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Reimagining Investment Research

A New Operating Model Leveraging Bots with Brains

Introduction

The pace of technological change is faster than ever, especially with the advent of advanced artificial intelligence and cognitive technologies, which allow machines to not only mimic human actions, but also human reasoning and decision making. Financial services firms have been effectively leveraging new age technologies in various areas. However, automating investment research is still in its nascent stage.

At the same time, tighter regulations like MiFID II and limited research budgets are driving investment research teams to provide more insightful and timely forecasts and stock recommendations at reduced costs.

Investment research is ripe for disruption and the industry is expected to consolidate in favor of front runners who reinvent their operating model. This point-of-view explains how investment research can leverage advanced technologies and unconventional data sources to provide high-end research, improve efficiencies and create competitive advantage as the market accelerates into a new stratosphere of tech-led disruption.

Paradigm Shift in Research: Drivers of Change

Research functions are facing an urgent need to overhaul their operating models because of multiple reasons.

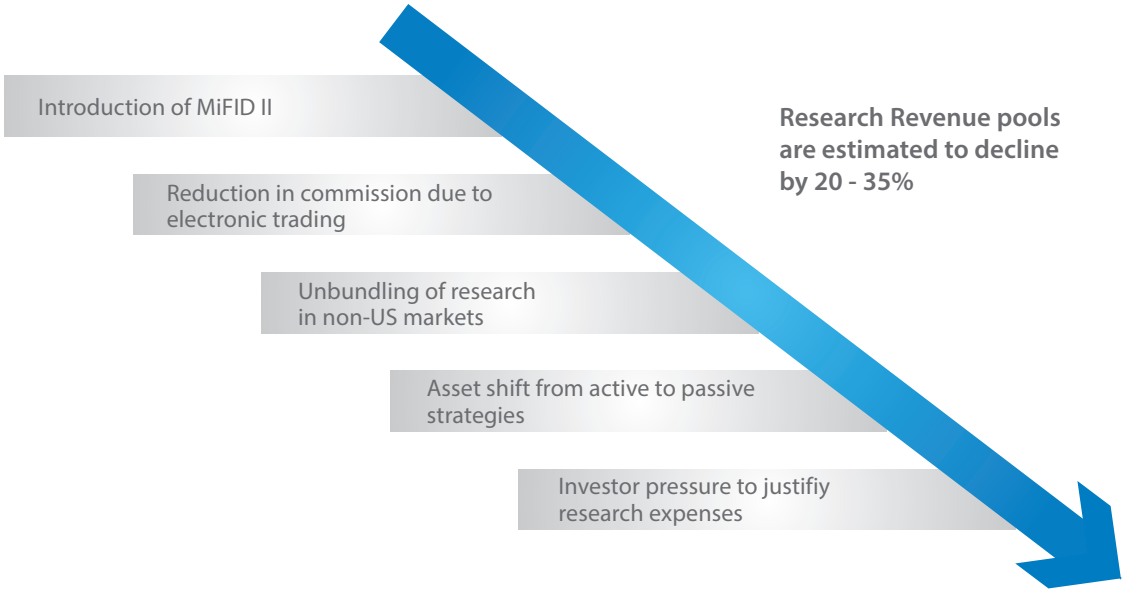
First, there are exponentially higher expectations from what research should deliver. Analysts are more challenged than ever to provide timely and insightful research to their clients. They must stay on top of the dynamically changing social, political, economic and regulatory developments – all of which have a direct impact on the business outlook of the firms covered. Analysts thus must be able to effectively derive deep value from the vast amounts of market news and real-time data available today.

Shrinking revenues

Research teams are facing tremendous pressure on their operating margins due to the decline of cash equity revenue pools, the reduction in commissions due to electronic trading and competition from discount brokerages, as well as the growing shift from active to passive investment strategies such as exchange traded funds. Furthermore, the introduction of new regulations such as MiFID II mandate buy-side firms to pay explicitly for sell-side research resulting in unbundling of research from trading services. This has forced money managers to reduce the overall consumption of research which will ultimately lead to a consolidation wave.

