

EY global financial services tech skills report

October 2024



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Executive summary

Executive summary

The EY global financial services skill tech gap report 2024 outlines 12 key tech skills required across financial services globally. These skills were identified based on artificial intelligence-driven qualitative and quantitative analysis and insights from the EY Skills Benchmark.

This report, the product of collaborative efforts by EY and Eightfold.ai, highlights insights gleaned from a deeper analysis of available labor market data relating to the 12 key tech skills in focus throughout this report. Our aim was to better understand what makes these skills critical and, by so doing, potentially help guide the efforts to solve the skill challenges faced across the sector.

By deploying artificial intelligence on a unique data set, we have been able to differentiate between three distinct drivers of criticality – high demand, inadequate supply or low proficiency levels. Understanding which of these drivers of criticality are linked to each key technology skill will help enable financial services organizations to take informed and strategic decisions on the leading talent interventions and investments to improve current access to these skills.

The backdrop: transformation and skill shifts

Rapid change demands upskilling

The financial services industry is undergoing a major transformation due to factors like digitalization, economic uncertainty and evolving customer expectations. This requires a skilled workforce adaptable to new technologies and business models.

Adaptability is key

Beyond technical skills, financial service professionals increasingly need strong soft skills like critical thinking, collaboration, leadership, digital fluency and ethical decision-making to thrive in a tech-driven environment.

Macro trends impact the skills needed

Seven key trends are shaping the financial services industry, including macroeconomic volatility, cloud migration, changing work patterns, evolving customer expectations, AI's impact on risk and regulation, cybersecurity threats and ESG factors. These trends all influence the specific skills needed by the workforce.

The challenge of upskilling

Despite recognizing the need for upskilling, organizations face challenges like inefficient programs, difficulties identifying internal talent for reskilling and generational differences in learning preferences.

Technology is driving skill shifts

Digitalization is transforming financial services, leading to automation of tasks and a rise in demand for new roles like data analysts, AI specialists, cybersecurity professionals, blockchain developers and cloud engineers.

L&D strategy is critical

Financial services firms need a well-defined L&D (Learning and Development) strategy to prioritize cost-effective training, create engaging learning experiences and help ensure alignment with evolving industry needs. The EY Skills Foundry platform is presented as a solution to help organizations identify skill gaps and develop upskilling programs.

Summary findings

Key tech skills in financial services

Our analysis of labor market data has revealed critical insights into the 12 key tech skills driving the financial services sector. By examining supply, demand and proficiency levels, we've identified nuanced drivers of skill criticality and prioritized areas for workforce development.

