



CFA Institute®
Future of Finance

INVESTMENT PROFESSIONAL OF THE FUTURE

MAY 2019

CHANGING ROLES, SKILLS,
AND ORGANIZATIONAL CULTURES



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EXECUTIVE SUMMARY



As the investment industry undergoes accelerating change, the investment professional of the future must adapt and embrace new challenges and opportunities for career success. This report considers how investment industry roles, skills, and careers (the employee's lens) and the organizational context and culture (the employer's lens) are shaping the attributes of the investment professional of the future.

We look out over the next 5-10 years, and define "core investment professionals" as those working in investment industry roles involved with making investment decisions and understanding client needs.

Inputs to the report include a global survey of CFA Institute members and candidates, an expert opinion survey, and inputs from participants in industry roundtables and individual interviews.

Industry Trends and Size

- The total number of core investment professionals is estimated to be approximately 1.05 million.
- Expectations are for a 1.5% compound annual growth rate (CAGR) in head count over the next 10 years. India is expected to have the highest growth rate—2.9% CAGR versus 2.3% in China, 1.0% in the United Kingdom, and 0.9% in the United States.
- The pipeline of CFA Program candidates remains strong, with an 18% CAGR over the last three years, driven primarily by growth in Asia. There are currently more than 300,000 CFA Program candidates globally.
- Globally, 75% of survey participants are proud to be associated with their industry (70% of members and 78% of candidates). However, only 40% of members and 46% of candidates are committed to a career in the investment industry.
- Compensation levels are expected to be relatively stable in real terms over the next 5–10 years.
- The two trends most cited as driving change in the roles of investment professionals are (1) machine learning, AI methods, and alternative data for portfolio construction and (2) solutions investing and greater customer need integration.



Changing Roles

Adaptability is essential: 89% of industry leaders agree that "individuals' roles will be transformed multiple times during their careers; adaptability and lifelong learning will be the most essential skills."

Change is anticipated: 43% of investment professionals think the role they perform today will be substantially different in 5–10 years' time.

AI+HI will become the norm: Significant professional roles at the investment firms of the future will include investment roles, technology roles, and innovation roles. "AI+HI" denotes the interaction of artificial intelligence (AI) and human intelligence (HI). For certain interactions, the combined model adds more value than either component alone because it leverages the benefits of both. Ethical orientation, transparency, communication, empathy, tacit knowledge, and trust interaction are the key human elements that technology cannot (yet) reproduce.

Teams will dominate: A preference for portfolio management teams and a reduced reliance on star portfolio managers have prompted a focus on workforce diversity to improve decision making.

Work-life integration is the goal: Technology blurs boundaries between "work" and "life," and professionals seek to move beyond work-life *balance* to work-life *integration*.

Asia Pacific growth continues: Asia will exhibit higher demand for investment professionals. China will experience multinationals establishing foreign majority-owned asset management firms and large international asset managers forming wholly owned subsidiaries. India—because of the increasing demand for financial services, its strong economic growth, and its number of capable engineers—could become the world's investment hub.



Changing Skills and Careers

More investment professionals are motivated by learning than by compensation: Investment professionals are motivated most by having interesting work (52%), learning new things (50%), and having competitive compensation and benefits (41%). Key reasons to leave an employer are compensation and benefits (61%), not working for a good team or supervisor (58%), and not having interesting work (51%).

Soft skills is the topic most pursued across all career phases: Early career professionals also favor portfolio risk optimization and data interpretation. In later-career phases, sustainability and alternative investments are prioritized more highly.

T-shaped skills are valued: T-shaped people are subject matter experts, they adapt to changing environments, and they can work across disciplines, which includes being at ease with technology. Traditional learning and learning by doing both contribute. Investment industry leaders rank T-shaped skills as the most important future skill category (49% rank these first), followed by leadership skills (21%), soft skills (16%), and technical skills (14%).

Many important skills are difficult to find: The most important skills in each category are solutions skills, creativity/innovation skills, ability to articulate mission and vision, and situational fluency/adaptability. Creativity/innovation skills, ability to connect across disciplines, and solutions skills are the most difficult to find.

Time spent in on-the-job learning is high: CFA candidates spend 38% of their working time learning new things. More experienced CFA Institute members still spend 25% of their time on new work.

Career catalysts exist: These include mentors and sponsors, career roadmaps, acquired diversity, and a network of contacts.



Changing Cultures and Organizational Context

The world of work is changing: 77% of investment leaders expect the industry's world of work to change more than it did in the past 10 years. We define the world of work as overall workplace features, roles and skills, work methods, and compensation and incentives.

Firms are managing the employee experience more: Employee experience will become a more common lever for organizations to differentiate themselves, including a commitment to an increased per-employee investment in training programs.

Workplace design is an enabler of culture: Workplace design focuses on functional elements (e.g., the environment, layout, and the quality of any enhancements in the workplace) but influences all aspects of the employee experience.

Technology will change cultures: Because a group's collective intelligence will matter more than individual intelligence, investment firms will increasingly favor teams supported by technology. Organizations will seek to use technology to enhance human roles with some net cost and efficiency gains. Technology opportunities will cause role displacement, creating challenges as leaders manage the cultural transition.

Training will increase: 60% of industry leaders surveyed expect firms to increase training and development. Organizations recognize the need to continuously upskill professionals to remain effective. Benefits of providing ongoing learning opportunities include higher-quality analytical work, deeper client engagements, retention of a firm's best people, and a stronger bench of talent. People who develop a deep expertise stay longer because their key development needs are being met.



CONCLUSIONS

A Roadmap for Investment Professionals

KEEP LEARNING AND ADAPTING

Use the career flywheel. An effective career flywheel sustains its momentum through a series of well-executed and well-timed interventions and adaptations on the career journey. Career paths today vary more than in the past, and employers are less likely to prescribe a preferred path. The critical success factors are maintaining a learning and growth mindset, building a "give and get" alliance with each employer, and having healthy work-life integration.

INVEST IN NEW ERA SKILLS

Apply the skills pathway. At the start of a career, build a technical edge. Blend in soft skills for mid-career effectiveness. Add leadership skills that produce value from influences on others. Make connections, and develop lateral thinking (i.e., T-shaped skills). Think of a portfolio of these skills, and take career planning to more detailed and forward-thinking levels.

BE TECH-SAVVY

Navigate and harness technology. The ability to work with technology is a necessity for all professionals. The success of AI+HI applications will be dependent on T-shaped teams with shared team space and shared language. The opportunities for specialist roles in technology to build financial context into technology development and deployment are particularly significant.



CONCLUSIONS

A Roadmap for Investment Organizations

ENHANCE EMPLOYEE EXPERIENCE

Cultivate stronger culture. The view that a company can take specific actions that both increase profits and improve the economic and social conditions in the communities where it operates is a new societal norm that is likely to progress further in the next 5-10 years. Managing culture involves deliberate strategy and leadership action to establish cultural signatures that are particularly motivational and sustainable.

INVEST IN EMPOWERING LEADERSHIP

Communicate. The workplace of the future must respect the whole-life considerations of employees and calls for greater emotional intelligence than has ever been needed before. This change will require openness and for the communication abilities of organizations to become more authentic, inclusive, and empathetic.

BE CHANGE-SAVVY

Transform your worldview. There is only one way to progress—become a firm that uses technology and innovation effectively alongside talent and strong culture. The opportunities for innovation in the workplace are considerable when leaders broaden their frame of reference and become more T-shaped in their understanding of technology.

INTRODUCTION

The investment industry is changing rapidly. Investment firms are facing challenges to their business model in the form of fee compression and the need to better integrate technology, and clients are asking for more personalized advice and products that align with their values.ⁱ These pressures and demands also have implications for investment professionals and their careers. In fact, 43% of investment professionals think the role they perform today will be substantially different in 5–10 years' time.

Against this backdrop of change, we consider how investment industry roles, skills, and careers (the employee's lens) and organizational context and culture (the employer's lens) are evolving to shape the attributes of the investment professional of the future.

This research is relevant for investment professionals in assessing the key decisions about their careers and for investment organizations in understanding the key decisions about their businesses, particularly as they relate to the people model of the firm.ⁱⁱ

We look out over the next 5–10 years, a period that represents an important time horizon for organizations and individuals to better face the coming realities, identify the inherent risks, and develop strategic and tactical plans to mitigate them.

Inputs to the report include:

- 3,800+ respondents to a global survey of CFA Institute members and candidates regarding their career paths, career management, and expectations of the industry and their employers. The exhibits with these findings are noted in green.
- 130+ respondents to a global survey of industry leaders on trends regarding the world of work in investment management. The exhibits with these findings are noted in blue.
- 100+ participants in industry roundtables and individual interviews, including investment professionals, human resources and learning and development professionals, university program faculty, and executive recruiters.
- Insights from desk research and research captured in previous CFA Institute Future of Finance publications—notably, *Future State of the Investment Profession* (CFA Institute 2017a) and *Investment Firm of the Future* (CFA Institute 2018b).

The Use of Scenarios and Narratives

By understanding how current trends may affect professional roles, investment professionals can seek out the skills that will be needed to advance their careers. As shown in **Exhibit 1**, this report is the third in a series that began with *Future State of the Investment Profession* in 2017, which examines the *scenarios* influencing the investment industry, and was followed by *Investment Firm of the Future* in 2018, which unpacks the investment firm into its component parts and introduces *narratives* to describe how firms must adapt their businesses to succeed against the backdrop of these scenarios. *Investment Professional of the Future* completes this arc of research by examining the skills and career paths of professionals in this future environment, as well as the organizational context shaping the evolution of professional roles.

The result of these scenarios and narratives is a very competitive jobs environment because the activities of investment professionals are changing and more skills are expected from individuals.

It is into this context that we look at the change factors for investment professionals. Leaders must find ways to fill skill gaps, build effective teams, support on-the-job learning, and foster an environment and a culture that can help professionals achieve both client objectives and organizational goals.

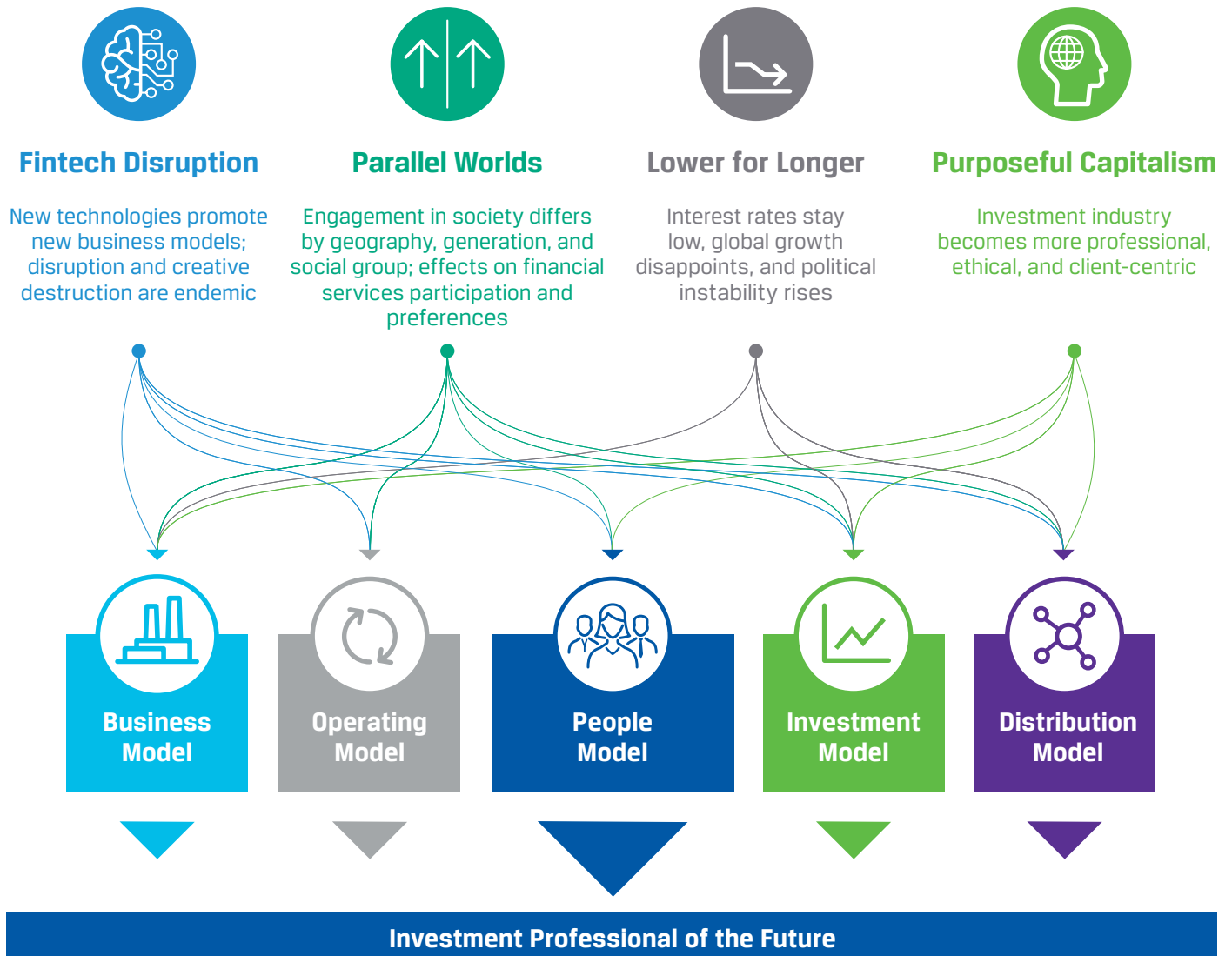
Scenarios

Differentiated stories about possible future pathways and states in the investment industry and the wider world. They are not point estimates or forecasts; as relevant stories, they help firms prepare for the future.

Narratives

Descriptions of the current and future state of industry-specific issues. They help firms with understanding the key details of the evolving landscape in the next 5–10 years. They follow from the scenarios.

EXHIBIT 1





INDUSTRY TRENDS AND SIZE

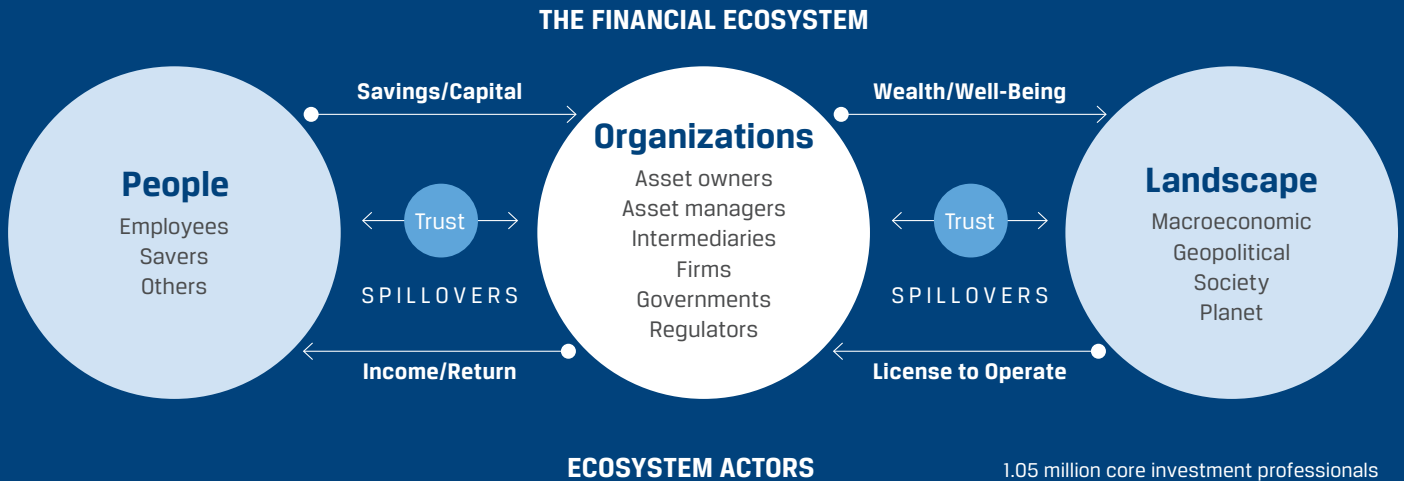
Investment Industry Structure and Roles

The investment industry ecosystem was discussed in *Future State of the Investment Profession*. We identified three major organizational types—asset owners, asset managers, and intermediaries—as described in more detail in **Exhibit 2**.

