, and intuitive?

- How can we reduce barriers to transacting?

- How can we simplify internal and external processes?

- With whom should we partner to mutualize costs or improve revenues?

Thriving exchanges of the future likely will be characterized by their understanding and adoption of innovative solutions and enabling technologies that are designed to attract a broader ecosystem of players and provide them with access to more data for decision-making and the ability to access markets seamlessly.
Cloud computing
More than just a CIO conversation

Technology spend levels and growth projections confirm that cloud computing is the most important force shaping the market for technology services. Across the global financial services industry, organizations are leveraging private, public, and hybrid cloud solutions to create innovative products and services, fuel enterprise transformation, and redefine the "art of the possible." For additional Deloitte insight on cloud computing, see the Wall Street Journal article, "Why cloud is on the board’s agenda."

If you want to learn more about how your bank can use cloud technology as the catalyst for enterprise transformation, please contact us.

Bank of 2030: Transform boldly
The future of banking will look very different from today. Faced with changing consumer expectations, emerging technologies, and new business models, banks will need to start putting strategies in place now to help them prepare for banking in 2030.

How can you drive bold transformation in your organization over the next 10 years?
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