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The changing world of technology in financial services

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THE past decade or so has seen a strong focus on risk and compliance technologies that make use of analytics in financial services. These technologies, which might be called "defense" technologies—in contrast to "offense" technologies that involve marketing and revenue growth—include applications and infrastructure for risk management, fraud prevention, regulatory, and anti-money laundering (AML) compliance. They bring the power of analytical insights—initially used for identifying marketing opportunities in many companies—to risk mitigation in banking. While these distinctions are somewhat blurred by integrating risk-based insights into "offense" activities, they are a useful shorthand.

The Great Recession of the late 2000s drove both a greater focus on risk management and substantial new regulation for financial firms. In part because of the often sweeping scope and tight timelines of these regulations, resulting regulatory compliance and risk management processes in financial institutions have become quite labor-intensive and may require manual intervention. The implementation of new defensive technologies has also involved considerable effort. In addition, budgets that might have been used for investments driving

growth and profitability have often been diverted to meet regulatory requirements.

But the context for financial technology is likely to change over the next several years. The new US administration has promised to eliminate or streamline financial regulations such as Dodd-Frank,[1] which could lead to a renewed focus on revenue and profit-generating programs and technologies—those on the offense side.

There is an increased focus on cost efficiency in risk and compliance organizations and processes. Changes will likely be driven, in part, by cognitive technologies that promise to significantly enhance the automation of key processes. Introducing these technologies to risk management and regulatory compliance processes could reduce the level of human intervention costs and time to completion. Such initiatives could also free up scarce analytics and technology personnel who could then focus on quality and value-added tasks. Both the offensive and defensive moves could durably increase banks' profitability, which has been under pressure for some years now. Moreover, increasingly automated and standardized financial and risk management processes could be better incorporated into revenue- and profit-generating activities.

While many risk and regulatory compliance processes may involve routine processes, there is often substantial human interpretation and judgment involved that leaves opportunities for cognitive and automation technologies to play an important role. For example, using machine learning in model development (that is, designing models to automatically improve their performance via feedback from comparing their projections to results) could lead to higher productivity as well as better models which harness larger data sets and analyze more variables (or features) for improved risk prediction.

Such models can lead to greater granularity of results, which can not only enhance risk management but can be incorporated into revenue generation and profitability activities. For example, the same models used to identify credit problems in small business customers can also be used to identify targeted customers worthy of specific marketing campaigns.

There are also many activities on the defense side that involve either processing or generating text where new technologies can provide considerable assistance. Regulators require financial institutions to produce AML-suspicious activity reports (SARs) and model validation reports—these are already being generated by some companies (including Deloitte) using natural language generation (NLG) technologies. These technologies are probably best known for producing automated news and sports stories but are increasingly being applied to defensive and offensive applications, such as investment reports, by financial services firms.

Natural language processing (NLP) technologies analyze and digest text for meaning. In financial services, NLP has been used for analyzing internal fraud and compliance ("reading" employee emails, for example), as well as for digesting new regulations. An NLP system can analyze a new regulation to extract meaningful terms, determine what entities within a bank might be affected, and may even assess which banking products or businesses might be at risk of noncompliance.

Many compliance processes are highly structured and require access to multiple information systems. A technology called robotic process automation (RPA) is being increasingly applied to such tasks. An example is an RPA application that can automatically receive and compile log file records for IT events, which are often the subject of regulatory inquiries and audits.

There are also a variety of more traditional analytical tools that can assist with defense-oriented objectives. Predictive coding and e-discovery are tools from the commercial litigation field that can classify documents in terms of their relevance to legal cases. These tools can also be applied to perform population analysis—as opposed to the analysis of sample data—which can reduce or eliminate sampling errors in analyzing transactions for risk and fraud. Even employee and customer voice records can be analyzed for potential suspicious activity, which can help identify the potential for serious breaches before they happen.

There are, of course, human resource implications for financial institutions as they adopt these technologies. Given the scarcity of highly qualified employees in risk

management, for example, these technologies may make available such resources who can shift their attention from the routine tasks which can occupy 60–80 percent of their time. The productivity of quantitative analysts can be greatly accelerated with machine learning. Highly structured work that is often outsourced may be automated and brought in-house.

In general, the broad adoption of analytical and cognitive tools can help enable a shift to higher-order skills and value-adding tasks for human workers within an organization. The time to plan for such changes and to begin to educate the workforce about the task and job implications of smart machines is, of course, now.

The capabilities of these new technologies also have important implications for company strategy. If your management team isn't doing so already, it should consider examining more cost-effective approaches to defense-oriented processes. Executives should also prepare to embed risk capabilities into revenue-generating activities. Most financial organizations should be aggressively exploring analytical and cognitive technologies as well as other emerging technologies like blockchain that have gained popularity lately.

It's important to remember that the pace of change in employing these technologies will be driven not only by

traditional banking rivals but, increasingly, by financial technology (fintech) startups and technology vendors for whom this technology is in their very DNA. Wise leaders will embrace these technologies before fintech firms can develop a large customer base. Time is of the essence, because start-ups usually start with a clean slate and no legacy of processes or antiquated skill bases.

ENDNOTES

1. Jacob Schlesinger, "Trump treasury choice Steven Mnuchin vows to 'strip back' Dodd-Frank," Wall Street Journal, November 30, 2016, http://www.wsj.com/articles/trump-treasury-choice-steven-mnuchin-vows-to-strip-back-dodd-frank-1480513188.