We are particularly interested in those investment professionals who are influential in decisions in such areas as investment strategy, portfolio construction, and trading; portfolio managers and research analysts make up a significant number of these. As core investment professionals, they are the central actors in the investment ecosystem, and they make intellectual capital contributions in several ways, including in the following critical functions:

- At a macro level, investment professionals highlight return and risk opportunities across markets and asset classes, and they allocate capital accordingly. In doing so, they facilitate the transactions that connect ideas and opportunities with capital and navigate the uncertainty of markets that allows firms to generate returns.
- At a micro level, investment professionals give opinions and allocate capital based on the nature and quality of the ideas of the users of capital/providers of ideas, as well as contribute to other aspects of the investment system, such as asset/security-specific issues.
- At a trading level, investment professionals aid price discovery and liquidity.
- **Exhibit 3** provides a more detailed list of core investment professionals.

EXHIBIT 2



ASSET OWNERS Pension funds, sovereign wealth funds (SWFs), foundations, endowments	Fiduciary investors in capital as owners	Investment professionals (investment managers and analysts), investment support roles
ASSET MANAGERS Independent firms, or those owned by banks of insurance companies, private wealth managers	Fiduciary investors in capital as agents	Investment professionals (investment managers and analysts), investment support roles
INTERMEDIARIES Specialist financial companies, providers of investment services, advisers, investment bankers, traders, sell-side analysts	Providers of investment products and services	Investment bankers, traders, sell-side analysts, commercial bankers, brokers, consultants, custodians, exchanges, index providers, data providers

Size and Growth of the Market for Investment Professionals

CFA Institute commissioned Mercer to conduct a market sizing study to ascertain the number of core investment professionals working globally.

The total number of core investment professionals was estimated to be approximately *1.05 million* at the end of 2018, as shown in Exhibit 4.

Mercer projects that in 10 years, there will be 1.2 million core investment professionals. This equates to a 10-year growth rate of 16% (1.5% compound annual growth rate, or CAGR). The size and growth expectations vary greatly by market. Among the four largest markets, India and China are projected to have 10-year growth of approximately 33% and 26%, respectively (2.9% and 2.3% CAGR), and more developed markets like the United Kingdom and United States are projected to have 10-year growth of 10% and 9%, respectively (1.0% and 0.9% CAGR).

Mercer's projections are consistent with the findings from our industry leader survey, shown in Exhibit 5, in which 49% of respondents expect growth, 22% expect no growth, and 28% expect a decline in the number of investment professionals in the next 5–10 years.

EXHIBIT 3



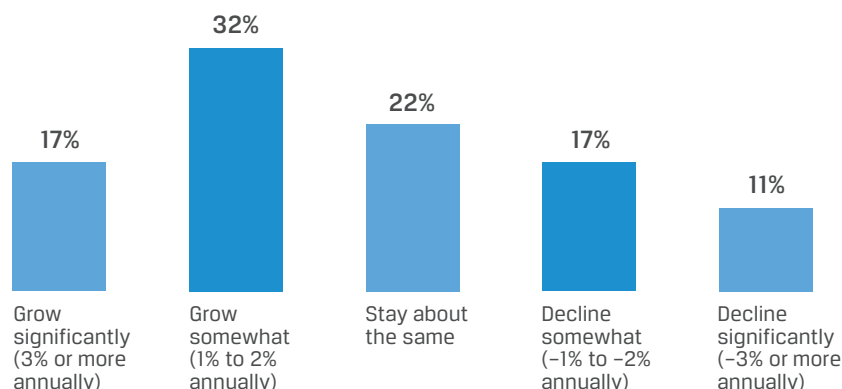
EXHIBIT 4

Market	10-Year Growth Projection	Current Estimated Market Size*
India	33%	47K
Indonesia	29%	23K
Turkey	28%	4K
China	26%	139K
Australia	19%	21K
Mexico	19%	7K
Brazil	18%	17K
United Arab Emirates	17%	6K
Peru	15%	2K
Singapore	14%	14K
Argentina	12%	8K
Korea	11%	28K
Italy	10%	18K
Spain	10%	16K
France	10%	28K
United Kingdom	10%	50K
Netherlands	10%	5K
United States	9%	284K
Switzerland	9%	17K
Japan	8%	46K
Canada	8%	30K
Germany	4%	39K
Hong Kong SAR	4%	20K
Russia	2%	19K
TOTAL	16%	1.05M

*NUMBER OF CORE INVESTMENT PROFESSIONALS
TOTAL INCLUDES REST OF WORLD ESTIMATE

EXHIBIT 5

HOW WILL THE NUMBER OF INVESTMENT PROFESSIONALS GLOBALLY CHANGE IN THE NEXT 5–10 YEARS?



SOURCE: INDUSTRY LEADER SURVEY

Compensation of Investment Professionals

An issue related to the supply and demand of investment professionals is compensation trends. This issue is made complex by the variety of roles, skills, and geographical differences within the industry, but overall, respondents to our industry leader survey anticipated that compensation levels would be relatively stable in real terms over the next 5-10 years.

Executive recruiters for the investment industry noted that the cost containment pressures of the industry in certain geographies would be more likely to result in reduction of head count versus reduction of salaries. Meanwhile, the increased competition for top talent suggests that the variation in compensation levels across roles and geographic markets may continue to increase.

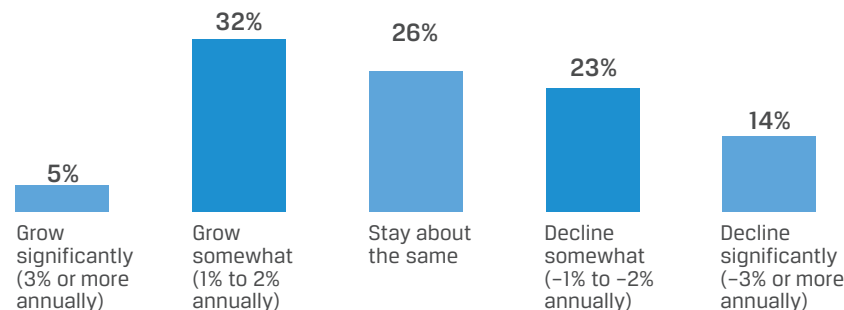
The Next Generation of Investment Professionals

As employers increasingly look to fill key roles with CFA charterholders, the growth trends of CFA® Program candidates and CFA Institute members provide a view into the availability of investment skills by region and interest in investment management as a career choice. For several years, the total number of candidates has been highest in the Asia Pacific region, and in 2016, China surpassed the United States in terms of new entrants to the CFA Program. This shift to Asia in the pipeline of professional talent is explored further in the sections that follow.

Competition for roles has led to a CAGR of 5% for CFA Institute members and of 18% for CFA Program candidates over the last three years, as shown in Exhibits 7 and 8, respectively. Currently, there are more than 300,000 CFA Program candidates and 150,000 CFA Institute members. Among the CFA charterholders surveyed, 94% say their CFA charter has helped their career by providing increased credibility, access to jobs (including those in other countries) or a promotion, or because it was a job requirement. In addition, the value of the CFA charter in providing an opportunity for global mobility has increased over time.

EXHIBIT 6

HOW WILL THE COMPENSATION OF INVESTMENT PROFESSIONALS GLOBALLY CHANGE IN THE NEXT 5-10 YEARS?



SOURCE: INDUSTRY LEADER SURVEY

EXHIBIT 7

NUMBER OF CFA INSTITUTE MEMBERS

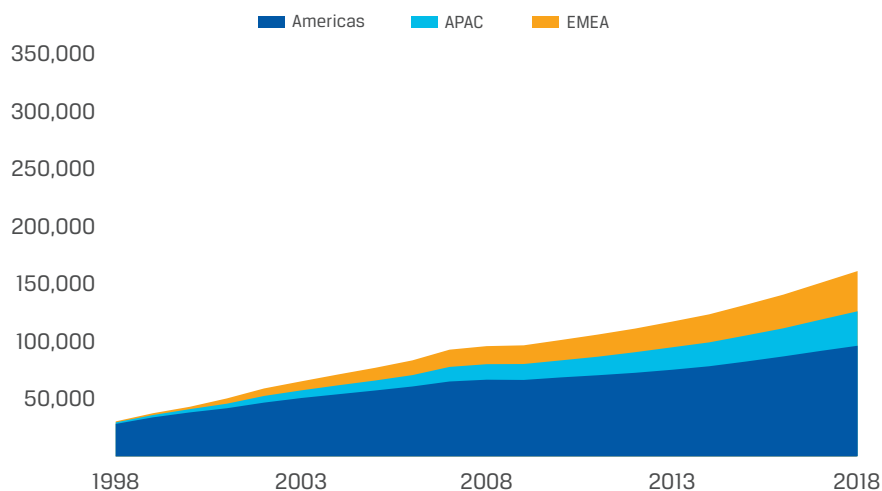
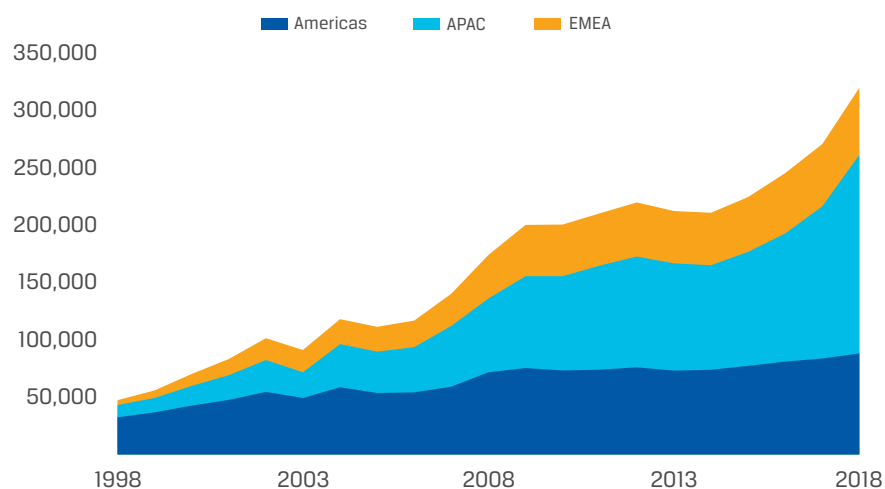


EXHIBIT 8

NUMBER OF CFA PROGRAM CANDIDATES



MEMBER NUMBERS ARE AS OF 30 JUNE EACH YEAR. CANDIDATE NUMBERS ARE AS OF 31 AUGUST EACH YEAR, AND BEGINNING IN 2004 INCLUDES TWO EXAM CYCLES PER YEAR.

Although only 19% of CFA Institute members are women, among CFA Program candidates the number is 38%. In China, women represent more than 50% of total CFA Program candidates. Morningstar analyzed US mutual fund managers by gender and found that women fund managers are more likely to have a CFA designation than men who are fund managers, potentially indicating a need for women to demonstrate greater credibility through professional accreditation; the authors noted that the CFA designation provides an objective measure to demonstrate competence.ⁱⁱⁱ This is consistent with conversations we have with women candidates regarding their motivation to take the exam. To the extent that the pipeline for women investment professionals is growing more rapidly in Asia Pacific, this region may soon offer the global industry the best evidence of the benefits that can accrue from greater gender diversity.

Our survey revealed some mixed messages regarding investment professionals' identity as members of the investment industry. A strong majority (75%) are proud to be associated with the investment industry (70% of members and 78% of candidates). However, only 40% of members and 46% of candidates are committed to a career in the investment industry; 2% say they are actively seeking to change industries, and the rest would opportunistically switch industries. These do not vary significantly by gender.

Trends Influencing the Future of the Investment Profession

Some broad-based trends are influencing the world of work within the investment management industry globally. We define

KEY CONCEPT

World of Work :

We define the world of work as overall workplace features, roles and skills, work methods, and compensation and incentives.

the world of work as overall workplace features, roles and skills, work methods, and compensation and incentives. Among the industry leaders surveyed, 77% expect the investment industry world of work to change more in the next 10 years than it did in the last 10 years.

Furthermore, industry leader respondents predict that technological innovation and disruption are the trends likely to have the greatest impact on professional roles in the near future. Influences suggested in the fintech disruption scenario are already affecting professional roles as firms use algorithms, artificial intelligence, and alternative data to perform more complex technical tasks. This trend is significant everywhere but is most pronounced in Asia Pacific, where development and integration of new technologies is highest, as illustrated in **Exhibit 9**. These regional differences prompt an interesting thought experiment of whether the industry in aggregate is more likely to look like Asia Pacific or other regions and whether differences will increase between regions over time.

EXHIBIT 9

Of the sources of potential disruption and future change listed below, which industry-specific factors do you believe will drive changes in the roles of investment professionals the most in the next 5–10 years? (percent of people ranking each first)

	GLOBAL	AMERICAS	APAC	EMEA
The growth of machine learning, AI methods, and use of alternative data for portfolio construction	35%	26%	48%	39%
The appetite for solutions investing and integrating greater client/customer needs	31%	41%	15%	30%
The growth of sustainability factors in investing and stewardship roles	14%	11%	15%	17%
The growth of private market investing—investing and governance	10%	6%	19%	11%
The growth of rules-based investing including passive	9%	17%	4%	2%

SOURCE: INDUSTRY LEADER SURVEY



KEY CONCEPT

AI : *Artificial intelligence*

HI : *Human intelligence*

AI + HI : *Interaction of artificial intelligence (AI) and human intelligence (HI)*

The growth of machine learning, other AI methods, and use of alternative data for portfolio construction

In *Investment Firm of the Future*, 21% of CFA Institute member respondents said that their firm's top tech priority is the use of machine learning technologies in portfolio construction.^v The integration of artificial intelligence will create a spectrum from *people doing routine and creative tasks supported by machine intelligence* (e.g., hiring investment professionals) all the way through to *autonomous machines completing creative tasks* (e.g., trading strategies). Within that spectrum lies a number of people-plus-technology models. In this report, we use the shorthand AI+HI to denote the interaction of artificial intelligence (AI) and human intelligence (HI). For certain interactions, the combined model adds more value than either component alone because it leverages the benefits of both, instead of technology obscuring the favorable human elements. We cite ethical orientation, transparency, communication, empathy, tacit knowledge, and trust interaction as the key human elements that technology cannot (yet) reproduce.