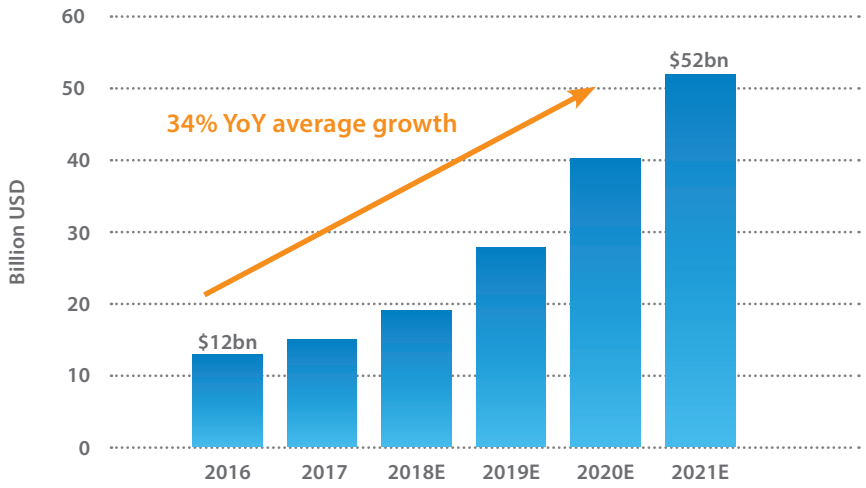
> As a result of MiFID II, European fund managers have cut their 2018 investment research budgets by 20%.
>
> *Source: Greenwich Associates*

Figure 1: Factors driving down investment research revenue



Source: Infosys Consulting

Figure 2: Worldwide spending on cognitive and AI systems



Source: IDC

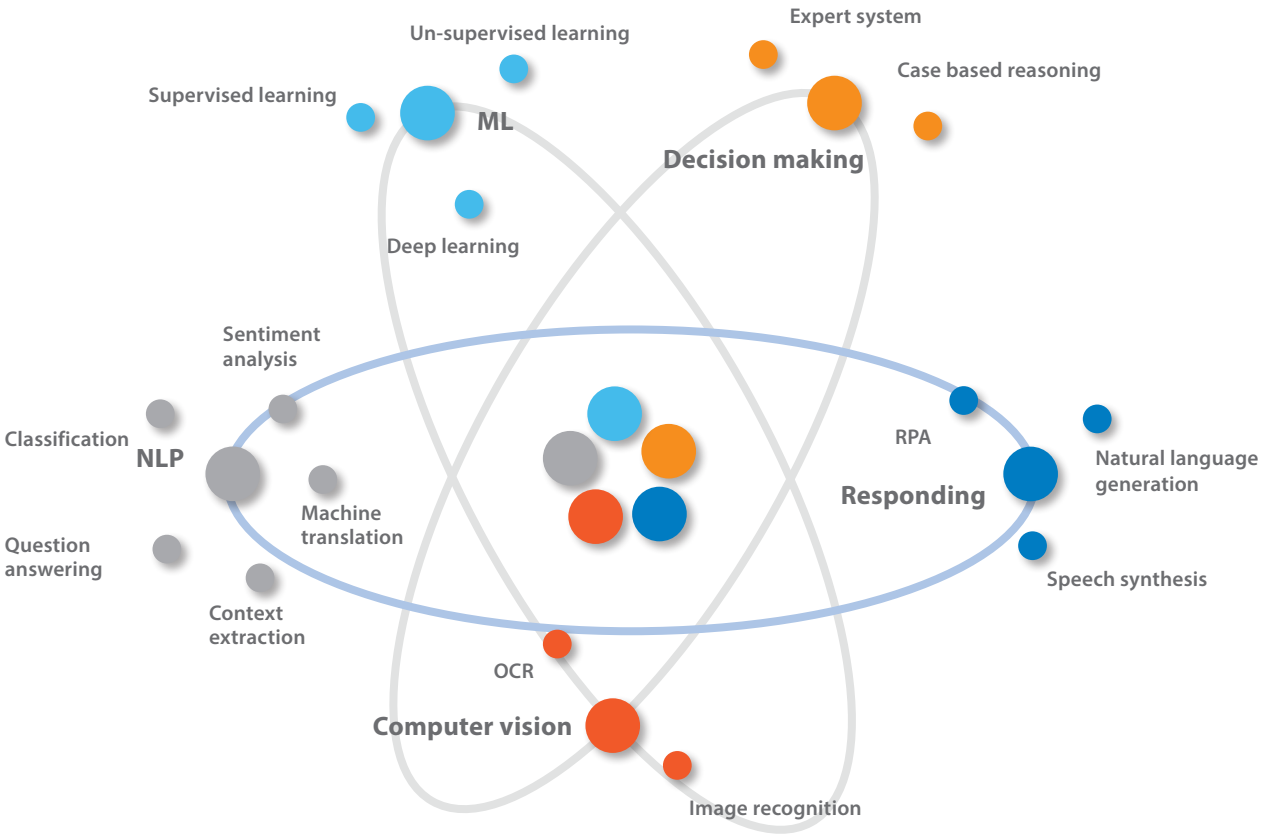
Technology maturity

The rapid pace of technological change has been further accelerated by analytics and artificial intelligence (AI). According to IDC, worldwide spending in AI is estimated to grow to $52 billion by 2021.