Technology enhancing client relationships and engagement

Technology is also changing many aspects of the professional-client relationship and affecting requisite relationship management skills. Platforms for investment products and services can now deliver better customer engagement and provide better insights (by harnessing data) into customer preferences and needs. As a result, client-facing investment professionals will need to be more comfortable working with technology and can be more data driven in their reporting to clients and recommendations for clients.^{vi}

Appetite for solutions investing and integrating greater client needs

Another significant trend, particularly in the Americas and EMEA, is an increased interest in solutions investing that stems from and requires a greater customer orientation. It will affect all aspects of the professional-client relationship, including leveraging technology and data, better understanding and engaging customers, and tailoring and implementing portfolio construction based on client needs. Meanwhile, there is a desire from end investors for investment products and services that evolve and deliver unique investor-directed outcomes. Increased product personalization and customization, combined with a requirement for a broader complement of services, will require a broader skillset and education base for investment management professionals.^{vii}

The growth of sustainability factors in investing and stewardship roles

The challenge of short termism, in which current results are put ahead of long-term client value, could be reduced if firms and their employees were to focus increased attention on organizational value systems that include trustworthiness, ethics, communication, and transparency. An increased focus on sustainability will require training in ESG (environmental, social, and governance) analytics and stewardship to develop on a wider basis. This is another area that varies based on region, with fewer in the Americas saying it will drive change in roles. In the *Investment Firm of the Future* survey, 72% of all respondents globally expect their firm's commitment to the research of ESG and sustainability issues to be higher in the next 5-10 years, but only 20% say it will be significantly higher.^{viii}

The growth of private market investing—investing and governance

Future State of the Investment Profession summarizes the trend as follows: "The traditional active management community shrinks in size, but active management still flourishes in evolved form." These active management skills are being applied to the less liquid parts of the market, while at the same time, institutional investors look to private markets for higher return expectations. As a result, professionals will be required to gain skills considered outside of traditional investing fundamentals.^{ix}

More detail about the growth of private markets can be found in the 2018 CFA Institute report *Capital Formation: The Evolving Role of Public and Private Markets*, which notes this trend is most pronounced in the United States: "It had 14% fewer exchange-listed firms in 2012 than it did in 1975. . . . From 1996—the peak year of listed firms—to 2012, the number of listed firms dropped by half."^x

Most projections suggest that as a proportion of invested assets, private assets are likely to increase moderately from approximately 15% now to 20% in the next decade; from a growth perspective, this will be impressive incremental change, but private assets are unlikely to approach more than a quarter of all invested assets. Governance challenges and the lower levels of transparency in private assets are limits to its expansion, although we note that updates to the Global Investment Performance Standards (GIPS®) in 2020 will address some of these areas of opacity.

Growth of rules-based investing, including passive

The sustained and growing interest in passive and rules-based strategies is likely to influence innovation in products and services and the skills needed to develop and distribute them. In our discussion groups, however, most people focused on the growth of passive investing specifically and thought that its impact on roles has already been seen, so they expect less disruption or surprise in this area, especially compared with the impact of other factors, such as AI and machine learning.

There are two additional trends of great significance to note.

Industry consolidation and profitability challenges

Downward pressure on fees and a view of costs as an unacceptable drag on returns leads to investments in low-cost, high-tech investment solutions that perform an ever-growing array of fundamental investment tasks. This evolution and consolidation by firms attempting to lower costs through increased scale may significantly affect job roles. In *Investment Firm of the Future*, we reported that 54% of survey respondents cited "fee pressures" or "switching to lower-fee products" as the number one issue facing investment firms in the next 5-10 years.^{xi} Investment professionals must increasingly look at the viability of their employers' business model as they manage their careers.

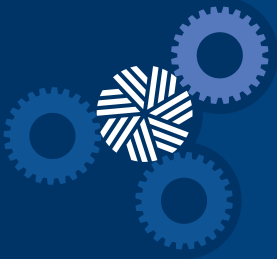
Effective decision making through diversity and collective intelligence

Teams, committees, informal groups, and boards rely on the socialization and governance attached to decisions, but biases limit the effectiveness of these group decisions. Bias and groupthink can be reduced through greater group diversity and collective intelligence. Solutions for increasing collective intelligence and cognitive diversity hinge on the ability of firms to deepen the range and adaptiveness of their professionals' skills. This calls for more "T-shaped professionals"—those who have both domain-specific specialist knowledge and wider professional connections, understanding, and perspective.^{xii}

KEY CONCEPT

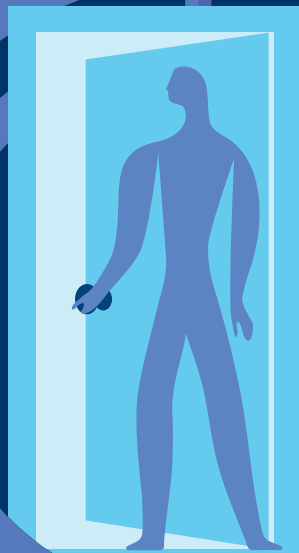
T-Shaped People/Teams :

A combination of (1) deep knowledge in a single field or part of the ecosystem and wider knowledge in other fields or other parts of the ecosystem and (2) the competencies to connect them.



CHANGING

ROLES



CHANGING ROLES

How Much Existing Investment Professional Roles Will Change

In this time of significant change in the industry, we asked CFA Institute members and candidates how much they think the role they currently hold will change in the next 5–10 years. The results are summarized in **Exhibit 10**. Overall, 43% of respondents say they expect their role to be significantly different. In addition, 5% of respondents say their role is unlikely to exist in 5–10 years.

The ones with the greatest anticipated change, however, are not core investment roles but rather those doing IT in finance (80% say their role will substantially change or cease to exist). The roles most likely to cease to exist are traders (11%) and performance analysts (19%). Among the latter group, much time is currently spent gathering data from unintegrated sources, so it is true that upcoming significant changes could relieve performance analysts

of some of the tedious parts of their role, freeing up time for more judgment and analysis. Core roles are also likely to change in significant ways, and here we explore how, starting with the impact of technology and including demographics (such as the influence of millennials in changing the workforce dynamic and the growth of the industry in Asia Pacific).

EXHIBIT 10

Leaving aside any personal circumstances or your expected career progression, how different, if at all, do you think the role of a(n) [CURRENT OCCUPATION] will be in 5–10 years' time?	I expect it to be substantially different	I do not think the role I perform today will exist in 5-10 years.
Total	43%	5%
Information Technology	77%	3%
Trader	51%	11%
Financial Adviser/Planner/Wealth Manager	54%	4%
Accountant or Auditor	49%	9%
Risk Analyst/Manager	54%	3%
Performance Analyst	31%	19%
Research Analyst, Investment Analyst, or Quantitative Analyst	45%	4%
Credit Analyst	44%	3%
Investment Consultant	45%	1%
Relationship Manager/Account Manager	40%	6%
Portfolio Manager	39%	3%
Investment Strategist	36%	5%
Chief Executive Officer (CEO)	30%	0%
Chief Investment Officer (CIO)	24%	1%

SOURCE: CFA INSTITUTE MEMBERS AND CANDIDATES SURVEY

The Most Valuable Roles in the Future and How They Relate to Technology

There is consensus among the practitioners we interviewed and our survey respondents that technology will be the dominant driver for change in investment management and an increasingly essential element of work for almost all investment professionals. Barbara Petitt, CFA, head of curriculum and learning experience for CFA Institute, said, "As technology becomes the lingua franca, investment professionals must become literate in a language that is not their own and be able to ask the right questions. Asking the right questions is and remains a key competency for our profession."

As the industry moves to an AI+HI model, investment teams of the future will fulfill three main functions (investment, technology, and innovation) in eight types of roles, as shown in **Exhibit 11**, at the investment firms of the future.^{xiii}

Investment decision-making roles are typically undertaken by chief investment officers and portfolio managers, depending on the size and structure of the firm. Investment research is predominantly provided by research analysts. Private wealth managers are generalists who also serve a relationship function with their clients. These roles exist today, but as seen in **Exhibit 10**, many investment professionals expect them to change significantly. Among wealth managers, 54% expect the role to be substantially different, compared with 45% of research analysts and 39% of portfolio managers.

Data scientist roles are increasingly present at investment organizations. These professionals are the architects and the applications engineers are the builders; they work together to develop and implement the technology components of the investment process.

Innovators focus on improving the existing investment process. A key role innovators play in the face of technology disruption is to facilitate the collaboration between investment and technology teams. One will find investment thinking and process innovators both among senior researchers in the industry and at leading research universities. Knowledge engineers are subject matter experts who identify key industry trends and emerging investment expertise. They focus on gathering insights from innovators and sharing it with other investment professionals. Innovation facilitators play a similar role to private wealth managers except that they operate in the innovation space.

CFA Institute has discussed the growing force of fintech in the financial services industry in recent years.^{xiv}

1. Complementary fintech will broaden the industry's reach.

Despite widespread industry concerns and media hype, the early fintech innovations—such as robo advice, mobile payment, and peer-to-peer lending—have proven complementary rather than disruptive to the establishment. Robo advice, for example, has lowered the cost of investment advice and made it accessible to a previously unserved or underserved audience. Robo advice has become a more

common offering at incumbent investment firms—often through a partnership or the purchase of a platform—and challenger firms starting from outside the industry remain relatively small.

2. AI and big data will drive significant changes in investment management.

Recently, AI and technologies that exploit big data have started to find their applications in investment management. AI now "comprehends" unstructured data, such as texts, images, and spoken languages, better than an average human being, and it is getting better by the day.^{xv} These investment applications of alternative data sources are increasingly enabling analysts to perform deeper analysis and portfolio managers to make better-informed decisions. Instead of counting trucks outside a warehouse, for example, analysts can now access customer or cargo traffic information collected with sensors at stores and from satellite imaging. As technology improves at an increasing rate and its application in investment continues, we can expect changes in the investment business to accelerate.

3. Achieving optimum performance requires collaboration.

Rather than the simple explanation of machines replacing human roles, we think the substitution mechanism is slightly subtler. AI and human intelligence both have their strengths and weaknesses. For example, AI is better at identifying patterns "hidden" in a vast amount of information, but its effectiveness in investments is limited by the data available to it. In other words, we may find over time that AI proves useful in amplifying an investment team's performance but is unlikely to be creative enough to replace the investment team.

We believe successful investment professionals of the future will be part of an AI+HI combination, where investment and technology teams collaborate to enhance performance. Investment professionals of the future will gravitate toward integrated technology and investment teams, often in shared workspaces. The ideal investment and technology teams will work as *equal* partners, in much the same way that fundamental and quantitative investors and risk managers collaborate at successful investment firms today—an approach now termed "quantamental."

4. Expert human intelligence of investment teams will be highly valued.

As repetitive and mundane tasks are increasingly carried out by AI, the less highly skilled members of investment firms are at higher risk of substitution with technology.

The most skilled investment professionals are likely to remain highly valued because within the period we are considering (5–10 years), full technology substitution will probably not be possible or successful. As explained earlier, expert human intelligence will become more valuable when it is subjected to a multiplier effect from technology, which suggests that the rarer forms of investment skill are likely to be rewarded more highly than previously.

5. Innovators will become critical roles at successful investment firms of the future.

One challenge to effectively integrating technology is the difference in cultures typically found between investment and technology teams. Another is that professionals are often specialists and not adept at collaborating across disciplines. Solutions led by the investment team tend to address the core investment functions well but fall short when it comes to applying the latest AI and big data technologies, and the reverse is true of tech-led solutions. Innovators thus have a significant opportunity to improve the combination.

An organization is likely to go through various iterations when using a team to innovate as it progresses toward a sweet spot—that is, an optimal investment solution that combines leading AI and big data technologies with human intelligence to solve core investment problems and creates the maximum value possible for the resources used.

The Importance of Teams

In *Investment Firm of the Future*, we suggested the growing value of "T-shaped" investment professionals—that is, those who are adept at combining deep-level knowledge with wider connections, understanding, and perspectives across the whole organization. We extended that thinking to "T-shaped teams"—teams with broad and deep collective intelligence that act using the benefit of a collaborative culture and cognitive diversity across the team. The innovation team described earlier is an example of a T-shaped team.

As organizations strive to be more agile, competitive, customer focused, and faster to respond to business problems, there is a move toward team-based or cross-unit organizational structures that can also lead to reduced inefficiencies and improved work processes.^{xvi} Within the investment management industry, this trend has led to less reliance on star portfolio managers in favor of portfolio management teams. In 2016, according to the data provider Lipper, more than three-quarters of US mutual funds (6,219 out of 8,072) had at least two managers.^{xvii}

Although there are differences by region, the move away from a star culture also means professionals have greater career path flexibility to make lateral moves without the burden of disrupting a solo track record. Career breaks, sabbaticals, and work-life balance can be looked at anew. Furthermore, in an industry that values stability, even personnel turnover can be viewed less critically by clients because a team can nevertheless provide continuity.

Development of investment management teams has also prompted a focus on workforce diversity because it is thought to improve decision making, which ultimately leads to better business and investment outcomes. In a 2017 CFA Institute survey of more than 800 institutional investors, the majority (55%) believe that gender diversity in investment teams leads to better performance through the integration of diverse viewpoints.^{xviii}

A study conducted by Boston Consulting Group and the Technical University of Munich showed that efforts to diversify management teams at all levels in terms of gender, ethnicity, geography,

SIGNIFICANT TYPES OF ROLES AT INVESTMENT FIRMS OF THE FUTURE

Investment

Investment decision maker
Investment researcher
Private wealth manager

Technology

Data scientist
Applications engineer

Innovation

Investment thinking and process innovator
Knowledge engineer
Innovation facilitator

and experience can lead to increased innovation. The study demonstrated a direct relationship between the diversity of a company's management team and its revenues from innovative products and services.^{xix} The results are suggestive of diversity as a source of positive culture change and vice versa.

In order to build teams that are less prone to groupthink and bias in their decision making, firms may strive to increase cognitive diversity, bringing together individuals with different perspectives, experience, and ways of thinking. A more diverse labor force enables development of T-shaped teams that as a group have broad and deep collective intelligence.^{xx}

Although many investment firms are attempting to meet the diversity challenge, change may happen slowly. In *Investment Firm of the Future*, 53% of CFA Institute members said the business case for improved diversity in the industry is strong or very strong, and this result is similar across geographic regions. Only 14%, however, said the speed of uptake of diversity and inclusion practices will be fast.^{xxi}

The Impact of Millennials

Investment organizations are facing a period of increased workforce diversity as they adapt to a multigenerational workforce with three actively working generations. As the overall population ages, older workers are staying employed longer, while younger employees are making up a larger percentage of the workforce. According to EY, millennials are expected to make up 75% of the global workforce by 2025.^{xxii} Data on the demographic makeup in financial services are difficult to gather, but Reuters reported that millennials and Gen Zers—all born after 1981—now make up 75% of Goldman Sachs's 36,000-strong workforce.^{xxiii} This changing age demographic is having a significant impact on the world of work. A symbolic example is the move to casual dress codes.

KEY CONCEPT

Cognitive Diversity :

Differences in perspective or information processing styles across how individuals think, particularly in the context of new, uncertain, and complex situations, which can potentially lead groups to better decision outcomes.

Although the differences in skills, age, and experience should lead to increased diversity in thinking, the combination of generations also produces challenges as organizations determine how to implement operational and organizational changes to support employees at different life stages. With younger people making up a greater proportion of the workforce, employers need to think differently about who to hire and how to attract and retain a different and younger generation.

The influx of a new generation of workers is changing the structure of contemporary working environments, which is driven by each generation's requirements and constraints. Young professionals are vying for certain conditions, such as greater work-life balance, casual and agile working environments, flexible schedules, remote working opportunities, and other ways to have greater control over when, how, and where they work.

Much of the focus on increased flexibility and work-life balance is related to the fact that, according to PwC, "Many millennial employees are unconvinced that excessive work demands are worth the sacrifices to their personal life."^{xxiv} Ironically, though, the small but growing trend toward "unlimited vacation policies" often increases anxiety about taking any time off and can introduce another form of competition.

However, the boundaries between work and life are becoming increasingly hard to define because today's technology means that professionals are potentially connected at all times. This "always on" workplace brings opportunities and challenges for both employees and employers. It has resulted in blurred boundaries for many professionals whose ambitions have moved beyond work-life *balance* to work-life *integration*. The challenge for individuals is to find ways to improve the outcomes of work-life integration—that is, to find satisfaction with both by blending what they do professionally and personally. The younger generation is interested in career paths that will support their lifestyle. As noted in a report by Manpower Group, "Career ladders will give way to career waves as millennials prepare to run a work ultramarathon, wanting the flexibility to switch gears at different stages, and insisting on One Life—the work-home integration that allows them to pursue goals professionally and personally, when it suits them. More than ever, individuals will pursue careers with multiple employers rather than a job for life."^{xxv}

This blurring of the lines is also evident in reduced differences between personal and professional growth. The consulting firm Fresh Squeezed Ideas reported these observations from member

interviews: "We are seeing people talk about their development in a holistic way, and thus pulling apart professional from personal growth becomes arbitrary and limiting."^{xxvi} How firms encourage and support training and development opportunities that provide both will be another ongoing challenge; our survey indicates that personal growth is a significant area of importance to 89% of CFA Program candidates and 83% of CFA Institute members.

Ultimately, the commitment of organizations to the development of their people must be a realistically grounded investment. With high levels of turnover as individuals change roles and jobs more frequently, firms have to accept that they may not see the full return on investment when employees move on to find greater challenges.

How Globalization and Growth in Asia Pacific Will Affect the Future Roles of Investment Professionals

There are profound regional differences in the investment industry's development across the world, as **Exhibit 12** shows. Markets with high potential for asset growth and low investment industry penetration will exhibit higher demand for investment professionals, and many of these are found in Asia. We take a closer look at China and India here.

1. Further opening of China's financial markets has global implications

China already has the second-biggest equity markets globally measured by domestic market capitalization, as of December 2018.^{xxvii} China's bond market ranks third globally measured by the value of outstanding debt securities, as of Q3 2018.^{xxviii}

Both markets appear set to support significant demands on future professionals. In particular, as the government loosens restrictions for foreign investors to enter the bond market, international investors are rushing in.^{xxix} International asset managers will require a significant number of fixed-income professionals who are familiar with China's nascent debt market. The government has been more open to allowing corporate debt to default in recent years, which has in turn driven up demand for credit analysts.

Investors have often complained about the volatility of the China A-shares market, which may be a function of its relatively high level of retail investor participation and ownership restrictions. This could all change in the coming years, however, because institutional ownership is expected to approach half of the stock market float, according to data provider Wind, and foreign ownership is set to increase. This situation bodes well for the careers of CFA charterholders in China as local capital markets attract more investment flows and the industry expands, even as China's population nears its peak.^{xxx}

Multinationals can now also set up asset management firms with foreign majority ownership in China. Many large international asset managers are expected to set up wholly owned subsidiaries in China in the coming years. Their staffing needs for mid- to senior-level positions will remain

REGIONAL DEVELOPMENT DIFFERENCES

		AUM Growth Potential	
		LOWER	HIGHER
Industry Penetration	HIGHER	Developed Markets (e.g., North America, Europe)	
	LOWER	The New Frontier (e.g., Middle East, Africa)	The Lands of Opportunity (e.g., Asia, Latin America)

high, and executives who understand the local markets, are at home in the local culture, and also have broad international experience and know-how will be in high demand.

2. India has the potential to become the world's future investment hub

As noted in Exhibit 4, the Mercer study for CFA Institute indicated that India is expected to be the fastest-growing market for investment professionals, growing by 33% in the next decade. In addition to benefiting from the country's strong economic growth and the population's increasing demand for financial services, India enjoys strong tail winds in the form of favorable globalization and technology trends. We believe India has the potential to become the world's investment hub in the coming decades.

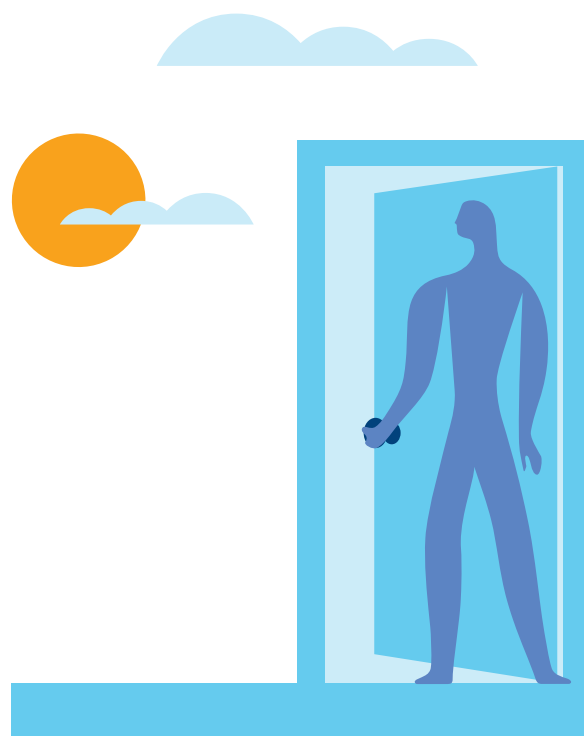
India's education system—most notably, the Indian Institutes of Technology (IIT), with campuses across the country—has produced a steady stream of capable engineers. Although pay packages for graduates continue to rise, IIT graduates remain very attractive candidates to international employers. As employers ride the wave of globalization, the India operations at many major international investment fund managers have grown to account for 10%–20% of these managers' global workforce today, compared with almost zero a decade ago, according to participants in our roundtables.

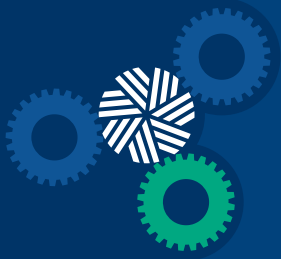
The positions that multinational investment firms fill in India have been extended to include more investment roles, in addition to IT and operational roles. In our discussions with industry stakeholders, one senior executive from the

wealth management operation of a major international bank commented that the firm considers India first when recruiting for all but client-facing roles.

One thing in common across China and India is the role that technology plays. A challenge, however, is whether those looking to enter the investment industry in these markets have the right skill availability. Many in India who have completed all levels of the CFA Program fall short of industry requirements because they lack soft skills and cannot gain the experience needed to become a CFA charterholder. Ironically, in the world's most populous country in terms of millennials, there may be a skill shortage given a mismatch between skills and industry requirements. Another interesting geographical difference is in the career paths of professionals. In prior research, Mercer examined typical career paths and found that across markets, career paths are similar, although in growing markets, such as India, China, and Hong Kong SAR, career paths are shorter (i.e., there are younger investment professionals in more senior roles).

Job roles are most specialized in the United States, the United Kingdom, and Canada. In Brazil, firms hire very few investment professionals via job postings; these positions are mostly filled by internal hires or by referral. In China, state-owned banks are a training ground for professionals before they move on to asset management firms. The United States is the only major market in which the research analyst role is prevalent as a long-term career.





CHANGING

SKILLS

CHANGING SKILLS AND CAREERS

Skills and Competencies for Investment Professionals

We speak of skills in the industry, but employers will often reference "competency models" in which competency is associated with "knowledge, skills, and abilities" to describe the exact needs of the job and its function.

Knowledge, skills, and abilities are qualifying statements about competencies that align to the suitability of a professional for specific roles at work. They govern the talent and expertise, experience, and accomplishments that professionals need to perform at the highest level.^{xxxii}

- Knowledge is the body of information applied directly to the performance of a function and how effectively it is applied.
- Skills are observable capabilities to perform a learned and role-specific act or function and achieve specific accomplishments.
- Abilities are capabilities and attitudes, including values, that support behaviors that result in observable outcomes.
- The mapping of roles to competencies will be contextual to a specific organization or type of organization.

This discussion has covered some trending skill areas and how much CFA Institute members and CFA Program candidates are currently learning. We also asked how many are already proficient in these areas. Few say they are proficient, although 24% say they are already proficient in soft skills. In contrast, just 6% say they are proficient in data analysis coding. Looking regionally, self-assessed proficiency levels are lowest in Asia, which is consistent with research indicating there is a skill gap in the region.^{xxxiii}

With these indications of supply of talent, we asked industry leaders what skills are most in demand for the future. These are categorized in four main areas in **Exhibit 13**.

1. **Technical skills:** As a category, technical skills are ranked first by 14% of industry leaders. They include the most commonly covered skills in traditional training and undergraduate and post-secondary degrees, such as finance, economics, foundational investment skills (e.g., the tools of financial analysis, asset classes, and portfolio management applications covered in the CFA Program), science, engineering, mathematics, information technology and computer science, and management science. Technical skills also include more in-depth skills, such as ESG analysis and solutions skills (i.e., understanding client needs and developing appropriate portfolios). We asked industry leaders to rank these skill categories for successful

investment professionals in the next 5–10 years, and foundational investment skills and solutions skills are ranked highest. The industry leader respondents who are CFA members were much more likely to choose the foundational investment skills than leaders who had not completed the CFA Program personally. Non-members were more likely to rank IT and computer science the highest (24% versus 9% for the CFA members surveyed).

2. **Soft skills:** This skill category is ranked first by 16% of industry leaders. It includes empathy/relationship skills, consultative/selling skills, communication skills, humility/self-awareness skills, and creativity/innovation skills. Here, the

CFA member and non-member groups within the industry leader survey pool are in agreement, with creativity/innovation and communication skills each getting about a third of the first-place rankings within the soft skills category. Overall, soft skills are rated about as important as technical skills.

3. **Leadership skills:** The leadership category of skills is viewed as more important, and it is ranked first by 21% of industry leaders. Within this category, we identified such skills as the ability to articulate mission and vision, being globally attuned/familiarity with multiple languages, instilling an ethical culture, crisis management abilities, and governance. The standout item is ability to articulate mission and vision (45% rank this most important), followed by instilling an ethical culture (32%).

4. **T-shaped skills:** Lastly, we asked about T-shaped skills, which are the most valued type of skills overall, according to our survey: 49% say they are more important than all the other categories. More specifically, these skills include the ability to connect across disciplines, being systems savvy, understanding larger organizational context, having situational fluency/adaptability, cultivating a valuable network of contacts, and understanding and leveraging diverse perspectives. Interestingly, it is the only category where the elements in it are essentially equally valued, with all five seen as important. Those with T-shaped skills are especially helpful to organizations because of their ability to frame issues coherently and thus ask the right questions (which specialists and computers can answer).

It is important to note that the mix of skills typically varies over the career of an investment professional. There is a natural bias to technical skills at the beginning of the career and an increasing emphasis on the other three skill types as the career develops. Exhibit 14 is our suggested pathway; it illustrates the normative progression of a hypothetical professional tracked through a productive career.

EXHIBIT 13

INDUSTRY LEADER VIEWS ON IMPORTANCE OF SKILLS

Percentages indicate the number of expert opinion survey responses ranking each item first. Respondents were asked to rank each set of skills and then the four categories as a whole. This summarizes several questions: Rank the importance of the following skills/skill categories for successful investment professionals in the next 5–10 years.

Technical Skills	14%
Solutions skills (i.e., understanding client needs and developing appropriate portfolios)	40%
Foundational investment skills (as in the CFA Program)	31%
Finance, economics	14%
Information technology and computer science	9%
Science, engineering, math	5%
Management science	1%
ESG analysis skills	1%
Leadership Skills	21%
Ability to articulate mission and vision	45%
Instills an ethical culture	32%
Governance	16%
Crisis management	4%
Globally attuned, familiarity with multiple languages	3%
Soft Skills	16%
Creativity/innovation skills	33%
Communication skills	30%
Empathy/relationship skills	20%
Humility/self-awareness skills	10%
Consultative/selling skills	6%
T-Shaped Skills	49%
Situational fluency/adaptability	24%
Ability to connect across disciplines	21%
Understanding and leveraging diverse perspectives	21%
Cultivating a valuable network of contacts	20%
Systems savvy/understanding larger context	14%

SOURCE: INDUSTRY LEADER SURVEY

We also asked survey respondents about the availability of these skills in the marketplace. The most difficult to find are generally soft skills, followed by T-shaped skills, leadership skills, and then technical skills, as shown in **Exhibit 15**. Although this result does not diminish the importance of technical skills for career success in the investment industry, it does imply that the industry has undertrained in the other areas and has an opportunity to improve. The trend toward hyper-specialization in technical areas in the industry has resulted in fewer generalists focused on soft skills and T-shaped skills.

One key, overarching dimension to competencies is the part played by ethics. Strong ethical orientation is derived from knowledge (e.g., clarity surrounding conflicts of interests and doing the right thing) and abilities (e.g., applying strong values in serving others and understanding the client point of view). Increased accountability of investment firms and the importance placed on the societal license to operate will be conducive to individuals with ethical competencies and good character.

We comment later on the idea that all these types of skills can be developed—most likely through a growth mindset and access to high-quality educational programs and other learning resources.

THE BIG DATA OPPORTUNITY IN PORTFOLIO MANAGEMENT

The big data opportunity in portfolio management is additive in nature. Unstructured data analysis today is the equivalent of going to where people have not been before (uncovering previously hidden information). In addition to annual reports and conference call transcripts, the explosion of data in today's world has put a vast amount of new information at the disposal of investment professionals. This includes other alternative data including social media, satellite images, customer and cargo traffic information captured with sensors, web scraping, and so on, so that analysts can gain knowledge without physically being present. In other words, information is stored and transmitted in the form of images and written and spoken languages.

AI and big data technologies will enable analysts to have access to a vast amount of public information, much of which was not available to investors before. This is often referred to as going beyond the 'data tap' (think of Form 10-K of data being periodically dripped out) to the 'data lake' (think of access to always on and always growing publicly and privately accessible data). The challenge now is for the analyst to create value by making sense of this massively expanded data and integrating it into portfolio construction. This speaks to the human roles in relation to data in training, explaining, and sustaining; and roles for the machine in amplifying, interacting, and replicating.

How Individuals Will Differentiate Themselves by Their Ability to Work with Technology

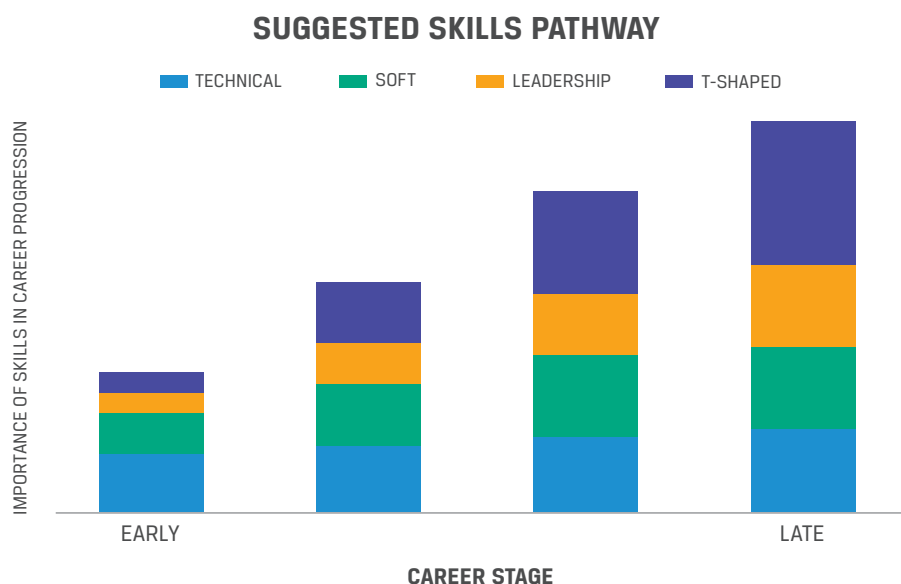
Collaboration to apply technology, as discussed earlier, involves human intelligence in training, explaining, and sustaining roles (ensuring the technology works safely and ethically). It involves

the machine in amplifying, interacting, and replicating roles (reproducing human skills). The roles are complementary in all cases—their effectiveness is present only when there is some AI+HI combination.