The entire gamut of AI technology or what we refer to as bots (with brains), has the ability to identify, extract, analyze, organize, and interpret information. These capabilities along with new technologies like cloud computing have the potential to disrupt the current operating models for research authoring and distribution.

Research teams that can differentiate their offerings by providing valuable insights based on their access to vast data repositories like historical data earnings reports, tweets, blogs, deep industry knowledge, and intricate relationships with firms, will gain a significant competitive edge and see increased demand for their services.

Figure 3: The AI components and capabilities



Source: Infosys Consulting

Bots (With Brains): The Newest Members of The Research Team

In the traditional research model, the key analyst activities are built around gathering data from financial statements, research reports and other market sources. Then, activities focus on generating deep insights from this data and running financial modeling simulations to determine target prices and metrics and finally on writing and publishing research reports.

Pain points expressed by analysts for gathering research information:

"I never have time to read a full article."
"I would love a simple summary of complex written material."
"I just want everything in one place."
"I don't trust sentiment scores!"

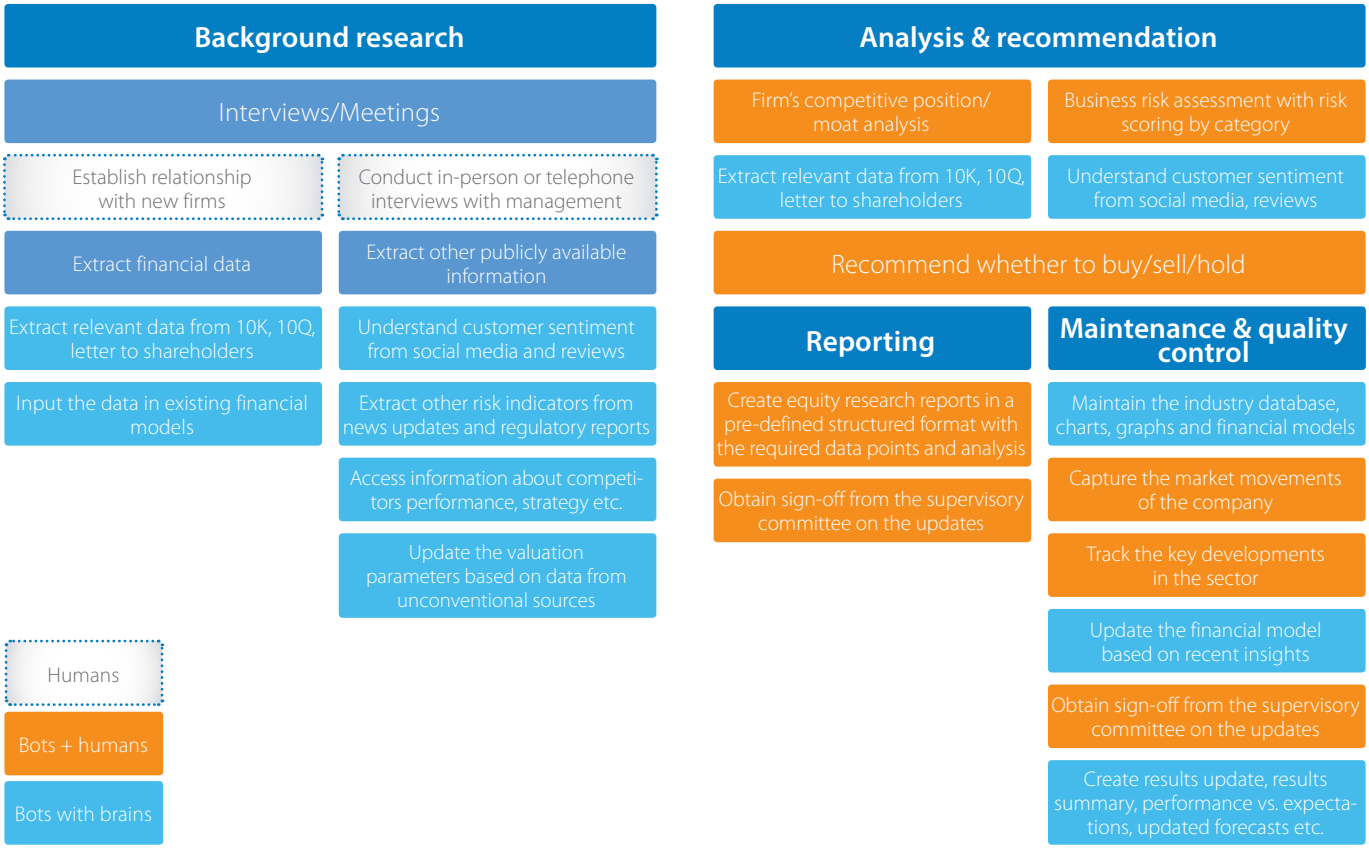
Source: Infosys internal research