Investment professionals of the future will increasingly differentiate themselves by their ability to work with technology to enhance their quality of work generally and performance levels more specifically. The need and ability to work with technology translate into different requirements for the three functions of investment, technology, and innovation highlighted in Exhibit 11.

The type of skills required for investment teams, which includes the majority of CFA charterholders, will remain predominantly investment skills. Professionals on investment teams who understand the basics of AI, data science, and technology can be expected to be far more effective than someone with similar investment skills but no exposure to such technologies. We must emphasize that we do not think this means that the majority of CFA charterholders will need to become programmers or statisticians. We also doubt that investment professionals in general are committed to such a development. Quite the contrary, we think professionals need to continue to sharpen their investment skills because routine tasks will increasingly be performed by

EXHIBIT 14



WHICH OF THE FOLLOWING SKILLS ARE THE MOST DIFFICULT TO FIND IN THE LABOR MARKET?

■ TECHNICAL SKILLS ■ LEADERSHIP SKILLS ■ SOFT SKILLS ■ T-SHAPED SKILLS

Creativity/innovation skills	32%
Ability to connect across disciplines	29%
Solutions skills (i.e., understanding client needs and developing appropriate portfolios)	29%
Empathy/relationship skills	20%
Humility/self-awareness skills	20%
Communication skills	19%
Systems savvy/understanding larger context	19%
Understanding and leveraging diverse perspectives	19%
Situational fluency/adaptability	17%
Instills an ethical culture	15%
Ability to articulate mission and vision	13%
Information technology and computer science	11%
Crisis management	9%
Governance	8%
Foundational investment skills (as in the CFA Program)	7%
Globally attuned, familiarity with multiple languages	5%
Cultivating a valuable network of contacts	5%
Science, engineering, math	5%
Consultative/selling skills	5%
Finance, economics	3%
ESG analysis skills	2%
Management science	2%

SOURCE: INDUSTRY LEADER SURVEY

machines. Experience and judgment will become more important in the more complicated tasks that often carry greater impact and higher risk.

Although our industry leader survey did not rank IT and computer science as top skills needed for investment professionals in the future, this finding is consistent with the consensus among roundtable participants that there will be high demand for professionals with advanced degrees in computer science and statistics—the two prerequisites for AI training—to work *alongside* the investment teams to engineer AI/big data applications in investment management. Although we are not seeing many finance majors looking to study for computer science degrees, science and engineering majors who want to work in finance are increasingly taking the CFA Program. As we learned from roundtable discussions in Mumbai, an IIT graduate with a CFA charter is often considered the

hottest ticket in town—and a top prospect in the global investment industry job market.

The most important skills on a growth trajectory for innovation professionals are T-shaped skills. Innovation professionals are subject matter experts, but the key to success will be their readiness to adapt to changing environments and their ability to go beyond their own field and work across disciplines. We would argue innovation professionals in investment firms need to be grounded in both investment and technology, so they can communicate effectively with technology and investment professionals, respectively.

In practice, we expect investment teams and technology teams to collaborate closely in shared team space. We believe this is the most effective institutional approach to foster T-shaped skills across teams and for organizations to get the most out of professionals with T-shaped skills.

Current Skills and Areas for Development

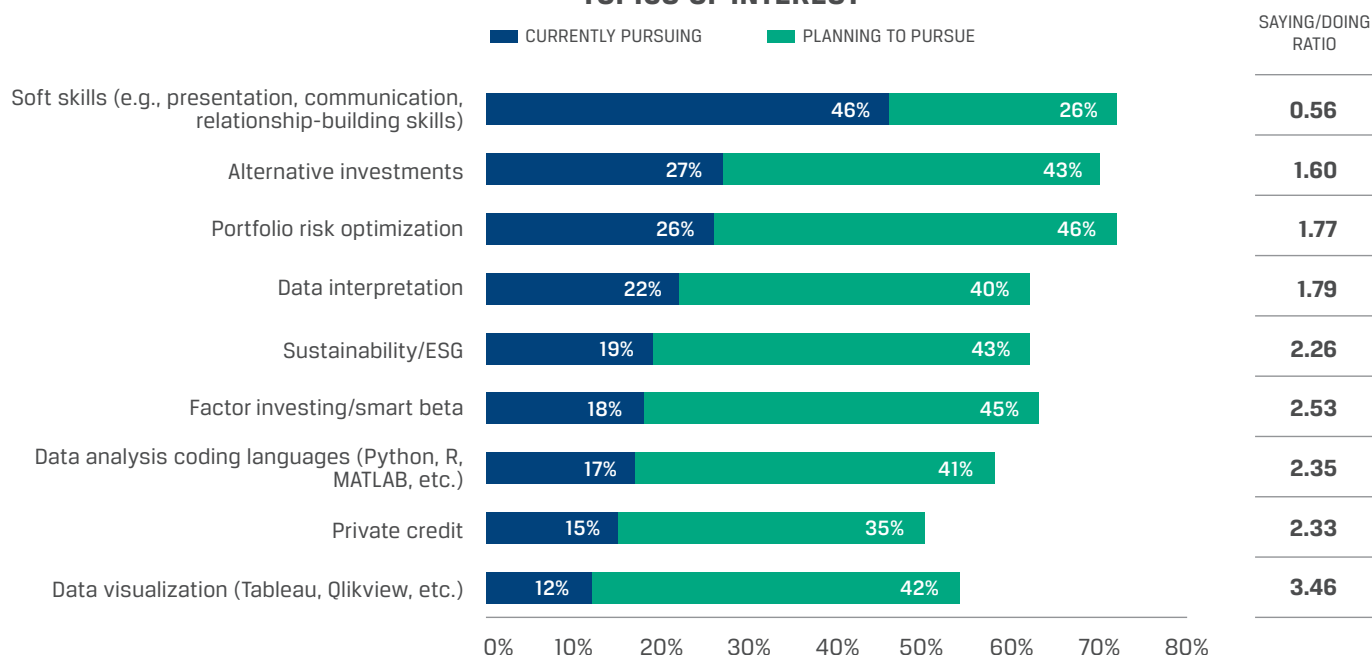
Our member and candidate survey results suggest that investment professionals are very motivated to learn new things, but this focus declines somewhat with experience as they build a greater store of existing knowledge. We looked at nine trending areas for development and found that, on average, 68% of early career professionals either are currently pursuing these or plan to. Among mid-career professionals, 54% are pursuing them or plan to, and among later-career professionals, 35%. The investment industry attracts those with intellectual curiosity, and there are many opportunities to broaden and deepen investment knowledge, even after many years of experience.

We also found that survey respondents in less developed markets—and markets that are evolving rapidly—showed higher interest in acquiring new skills than those in more developed markets, but this difference is not strictly regional because the average years of work experience of investment professionals in the Asia Pacific region is lower than in other regions.

We can also see that there are some differences in the skills that investment professionals choose to pursue through their career life cycle. Soft skills is the top topic currently pursued. Portfolio risk optimization (one of the primary uses for AI and machine learning among portfolio managers^{xxx}) and data interpretation are technical skills that are of slightly greater relative interest to professionals early in their career; those in later career phases are more likely to already be proficient in these. In mid- and later-career phases, sustainability and alternative investments are prioritized more highly.

Finally, it is interesting to compare the desire for learning with the action taken to accomplish it. As in many professions, investment professionals are interested in learning but are time constrained. The "saying/doing ratio" in **Exhibit 16** indicates the proportion of those who are interested in gaining a skill or knowledge versus those who have already started to pursue it, among the CFA member/candidate respondents to our survey. The larger this ratio, the more potential there is to increase learning in the industry by providing relevant and accessible educational material.

TOPICS OF INTEREST



SOURCE: CFA INSTITUTE MEMBERS AND CANDIDATES SURVEY

This gap is smallest in soft skills, which was also a topic of interest for more than 70% of those surveyed. In other words, people go beyond just saying to actually doing something about improving soft skills. This includes presentation, communication, and relationship building skills. These skills transcend roles, unlike technical skills, and in an industry known for technical and quantitative prowess, this area is a significant one for personal growth.

At the other end of the saying/doing spectrum are data visualization (3.46 people are considering pursuing this for every 1 person who is doing it) and data analysis coding (2.35 ratio). The gap in this area may reflect professionals' discomfort with trying something very different from their daily work. It may also reflect an uncertainty about whether these much-discussed areas are worth the investment; people are taking a wait-and-see approach.

Strategies for Learning New Skills

The two basic approaches for building new skills are on-the-job learning and use of learning resources. Our survey of members and candidates gives an indication of the

level of on-the-job learning: Investment professionals spend about one-third of their work time learning new things versus doing familiar work. Lifelong learning is an essential element of ongoing success, and in fact, those with more years of experience are more likely to see the industry as intellectually challenging (77% of members agree with this statement compared with 65% of candidates).

The proportion varies by job role, as seen in [Exhibit 17](#), and can be explained in part by the typical pathways to these roles.

Individuals doing relatively less new work tend to be in linear career paths—that is, roles that are similar in terms of progression of skills and knowledge at the same or different firms. An example of linear career progression in investment management is the traditional path from research analyst to portfolio manager to CIO. In contrast, individuals with lateral, or non-linear, career paths experience different roles and functions, thus requiring different knowledge and skills at multiple stages of their careers, possibly in different functional areas or industries.

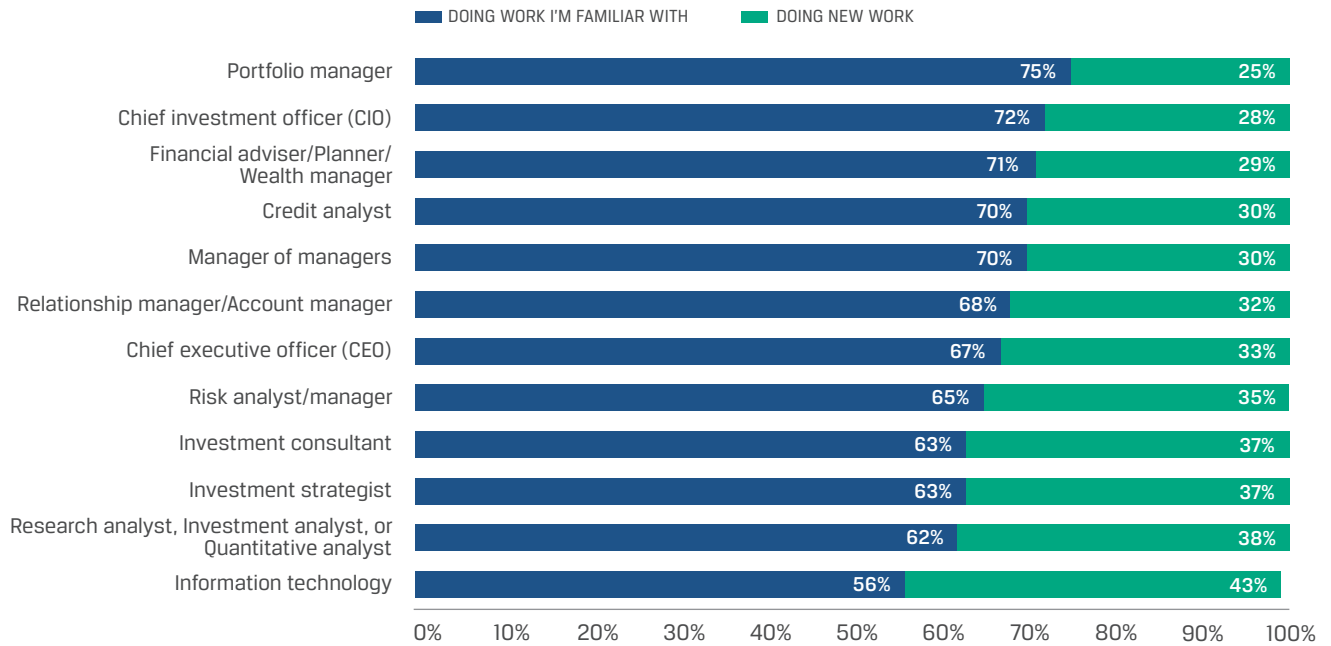
In terms of resources, the most valuable sources of professional learning, according to our member and

candidate survey respondents, are books and publications, favored as one of the top three most valuable sources of professional learning by 64% of respondents. A close second, at 61%, is coworkers/industry peers, especially early in one's career, which shows the value of personal networks. The next tier of resources are conferences (33%), webinars (32%), and in-person courses (29%). In Asia, online courses via social media platforms are popular.

How Career Management Must Adapt

If careers are an aggregation of the skills, roles, and jobs a professional has over time, individuals must be intentional about managing these elements. Historically, training and development has been employer directed, as employers invested in their human capital, sometimes with incentives along the way. Now, career paths vary more, and employers are less likely to prescribe a preferred path, at least beyond entry-level analyst training classes. Individuals must be proactive about their careers and see all jobs as growth opportunities that they have the responsibility to realize.

WHAT PROPORTION OF YOUR TIME IS SPENT DOING WORK YOU ARE ALREADY FAMILIAR WITH VERSUS DOING NEW WORK (I.E., LEARNING THE UNFAMILIAR)? BY ROLE



SOURCE: CFA INSTITUTE MEMBERS AND CANDIDATES SURVEY

One way to think about this active approach to career management is with the career flywheel pictured in Exhibit 18.

The "flywheel effect" is a concept from Jim Collins's *Good to Great* that he applies to organizations and that we apply here to the professional's career.^{xxxiv}

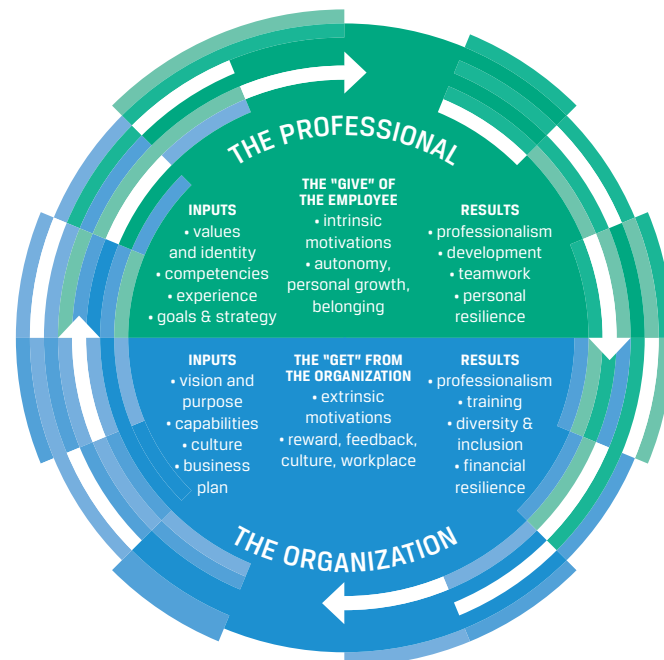
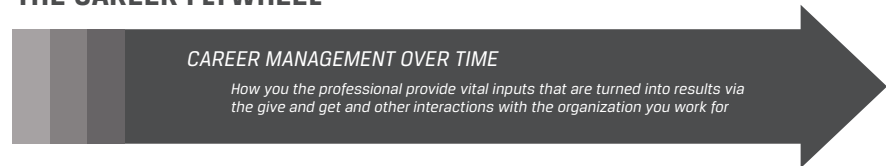
According to Collins,

No matter how dramatic the end result, good-to-great journeys never happen in one fell swoop. In building something great, there is no single defining action, no grand program, no solitary lucky break.

Rather, the process resembles relentlessly pushing a giant, heavy flywheel, turn upon turn, building momentum until points of breakthrough, and beyond. (p. 165)

We believe this describes the career management challenge rather well.

THE CAREER FLYWHEEL

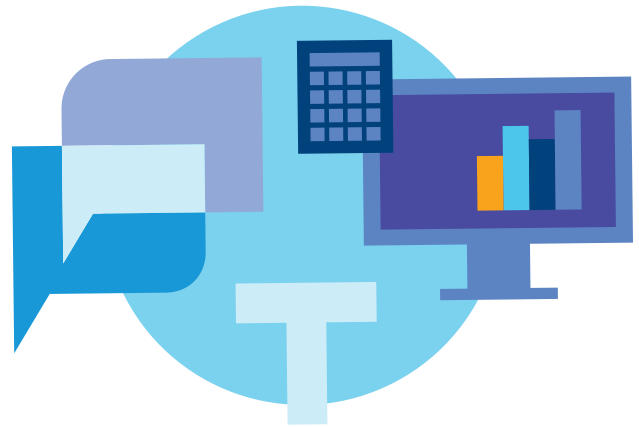


The critical success factors for individuals to maintain the progress of the flywheel are as follows:

1. **Maintain a learning mindset and a growth mindset.** Career competencies and character are built over time by dedicating the requisite time and attention for learning and developing your competencies and character through focus, hard work, and good partners.
2. **Build the alliance with each employer.** This alliance is "give and get": You give value to the employer, you get explicit rewards as well as indirect ones, such as personal empowerment, development opportunities, and feedback for further development.
3. **Seek work-life integration.** Healthy work-life integration will support career resilience and develop opportunities for fulfillment. Being part of an inclusive culture and benefiting from flexible working arrangements are critical contributors to this outcome.

There are several catalysts that individuals can use to enhance their career prospects.

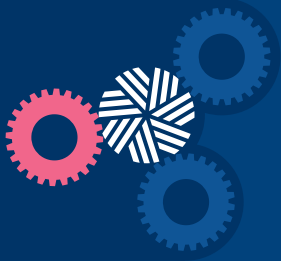
- **Career mentors or executive sponsors** can be extremely helpful for career management. Specifically, a mentor gives advice on how to advance one's career—from guidance on technical skills to navigation of interpersonal challenges—and an executive sponsor is an influential colleague who can be a personal advocate when promotions are under discussion. These relationships are much more likely to be informal than formal in nature. Approximately 30% of the CFA Institute members and candidates surveyed have an informal mentor, and 10% have a formal mentor. Women are 50% more likely than men to have a formal mentor, as are those in Asia Pacific versus other regions. This result means the majority of investment professionals are without a mentor, however, and we would suggest such individuals have a harder career journey as a result. It is also worth noting that mentors can be of different types and for specific purposes; those professionals with more experience can benefit from peer mentoring, and being a mentor is usually mutually beneficial. The mentor benefits from insights from a different perspective and the opportunity to build leadership skills.^{xxxv} Occasionally, organizational leaders do "reverse mentorships" that allow them to learn from newer employees and get insights about how to better lead the organization. Put differently, all mentor relationships have opportunities for both parties to learn.
- **Career plans or roadmaps** will be increasingly valuable as the industry becomes more competitive. One of the strongest points of consensus in our industry leader survey is that "individuals' roles will be transformed multiple times during their careers; adaptability and lifelong learning will be the most essential skills." Among respondents, 89% of industry leaders agree that this is one of the top three elements of disruption and change that will have the largest impact on individuals in the investment industry in the next 5–10 years. In most cases, it will include working more with technology, but to build a resilient foundation, one should consider ways



to acquire a diverse set of experiences. Just 12% of survey respondents have a formal written career plan or strategy, but the majority (66%) have a general plan of future roles they aspire to. Successful career planning involves regularly checking in on development plans to ensure that careers and career changes are producing personal growth.

- **Building acquired diversity** makes individuals more valuable to teams and gives them greater options for future roles. This form of diversity is about acquiring different types of experiences, knowledge, and skills across geographies, industries, and functions, among others. Individuals should think laterally about complementary skills, augment skills through technology, and build soft skills. Importantly, diversity can be sought in the workplace and outside of it. By having a broader perspective, an investment professional can make different connections and enhance the cognitive diversity of a team. Unlike surface-level diversity, acquired diversity is something that everyone can build.
- **Cultivating a valuable network of contacts** is an important T-shaped skill, and social media platforms have transformed the way people network. In our survey, 86% of CFA members and candidates say they use social media for professional purposes. The most common purposes are to research job opportunities (61%), follow market trends (58%), and update one's professional profile (51%).
- **Building a personal brand** is a considerable asset to a career. We suggest that investment organizations will be particularly attracted to individuals whose brand attributes include positive ethical orientation, strong professionalism, and collegiality. Such attributes will become embedded in the reputations of those individuals who have profoundly and consistently lived the experiences, developed the networks, and laid down the track records.

As introduced in the career flywheel discussion, a successful career and personal brand are not the result of a solitary lucky break but the result of career choreography, extended application, and character development over time. There are so many more confusing factors obstructing achievements in life and work. In the face of these challenges, personal character is more important than ever.



CHANGING

CULTURES

CHANGING CULTURES AND ORGANIZATIONAL CONTEXT

How the Work Environment Evolves: Culture, Incentives, Values, Organizational Design, and Methods

It is important for employers to create attractive work conditions for their professionals. The central aspects of the investment firm's people model revolve around (1) workforce scope and structure and (2) workforce style and culture.

Workforce scope and structure: The scope and structure concern the locations that the workforce uses, the number and roles of the employees in each location, and the team structures that exist to link activities through an operating model, investment model, and distribution model. Other aspects include the degree of vertical integration in the investment value chain and the extent of delegation and outsourcing arrangements.

Workforce style and culture of working: The style concerns issues of hierarchy and empowerment as well as the organizational commitments to training and development; the culture concerns values and incentives and the balancing and alignment of priorities among employees, clients, and results.

Organizations must reach informed and calculated positions on these elements that are essentially decisions about strategy by reference to the organization's comparative advantage, situational context, and acceptable tradeoffs. And they will do so having regard to the key evolving factors that govern them. In short, nothing is stationary; everything is moving.

The big organizational change factors influencing investment firms are captured in our industry leader survey in **Exhibit 19**. The impacts of technology lead the list. Significant disruptions and transformations arising from technology are inevitably going to affect culture. In many situations, the culture will be adversely affected because personal change is always difficult, and for many professionals, change involves some pain.

An area where cultural change can be positive is the degree to which organizations create tailwinds from clearly defined purpose and values and give particular attention to individuals' personal development. The full spectrum of how employees feel about their work is covered by the term "employee experience," defined as what employees encounter, observe, or feel over the course of their employee journey at an organization, taking account of recruiting, onboarding, employee development, promotion, and exit circumstances. Although such areas have not been central to strategy before, greater attempts to manage the employee experience will become a more common lever for organizations to differentiate themselves in future.

SOURCES OF DISRUPTION AND CHANGE FOR INVESTMENT PROFESSIONALS (RESPONDENTS COULD SELECT THREE)



SOURCE: INDUSTRY LEADER SURVEY

The majority of investment organizations have developed their investment propositions around talented individuals. Indeed, the star portfolio manager model has been used by a number of leading investment firms. Such a model will not be eliminated, but it certainly will be diminished as the teamwork plus technology model gains ground. Simply put, teams can create diversity payoffs that individuals can't. In addition, it is becoming very clear that technology parse data more efficiently than people can.

Cultural Models for Firms

In our report *Investment Firm of the Future*, culture is positioned as a key part of future success. The organizational challenge will be a difficult balancing act of integrating technology with effective culture, given the disruptive inputs and anxieties introduced:

The people- or team-centered culture can be a valuable asset, a source of competitive advantage, and a means to create long-term value. The edge from a people-centered culture comes in various guises: It encourages maximum creativity, facilitates collaboration, and confers personal recognition; it helps workers develop through training, mentoring, and performance management; and it makes allowances for top talent and high performers, while respecting all professionals. A people-centered culture is also likely to be more ethical and purpose driven relative to one that is single-mindedly driven by results, with greater emphasis on diversity and inclusion as well as stakeholder responsibility.^{xxxvi}

Various cultural signatures may be used, but a people-centered culture has significant growth potential in the next 5–10 years, not least because of the growing traction with purpose and values in an organization's ethos. The Edelman Trust Barometer has supporting data emphasizing this trend.^{xxxvii} We also observe that organizations can focus on personal growth through commitment to training programs, which are set to rise as a percentage of the employees' total cost of employment.

The other major factor in the cultural orientation of organizations is how much focus is assigned to "workplace intelligence," which includes the design and functional aspects of the workplace as well as the softer aspects about how employees work and interact. We see increased importance placed on workplace design as an enabler of culture. Workplace design is focused on the functional elements (e.g., the environment, layout, and the quality of any enhancements in the workplace), but it influences all aspects of the employee experience (what employees encounter, observe, and enjoy in their work journeys). Some employees seem to enjoy the pool table, the free doughnuts, and the espresso bar that the tech titans have evolved into the caricature of Silicon Valley places of work. The biggest factors sought by professionals, however, as captured in our data, are one step removed from these elements in the appetite for personal growth, inclusive culture, performance feedback, and flexible/remote working. Exhibit 20 shows the wish list among professionals.

One particular model of workplace intelligence concerns the style of communication and transparency at work within an investment organization. We suggest versions of this model have developed in a spectrum. First, there is the "hierarchical cascade" model, where communication is streamed from the top down through the organization. This communication cascade is used selectively as a tool of management and leadership to control behaviors. However, that model is declining because of a loss of effectiveness in fast-changing conditions where organizations fail to get real-time and accurate information for decisions and employees are denied empowerment and inclusion.

The contrast is the "radical transparency" model (notably supported by Ray Dalio, founder of Bridgewater and described in the book *Principles*), which applies widely distributed decision making. Following this model requires increased transparency to improve the speed and accuracy of responses. Employees need to know what's happening within their organization to make the best possible decisions at all levels within the organization. Further, to some, radical transparency has the power to increase perceptions of fairness, increase involvement in running the business, and

boost engagement in the workplace. The question is whether radical transparency supports only one type of particularly emotionally resilient individual and, as a result, produces a culture with weak diversity.

We suggest that organizations explore different cultural models and find a match between their organization and the values and beliefs in Exhibit 20, probably taking a middle ground. To a degree, the jury is still out. These issues will be explored in the next 5-10 years with increasingly accurate tracking and measurement of how well models work in practice.

Effective Teams and Technology

In the *Investment Firm of the Future*, we discuss how effective teams are working with smart technology as a key part of future success.

Investment firms build collective intelligence from well-trained professionals using disciplined decision processes and effective communications. These models' success hinges on the ability of firms to deepen the range and adaptiveness of their professionals' skills.

Competition will continue for professional talent among investment firms, particularly at the leadership level. This likely takes place in an overall shrinking of industry headcount in Europe and the Americas as costs come under growing pressure. Asset management firms' headcounts likely mirror the trends at sell-side firms but with a lag. The challenge is to use fewer people to achieve more by changing the roles played by people and technology.^{xxxviii}

What appears likely is that the collective intelligence of a group will matter more than individual intelligence and that investment firms will increasingly favor teams with technology models.

We anticipate that organizations will primarily seek to use technology to produce the enhancement of human roles with some net cost and efficiency gains. Technology opportunities will also, however, involve the displacement of roles, which will create challenges for leaders as they manage the cultural transition.

Technology enhancement will happen throughout organizations, particularly in portfolios, accounting, reporting, servicing, and decision support. In time, we are likely to see increasing use of metrics in the workplace for HR purposes, sourced from data wearables and the internet of things (IoT). We see this as two edged. On the one hand, it will be possible to measure aspects of human performance more accurately than before. On the other hand, the human response to this intrusive process will be very mixed and make such measurement counterproductive. Some middle-course pathway is likely needed.

Specialist roles in investment technology will inevitably grow to support its wider reach into all aspects of the organization. In particular, the demand for IT leadership (chief technology officer and equivalent) and data analysis, interpretation, and presentation will grow at a considerable pace.

EXHIBIT 20

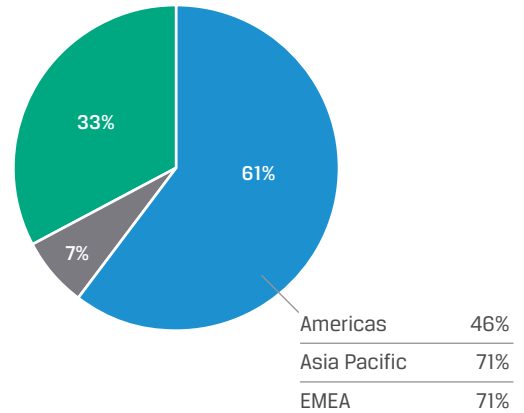
WHICH OF THE FOLLOWING ASPECTS OF AN ORGANIZATION/COMPANY ARE MOST IMPORTANT TO YOU? (SELECT UP TO FOUR)	TOTAL	CANDIDATES	MEMBERS
Personal growth: training and development opportunities are encouraged and supported	87%	89%	83%
Inclusive culture: employees feel included, and differences of views and values are appreciated	57%	54%	61%
Performance reviews: performance management works from a framework of check-ins and reviews, both formal and informal	40%	42%	36%
Remote working: working from home is encouraged and IT supported	36%	30%	44%
Flexibility and part-time work arrangements: these are possible, with commensurate pay and benefits	34%	33%	35%
Wellness: firm provides wellness facilities like games areas, fitness centers, coffee spots, juice bars	32%	37%	25%
Increase in HR metrics: skills, competencies, productivity, and behaviors are assessed and are factors in compensation	24%	26%	19%
Diversity focus: the organization increasingly values diversity in hiring, promotion, and compensation processes	23%	26%	20%
Agile spaces: work spaces are more open, interactive, multi-functional	15%	17%	12%

SOURCE: CFA INSTITUTE MEMBERS AND CANDIDATES SURVEY

FIRM COMMITMENT TO TRAINING

In the next 5–10 years, what do you expect regarding investment firms' commitment to training and development?