Many of these activities, including collecting documents, converting data into usable format (e.g. XBRL to Excel) or structuring reports or data management, are rule-based, repetitive tasks which have been completely or partially automated by many firms. However, extracting and understanding relevant data from a multitude of sources such as news, emails, social media and other core analytical functions are still predominantly done manually.

This is where AI and cognitive technology are rapidly entering the space – to augment the investment research process and deliver more insightful research at a fraction of the time and effort.

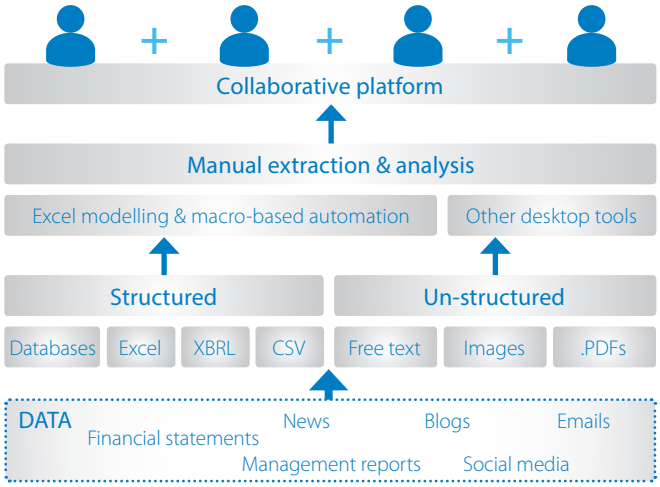
We believe that the future investment research operating model will transition from a human only to a "human and bots team" structure, where bots work alongside research analysts and perform a range of tasks from low value to complex tasks with minimal human oversight.

Figure 4: The scope of automation for various analyst activities



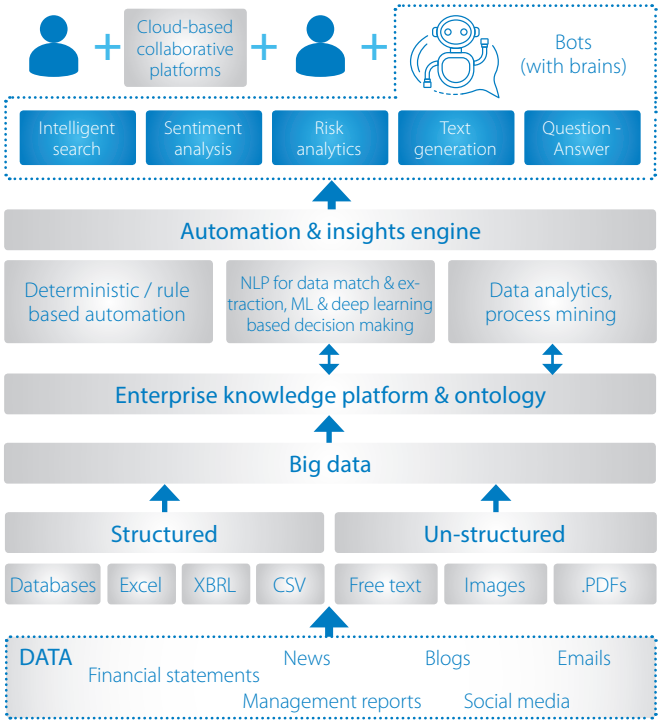
Source: Infosys Consulting

Figure 5: Current research landscape



Source: Infosys Consulting

Figure 6: Future research landscape



Source: Infosys Consulting

Potential use cases for new age technologies in investment research

Structured data extraction – Bots can extract financial data from spreadsheets and digital reports in XBRL, HTML or PDF format – either on an ad-hoc or scheduled basis – and populate excel models for cash-flow analysis, revenue and profit projections, equity valuations and drawing graphs.