- FIRMS WILL INCREASE THE AMOUNT OF TRAINING AND DEVELOPMENT
- FIRMS WILL DECREASE THE AMOUNT OF TRAINING AND DEVELOPMENT
- NO SIGNIFICANT CHANGES

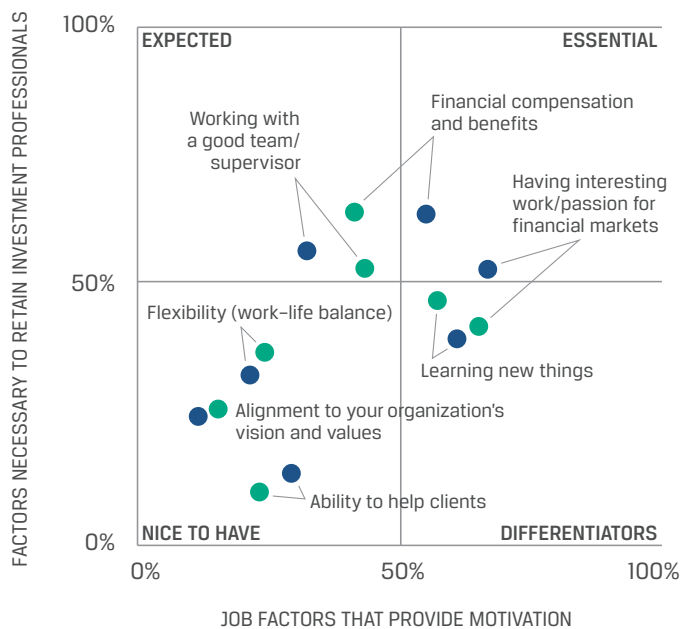


SOURCE: INDUSTRY LEADER SURVEY

JOB FACTORS THAT MOTIVATE AND RETAIN TALENT

JOB CHARACTERISTICS

- MEN
- WOMEN



SOURCE: CFA INSTITUTE MEMBERS AND CANDIDATES SURVEY

Strong Motivations in an Engaged Workforce

In *Investment Firm of the Future*, we positioned good culture and effective mechanisms to support personal growth as key parts of future success.

Investment firms are people businesses in which talent is intrinsic to success. The factors that secure talent include compensation, but intrinsic motivations often are more significant. These include: autonomy—people like to have flexibilities and clear levels of discretion in their work; mastery—people like to develop deeper skills; purpose—people like work that is meaningful to them; recognition—people like their work to be recognized and appreciated; and good colleagues—people like talented and empathetic colleagues, as well as a sense of belonging.^{xxxx}

In Exhibit 21, just over 60% of industry leader survey respondents expect firms to increase the amount of training and development they offer in the next 5–10 years; this number is lower in the Americas than in Asia Pacific or EMEA.

The demand for more learning conducted at a faster pace is one factor at play. The bar for quality training and development programs keeps rising. Organizations recognize that they need to continuously upskill professionals to remain effective. Providing employees with ongoing learning opportunities improves the quality of analytical work and client engagements and helps the firm retain its best people and build a stronger bench of talent. Those people who develop a deep expertise stay longer with the organization because their key development needs are being met.

Learning and development will no doubt travel in new directions beyond enhancing technical and leadership skills to improving growth mindset and developing new knowledge and skills. The use of online collaborative courses will increase, in which new technologies will be critical. This shift will be complemented by increased access to university business courses.

Investment professionals are highly motivated by learning new things and prioritize learning alongside having interesting work and competitive compensation and benefits. In the member and candidate survey, we asked about the factors that motivate professionals most in their work and, separately, which of these items, if inadequate, is most likely to make them leave a job. These results by gender are illustrated in Exhibit 22. For women, no items were revealed as "essential" to attract them into the industry and retain them. This presents a challenge for investment firms: There is no generic approach that will be successful because there is limited uniformity among women about what motivates and retains them.

Effective Workplace Design

Adapting the work environment to enhance the employee experience will be a key challenge for most firms and will enable employee growth. Silicon Valley firms like Google and Apple are leading a transformation in workplace structure and practice. These organizations are heavily dependent on intellectual capital and innovation characteristics, as are investment organizations.

The Bloomberg working arrangement in the City of London is a good example of workplace design in a financial services context, where the workspace is designed to improve the employee experience and business outcomes, in part by creating more opportunity for serendipitous interaction and boosting collective intelligence. The ideas that shape this workspace are presented by the architect Foster+Partners:^{x1}

Central to Bloomberg's ethos, the double-height "pantry" on the sixth floor is the heart of the building, reflecting the importance of sharing and collaboration at the company. Everyone passes through this animated space, increasing the likelihood of chance meetings and allowing people to hold brief ad hoc conversations with colleagues, whilst not impeding the flow of people.

These exemplar new office developments have been well researched, and considerable attention has been given to effective design based on new working practices and support for the employee experience. It seems logical that many investment organizations will pursue the evidence-based methods and beliefs-based methods to pursue innovation in the world of work.

The work environment is capable of considerable evolution in the next 5–10 years in a range of areas. The following seem fertile areas for productive changes in specific contexts:

1. Flexible working arrangements
2. Job-sharing arrangements
3. Remote working arrangements
4. Agile team-work breaking away from organization chart structures
5. Workplace design, particularly open plan and agile spaces, no fixed offices or desks
6. Complete pay transparency
7. Radical transparency communication ethos
8. Personal productivity metrics tracked through wearables and other technology
9. Email replaced with alternative communication mediums
10. Performance appraisals stopped in favor of performance check-ins
11. No vacation policy; the employee schedules these according to needs
12. Sabbatical policies
13. Secondment policies and international experience
14. Workspace devoted to leisure facilities and/or including childcare facilities

All these arrangements have been tried at organizations somewhere. Only a few have become widely used. They represent a core list of ideas that could either become more widely supported or become forgotten relics. Individual organizational context will be a key factor in which are tried and which will endure.

Longer term, the concept of traditional organizational workplaces may undergo a change as remote working and flexible schedules create asynchronous and virtual working patterns and casual hallway conversations disappear. Global virtual teams are commonplace among large investment firms already. For medium and small investment firms, however, most employees are located in one or two offices, so as working patterns change, new leadership skills will be needed. Although few of the industry practitioners we spoke with expected the gig economy to have a significant impact on the investment industry within 5–10 years, a technology-enabled industry and anti-hierarchical millennials may increase the possibility of significant change in what work looks like in the longer term.





ROADMAP FOR INVESTMENT PROFESSIONALS

Keep Learning and Adapting: Use the Career Flywheel

As covered in the Changing Roles and Changing Skills sections, an individual's career is made up of a lifetime's experience in a combination of employed roles and deployed skills over time.

We introduced the career flywheel in Exhibit 18 and include it again here for reference. The flywheel makes up the multiple lived experiences in a professional's career—their education, jobs, and learning. We visualize the career flywheel creating the human capital, identity, and personal brand that are unique to every professional. An effective career flywheel sustains its momentum through a series of well-executed and well-timed interventions and adaptations on the career journey.

We suggested in the previous section how the roles played in investment organizations must bring a value proposition to both employee and employer; great job experiences are strong alliances that bring together the engaged professional with the empowering employer.

EXHIBIT 18 (REPEATED)

THE CAREER FLYWHEEL

CAREER MANAGEMENT OVER TIME

How you the professional provide vital inputs that are turned into results via the give and get and other interactions with the organization you work for



The inputs in this cycle are combinations of competencies in acquired knowledge, skills, and abilities; work experiences; and the motivations driving them. The outputs are behaviors and accomplishments relative to goals. These repeat in a cycle to represent a career in motion.

The parallel inputs of (1) the employer, (2) the part of the employee motivations it generates, and (3) the organization's results are key influences on the employee experience. Notably, the employee benefits (or not) from a positive culture, the extrinsic motivations from pay and benefits, and the organizational resilience that match up with complements on the other side of the ledger.

What is different in the future versus the past? The likelihood of multiple roles in careers, as shown in Exhibit 23, is the consequence of structural changes in work reflecting technology. The need for lifelong learning sits alongside the multiple roles. The impacts of technology suggest technology content in work will be significant throughout all future professional careers.

What is similar in the future versus the past? Personal character and resilience have always been critical to careers, and we expect that to continue. We continue to emphasize the 3 Es and the 3 Cs: ethics, experience, and empowerment and commitment, connection, and collegiality.

What advice can we offer to the investment professional of the future? Develop a career management framework—applying career flywheel principles discussed in this report and devoting substantial time to career management planning and action. Across any decade of work, the allocated time to career management should average at least an hour a week.

Managing a career is about to get a lot harder. The principles of doing it well are spread through this report, and we suggest the distillation is to maintain a learning mindset and growth mindset, build an alliance with each employer, and evolve effective work-life integration.

EXHIBIT 23

TOP THEMES IN INDIVIDUALS' CAREERS

1	Individuals' roles transformed multiple times; adaptability critical
2	Individuals differentiate themselves by being tech savvy
3	Thriving is significantly about character and professionalism
4	Diversity contributions, particularly cognitive diversity, valued in teams

SOURCE: INDUSTRY LEADER SURVEY

Invest in New-Era Skills: Apply the Skills Pathway

The four core skills for investment professionals were introduced in Changing Skills, where we used the term "pathway" to suggest the varying mix of skills that are desirable as careers progress. Exhibit 14 demonstrates the suggested progression of skill development.

All professionals in the field of investment need technical skills. These skills have become more critical over time as the scope of investment has expanded and the investment system has developed greater complexity. We suggest that individuals in all roles need to have a combination of specialized, role-specific knowledge and skills and some understanding of the whole system (a broad base of knowledge gained from a holistic education, such as the CFA Program). One can consider ethics as complementary to (and necessary for) proficiency in technical skills. We see ethics as providing the values and judgments that surround and bind certain knowledge, skills, and abilities.

In Changing Skills, we discussed how, through a competency framework, knowledge, skills, and abilities govern the talent and expertise, experience, and accomplishments that professionals need to perform at the highest level. We suggested that professionals increasingly need a more diverse set of skills and abilities, collectively known as soft skills, to accomplish tasks and goals with interpersonal elements. The area covers communication skills and creative, social, and emotional forms of intelligence. Research shows that soft skills can be learned.^{xii}

We cite leadership skills as requiring these soft skills but going above and beyond in being able to articulate a compelling vision, inspire confidence in others, and propagate shared values that can form part of an organization's culture. We take the view that leadership is a skill to be developed.

As careers develop and thrive, the skills that are needed are much more likely to be T-shaped skills, which are found in people who connect the dots well, work well with other people, and understand the wider system that their organization functions within. Innate to being effective in a T-shape is being at ease with technology. T-shaped skills are acquired most from combining traditional learning with experience learning (i.e., learning by doing).

An additional step is the mastery of rare and valuable skills. This category can involve very experienced people ultimately adopting highly specialized roles where their comparative advantage acquired through significant devotion to learning has particular value (e.g., the most-talented stock-picking professionals).

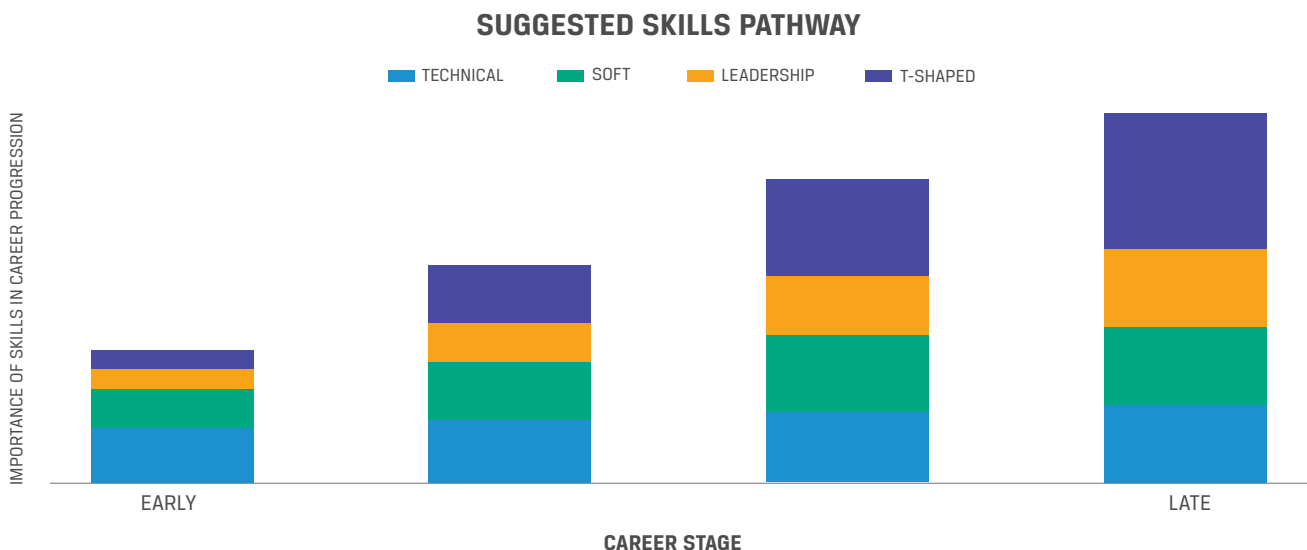
There are three key principles for working with the Skills Pathway in Exhibit 14. First, it lines up roughly with length of experience. The skills at the earlier steps are critical to early-stage professionals; and later steps are progressively more important and valuable. Second, careers are not monotonically programmed to move to the right. There are many individual circumstances where steps may be taken lightly or skipped altogether. Third, there is no suggestion that all career plans should end with a role in the rare and valuable skills step. But it is hard to see many senior roles in investing excluding T-shaped skills, which is reinforced by the importance of T-shaped skills in the survey data.

What is different in the future versus the past? The significant growth in investment system interconnectivity and complexity has created conditions that accentuate the value of T-shaped skills.

What is the same? Career management requires a capacity to think ahead and develop the opportunities for learning that will produce professional growth later in a career.

What advice can we offer here to the investment professional of the future? Build your career management plans to progress through the Skills Pathway.

EXHIBIT 14 (REPEATED)



Be Tech-Savvy: Navigate and Harness Technology

The large degree of change expected in the next 5–10 years, as shown in Exhibit 24, is mostly a consequence of technology.

We have categorized the effects of technology into three levels, shown in Exhibit 25.

1. The **basic applications** in technology require all professionals to do things differently, ensuring technology improves task execution in amplifying, interacting, and replicating (replacing tasks and sometimes displacing human roles).
2. The **specialist applications** in technology will be in enhancing different things where investment teams and technology teams collaborate closely in shared team space and to foster T-shaped team skills.
3. The **hyper-specialist applications** in technology are derived from data science evolution and its spin-offs in new and different things like developing and deploying AI systems alongside roles in training, explaining, and sustaining (ensuring safe and accurate tech deployment). While many of the individuals involved will not be dual trained in investment and data science, the best will be.

What is different? There is a wholesale shift occurring in people plus technology models for the industry. That shift will evolve and accelerate.

What is the same? Professionals have always had to respond to new technologies. Recall the impact the desktop computer had on the investment industry.

What advice can we offer to the investment professional of the future? Build tech-savvy skills (i.e., understanding and using technology effectively) and make sure they serve you, not the other way around.