Maintenance – According to a CRISIL GP&A study, research analysts spend 45% of their time on maintenance research such as modifying and enhancing Excel models or regularly updating data or data sources. A significant part of this work is rule-based, requiring access and processing of structured data and therefore will be one of the first set of tasks to be automated (rule-based RPA).

Unstructured data extraction – Bots using machine learning (ML) and natural language processing (NLP) can access letters to shareholders, press releases, social media posts, job boards, news and customer reviews to identify and extract the information relevant to the firm. This capability can be further extended using semantic analytics which uses conceptual models such as ontologies, thesauri, fuzzy logic, predictive modeling and deep learning algorithms to provide the user with more relevant and accurate results.

Insights and sentiment analysis – Using NLP and machine learning, bots can help build a knowledge base and generate insights across a range of information sets. For example, to understand the public sentiment about a new product launched by the firm, bots can analyze customer comments across the web to determine overall sentiment.

Valuation and risk analytics – Cognitive automation can spot and categorize risks (strategic, compliance, financial, operational and reputational risks) by analyzing text in public domain data as well as in management reports. The risk can be quantified into a risk premium and can offer valuable input to investment decision making (to help create portfolios which diversify risk and generate alpha returns).

Report generation – Natural language generation (NLG) can be used to draft sections of the report that an analyst can edit to make it ready for publication.

Amplify with alternative data

As cognitive technology moves into research, analysts can not only effectively analyze existing data sets, but also tap into alternative data sets to gain insights that are normally buried in cyberspace thus creating a competitive advantage. By adopting alternative data sets, it was for example possible to accurately predict the production of Tesla cars in 2018 without having to wait for a formal announcement by the company.

Early adopters had to mine these data sets themselves which was expensive and time consuming. But vendors now make it easy for research firms to access alternative data sets through subscription based services.

Realizing Benefits of The New Operating Model

All of the above capabilities can be tied together to allow analysts to search, save, and annotate documents, set alerts for specific market events, view relevant online articles, extract, manipulate and share data or ask ad-hoc queries via an interactive medium like chatbots. This helps analysts to devote more time to critical activities like analysis, discussions with clients or the investor community rather than being buried in manual and time-consumer data analysis and basic activities.

Although the benefits are clear, business and technology leaders need to answer the following questions before taking decisive steps to introduce and leverage advanced technologies:

1. *How can we ensure that the adoption of new technology is feasible, viable and reliable?*

2. *Which workflows and tasks are best suited to being automated and should be prioritized?*

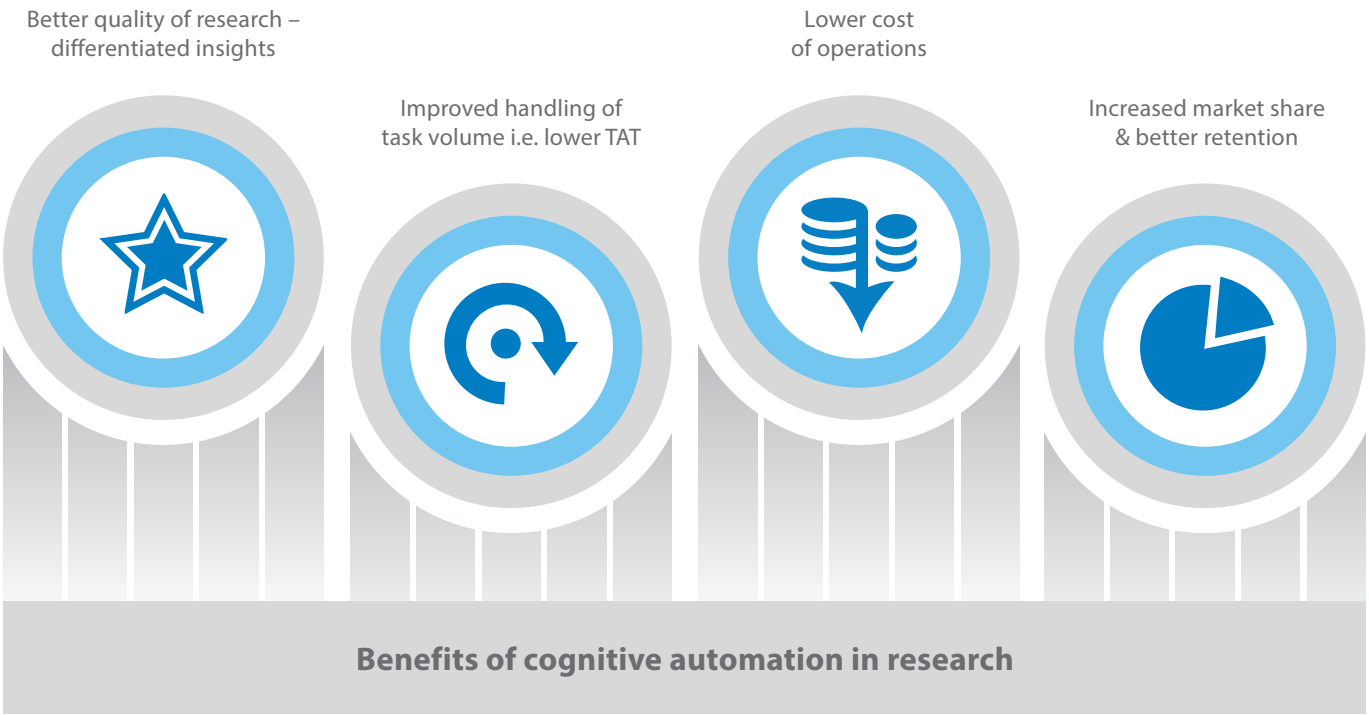
3. *How do we smoothly and effectively transition to the new operating model?*

Developing proof of concepts (PoC) of key use cases and testing them extensively helps validate concepts and defining which areas and tasks are a good fit for automation. Furthermore, a clear vision, executive sponsorship, values, a strong business case, a roadmap for design and development, as well as organizational change management, need to be defined. Firms having domain knowledge and expertise in building AI capabilities can support research functions to design and deploy a customized strategy to stay ahead of the game.

Conclusion

Investment research is ripe for disruption. Early adopters of advanced technology will be able to stay ahead of the game and withstand technology, regulation and investment industry changes. With the new operating model discussed in this paper, research teams can monetize the vast amount of data and industry expertise to produce impactful and differentiated research.

Figure 7: Benefits of cognitive automation in investment research



Source: Infosys Consulting

About the Experts

Mouli Malakar – Consultant

Mouli is a Consultant with Infosys Consulting's Banking & Financial Services practice. She holds a B. Tech degree in Electronics & Communication from the University of West Bengal and an MBA in Finance from ISB. Mouli has over six years of experience in advising BFSI clients in designing and delivering their digital strategy and performance improvement programs across various areas (lending, risk & compliance, accounting, payments, claims processing). She has extensive experience in user experience design, technology investment planning, finance effectiveness and driving enterprise wide process excellence using digital transformation and automation.

Parthiv Mehta – Principal

Parthiv is a Principal Consultant with Infosys Consulting's Banking & Financial Services practice. He holds a Bachelor of Engineering in Electronics & Communication from University of Mumbai and a Post Graduate Diploma in Business Administration in Finance and International Business from NMIMS, Mumbai. He has over 19 years of work experience and interest in the application of artificial intelligence, automation and emerging technologies in banking and capital markets. Prior to Infosys Consulting he has worked in capital markets in various areas including structuring, sales and syndication of financial instruments and fixed income brokerage.

Laurel Souza – Analyst

Laurel is an analyst and has four years of experience in artificial intelligence. He has worked with AI platforms such as IBM Watson, Microsoft Azure, Python and TensorFlow. Laurel has delivered various AI projects related to retail banking, retail CPG and Logistics (RCL), investment banking and predictive maintenance for clients across the US, the UK and Norway. Laurel has done his Masters in Computer Science & Engineering (M. Tech).

Uttam Purushottam – Senior principal

Uttam is a Senior Principal Consultant with Infosys Consulting's Banking & Financial Services practice. He focuses on advising and delivering transformative programs in Financial Services leveraging cognitive and automation technologies to improve effectiveness and efficiency of operations. He has an MBA degree from the University of Toronto and bachelor degree in Engineering. He also passed level III of the Chartered Financial Analyst (CFA) program.

Rajesh Menon – Financial Services & Insurance Practice Head

Rajesh spent a decade in the capital markets industry prior to joining Infosys Consulting in 2003. He started the regulatory compliance practice in 2005, which has grown into one of the strongest offering areas in financial services. Since taking on the role of a partner in 2009, he has been managing the largest industry practice in the region.

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