EXHIBIT 25

TECHNOLOGY HIERARCHY OF IMPACTS

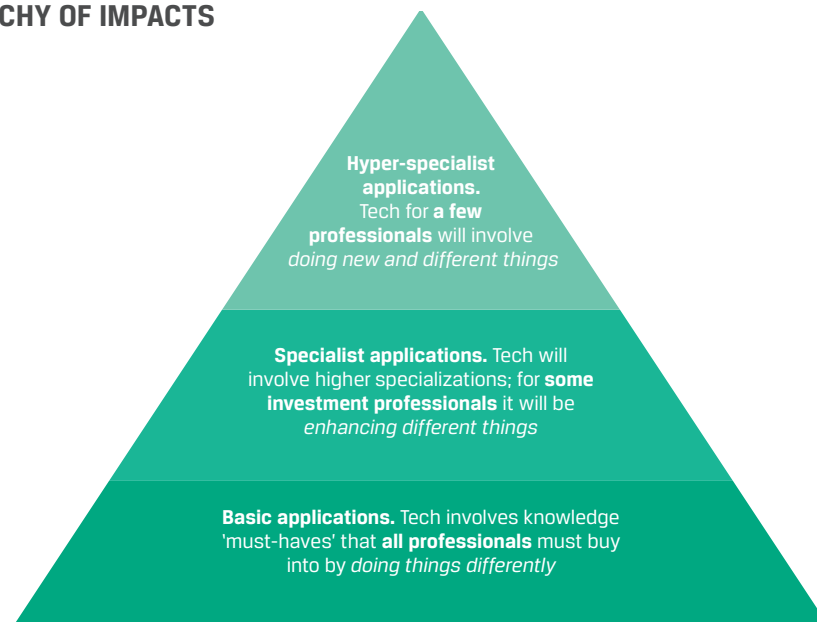


EXHIBIT 24

EXPERT VIEW ON DEGREE OF CHANGE IN WORLD OF WORK IN THE NEXT 10 YEARS

Greater	77%
Same	20%
Smaller	3%
Overall workplace features, roles and skills, work methods, compensation and incentives	
Change relative to the past 10 years	

SUMMARY

Roadmap for professionals

- *Keep learning and adapting: use the career flywheel*
- *Invest in new era skills: apply the skills pathway*
- *Be tech-savvy: navigate and harness technology*



ROADMAP FOR INVESTMENT ORGANIZATIONS

Enhance Employee Experience: Cultivate Stronger Culture

In the previous section, we discussed the individual's need to keep learning. Here, the principle is applied to the employee experience. That learning should focus particularly on how to apply strong culture and purpose to the benefit of the organization and its individuals.

In the Changing Cultures and Organizational Context section, we discussed the investment professional through the employer lens. The major points concerned the significance of three areas of investment organizations: culture, technology, and authentic communication. We summarize the major ideas about culture here.

There are a number of choices investment organizations can make to attract and retain outstanding professionals. In *Investment Firm of the Future*, we described how organizations have three different ways of creating focus or visions: results centered, client centered, and people centered.

We suggested that a results-centered organization appears to lack a compelling and unifying purpose. But organizations that are either client centered or people centered are able to align on purpose and create stronger motivational forces as a consequence.

We further noted that there is a growing appetite for people-centered cultures that make employee experience and well-being central to policies and practice.

The other factor at work is a changing ethos on the underlying purpose of firms from a societal perspective, as shown in **Exhibit 26**.

The view that a company can take specific actions that both increase profits and improve the economic and social conditions in the communities where it operates is widely subscribed to and appears likely to progress further in the next 5–10 years. Investment firms and organizations of all types should recognize the force of this changing societal norm.

What is likely to be different in the future versus the past? The choices of professionals are growing. Particularly with millennials and the new generation joining the workforce, it is clear that employers have to do more for the employee experience or face major business difficulty. Expectations of clients and other stakeholders are also changing. It is clear that organizations must take more notice of the tacit terms of their societal license to operate.

What is likely to be the same? The organizational tension that investment organizations face is between profit maximization and the professional duty to serve clients. This has been a matter of significance since investment firms came into existence.

What advice can we offer here to the investment firm of the future? The principal advice we offer is to work on a stronger, more purposeful, and more engaged culture. As described in *Future State of the Investment Profession*, it is a case of enlightened self-interest—firms that do this should do better over time, benefiting themselves and their clients.

EXHIBIT 26

EDELMAN TRUST BAROMETER 2019	STRONG EXPECTATION You would have to pay me a lot more to work for an organization that does not offer this	DEAL BREAKER I would never work for an organization that does not offer this
Shared Action: My employer has a greater purpose, and my job has a meaningful societal impact	42%	25%
Personal Empowerment: I know what is going on, I am part of the planning process, and I have a voice; the culture is inclusive	43%	31%
Job Opportunity: My employer offers wage growth, training, career growth, and work that I find interesting and fulfilling	42%	38%

Invest in Empowering Leadership: Communicate

Where individuals need to invest in their skills, investment organizations need to invest in their leaders and the empowering culture that can make that leadership work.

The leadership of investment organizations has a particular challenge to reconcile seemingly contradictory actions:

- Integrating direct decision making with indirect levers like strategy and culture
- Balancing internal and external constituencies
- Proactively driving an agenda while responding to unfolding events
- Focusing on tangible decisions and the symbolic significance of every action
- Combining formal power and less formal legitimacy^{xliii}

The data suggest that employees, clients, and society more broadly are looking for leadership that

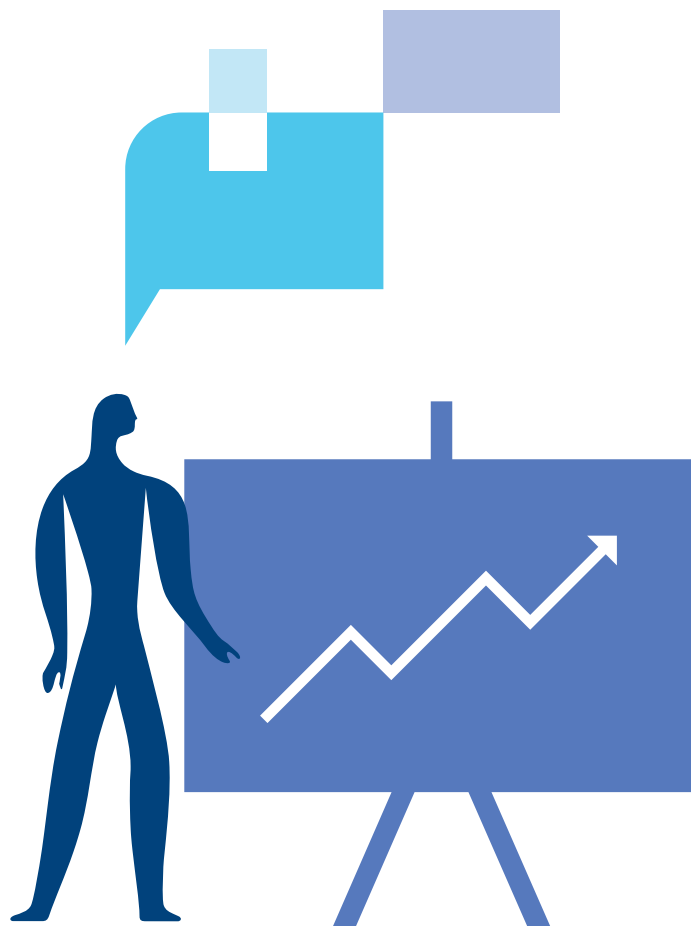
- **Speaks out.** People crave strong leadership shaped from rich values; leaders have scope to craft messages that go further than the strict confines of the business.
- **Draws on legitimacy.** An effective leader speaks within the sphere of competency and stakeholder reach.
- **Is empathetic.** A leader should know how to read the audience well.
- **Shows the courage necessary.** Courageous leaders can convey the need for change effectively.
- **Is clear and consistent on values.** Organizational values should be in sync with actions; authenticity is critical.

Investment organizations have, until now, kept a quiet profile with respect of the limits to their business. This is consistent with seeing stakeholder relations as limited by tight boundaries.

But in the more open era we are living in, leadership will be expected to demonstrate greater influence.

What is particularly important is how successfully leaders connect with their workforce around a new agenda of topics that were previously not discussed in the workplace. Employees will increasingly seek engagement and counsel on a number of areas:

- The future of work in the organization, where jobs are enhanced, where jobs are being displaced, and how employees can benefit from the former and avoid the latter
- The relevance of work in the organization (i.e., employees seek meaningful work and need leadership to have the vision to explain the wider significance of their work; for example, asset management producing excellent retirement outcomes for large numbers of individuals)



- The ways for workers to address career management
- The society/community issues that are, or should be, important to employees and how some level of workplace exposure to these issues is valuable
- Inclusion and respect for all employees generally and individuals' identity and self-worth in particular

What is likely to be different in the future versus the past?
The workplace of the future must respect the whole-life considerations of employees, which calls for considerably greater emotional intelligence than was needed in the past.

What is likely to be the same? Very little, which is why being change-savvy is so critical.

What advice can we offer here to the investment firm of the future?
Investment organizations need to pursue a much more carefully weighted hierarchy of organizational principles than they have in the past. This suggests that in the alignment of vision, strategy, and culture, the soft aspects of the employee value proposition and related value system need much more attention. Positive change will emerge only if the cultures of organizations become more open and the communication abilities of these organizations become much more authentic, inclusive, and empathetic.

Be Change-Savvy: Transform Your Worldview

The accelerating pace of change in the investment industry is fundamentally conditioned by the increasing impact of technology. The biggest factor in this change, according to our expert opinion, is AI displacing and/or enhancing investment roles previously filled by humans. Our discussions with industry leaders show a large degree of apprehension as to how to manage organizations through this transition. This apprehension stems from the limited appreciation that leaders show of how to manage technology effectively.

The second factor that concerns industry experts is about industry consolidation driven by the relentless pressure on costs and streamlining. Investment firms are compelled to continually increase technology spend just to stay competitive but also must manage those costs to stay profitable.

The third factor is technology enabling new professional roles to grow in data science and wider fields. The development of tech-savvy investment professionals and visionary leadership appears most critical of all. The human-machine interface requires people to do new and different things and to do things differently. So far only a small number of organizations have begun to reimagine their business process to optimize collaborative intelligence.^{xliii}

The fourth factor concerns innovation in the workplace. In the Changing Cultures and Organizational Context section, we suggested that most organizations have had a fairly unfocused approach to workplace management: Typically, offices are based on a hierarchy, and there are uninspiring group spaces, barriers between teams, and inflexible work arrangements. The workplace is ripe for innovation.

What is likely to be different in the future versus the past? Moore's law and its corollaries suggest that technology capacity limits are bringing marginal data costs down to nil. That means that over time, machine learning and other data science applications will be highly influential factors in investment industry portfolio management and service delivery.

What is likely to be similar? An important fact is that the purpose of the industry remains the same; its function of delivering investment outcomes to clients has not changed, even though the tools used in it have.

What advice can we offer here to the investment firm of the future? The principal advice we offer is there is only one way to progress: Become a firm that uses technology and innovation effectively. The means by which organizations achieve this state starts with leaders broadening their frame of reference and becoming more T-shaped in their understanding of technology. In particular, the opportunities for innovation in the workplace are considerable. The consideration of data and research should be instrumental to changes in workplace arrangements using evidence-based principles.

SUMMARY

Roadmap for organizations

- Enhance employee experience: cultivate stronger culture
- Invest in empowering leadership: communicate
- Be change-savvy: transform your worldview



THE WAY FORWARD

The investment professional of the future will need to take a more proactive approach to career management as the pace of change accelerates. The roadmap for career success is not a simple one; a mix of skills must be pursued, and there is increased demand for combinations of skills, including the ability to work across disciplines.

What has not changed, however, is that curiosity is the fuel of learning and that the investment profession attracts those with a passion for knowledge. This contributes to a dynamic work environment and better outcomes for clients. Learning is a source of motivation and the responsibility of professionals, and it must be nurtured, especially in times of change. It is the desire for knowledge, skills, and new abilities that will propel the career flywheel forward for the successful investment professional.

Meanwhile, there is an important role for leaders of investment firms to play. Employers committed to training and professionalism will have an edge as firm culture becomes a differentiator to attract top talent. Leaders will need to guide their firms through substantial changes in how work gets done, and in particular, they will need to communicate how technology will change their business and impact individual roles—both disrupting and enhancing career paths.

Lastly, professional bodies like CFA Institute have a responsibility to provide resources and guidance for lifelong learning. This is an expectation of both our members and the firms that employ them and will help them better serve their clients and communities. Simply put: Developing the investment professionals of the future is central to our mission to lead the investment profession globally by promoting the highest standards of ethics, education, and professional excellence for the ultimate benefit of society.



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^{iv} See CFA Institute (2017b).

^v See CFA Institute (2018b), Narratives 7 and 9.

^{vi} See CFA Institute (2018b), Narratives 25 and 26.

^{vii} See CFA Institute (2018b), Narrative 11.

^{viii} See CFA Institute (2018b), Narrative 22.

^{ix} See CFA Institute (2018b), Narratives 19 and 21.

^x See Rosov (2018), p. 4.

^{xi} See CFA Institute (2018b), Narrative 1.

^{xii} See CFA Institute (2018b), Narratives 13 and 14.

^{xiii} This discussion benefited from the future professional roles section in Susskind and Susskind (2015).

^{xiv} CFA Institute (2017a, 2018a).

^{xv} See <https://blogs.cfainstitute.org/investor/2018/02/13/artificial-intelligence-machine-learning-and-deep-learning-in-investment-management-a-primer/>.

^{xvi} Heerwagen, Kelly, and Kampschroer (2016).

^{xvii} Mooney (2016).

^{xviii} See CFA Institute (2018b), Narrative 15.

^{xix} Lorenzo, Voigt, Schetelig, Zawadzki, Welpel, and Brosi (2017).

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^{xxix} Bloomberg Barclays indices will start including China in April 2019. JP Morgan reportedly might be making similar changes to their bond indexes as well.

^{xxx} As referenced in English at www.zerohedge.com/news/2019-03-19/era-negative-population-growth-coming-soon.

^{xxxi} According to 2019 CFA Institute practice analysis data collection, which is used to inform the CFA curriculum.

^{xxxii} See www.usajobs.gov/Help/faq/job-announcement/KSAs/.

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^{xxxiv} Collins (2001).

^{xxxv} See CFA Institute (2019) for a discussion of the differences between mentors and executive sponsors.

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About the Report

Unless otherwise noted, data in the report are from surveys conducted from 18 January 2019 to 1 March 2019.

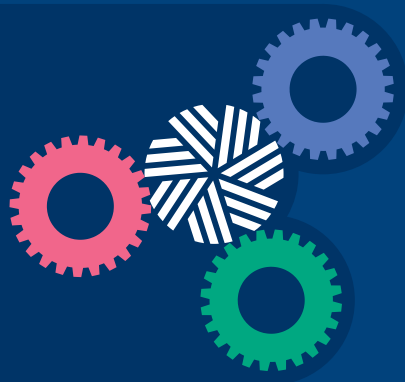
The CFA Institute member/candidate survey on skills, experience, and motivations includes 3,832 responses, with a margin of error of +/-1.6%. The respondents have 23 different functional roles. Overall, respondents come from the Americas (29%), Asia Pacific (33%), and Europe, Middle East, and Africa (38%); 72% are men and 27% are women, with 1% unspecified. In terms of client base, 46% work with institutions, 39% work with individuals, and for 15%, it is not applicable.

CFA Institute members are 24% of the total, and 96% are currently working in the investment industry. In terms of work experience, they are relatively evenly distributed; 28% have up to 10 years of experience, 35% have 11–20 years of experience, and 37% have 20 or more years of experience. The most common functional roles are in portfolio management at 54% (43% portfolio managers, 6% chief investment officers, and 5% managers of managers).

CFA candidates represent 76% of the total, and 75% are currently working in the investment industry. In terms of work experience, 76% of candidates have 0–5 years of work experience. Roles are much more diverse among candidates, with the most common functional role being that of analyst at 24%.

The industry leader opinion survey includes 133 responses, with a margin of error of +/-8%. Respondents come from the Americas (43%), Asia Pacific (21%), and Europe, Middle East, and Africa (36%).

The CFA Institute Future of Finance initiative is a long-term, global effort to shape a trustworthy, forward-thinking investment profession that better serves society. For more information, visit cfainstitute.org/research/future-finance or contact us at FutureFinance@cfainstitute.org to offer your ideas about how to shape the industry for the future.



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