Drivers of skill criticality

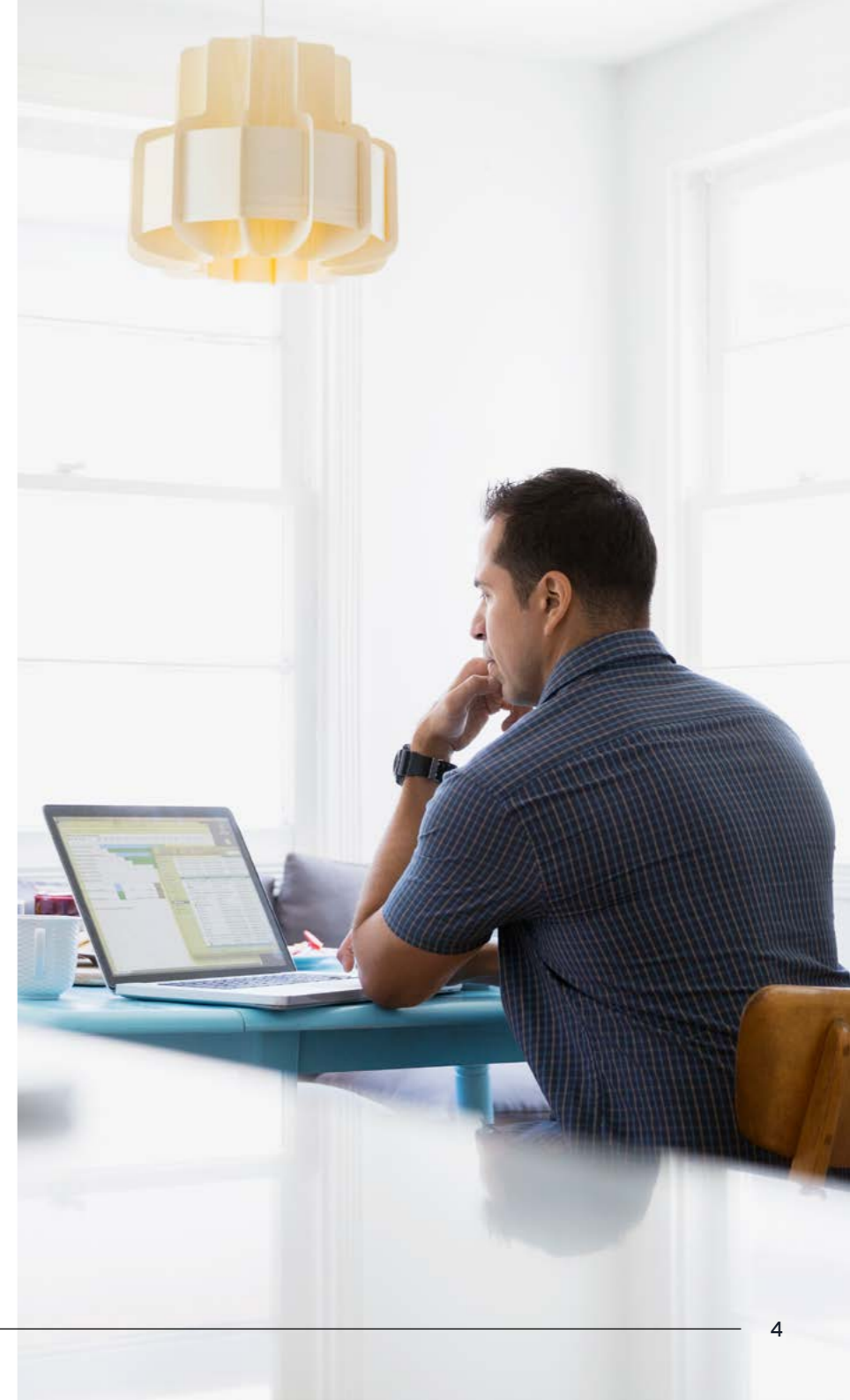
We've identified three primary drivers of skill criticality:

- 1. Supply-driven:** skills like Computer Science with disproportionate sector impact despite limited role applicability.
- 2. Demand-driven:** skills such as System Design and Implementation with high sector-wide demand.
- 3. Proficiency-driven:** focus on skill competence rather than availability – Skills with lower than required proficiency levels in the current workforce.

Addressing skill gaps in financial tech requires a nuanced approach considering supply, demand and proficiency levels. Focusing on Data Analysis & Interpretation while accounting for AI's impact and sector-specific needs will be crucial for future competitiveness. This strategy, tailored to specific subsector requirements, will effectively prepare the workforce for evolving challenges in financial services.

Key findings and implications

- 1. Data Analysis & Interpretation:** emerges as the critical focus for upskilling, combining high demand, low supply and low proficiency across the sector.
- 2. Artificial intelligence:** may mitigate proficiency gaps in some technical skills (e.g., Python and Java) with co-pilot and similar technologies
- 3. Reskilling Focus:** the main challenges lie in broadly applicable skills rather than specialist areas (such as Cybersecurity.)



A woman with dark curly hair, wearing glasses and a yellow sweater, is seated at a desk in a meeting room. She is looking upwards and to the right with a thoughtful expression. In front of her is a laptop. To her left, another person is partially visible, also working on a laptop. The background shows large windows and a bright, modern office environment.

Objectives and contributors

Objectives and contributors

Who is this report for?

This report is intended for executives and decision-makers within the financial services industry, who are responsible for ensuring that the industry has the right talent to execute their strategies effectively and navigate the ongoing changes within the sector.

Why was it created?

As technologies increasingly play a central role in the success of new business models, technology functions, roles and skills are evolving and new and professional skills are emerging. Leaders must help ensure that their workforce is well-equipped to respond to continual advancements and the challenges they bring, whether through artificial intelligence or Cyber threats as an example.

Understanding the required skills to support future business strategy and determining existing skills they already have is the initial step in this process to enable leaders to define skill gaps.

The report examines the current skill levels and skill proficiency shortfalls across the financial services sector, providing valuable insights and recommendations to help optimize the workforce in the sector.

How was it created?

Ernst & Young (EY) utilized AI and advanced technology to analyze job market data and compile this report. By devising a broad skills benchmark and comparing it to current workforce skills—interpreted with help from Eightfold.ai's technology—we offer invaluable industry insights.

EY and Eightfold.ai, a talent intelligence platform, joined forces to amalgamate data on demand, supply and skills proficiency specific to the global financial services sector. We assessed demand using job ad analyses and gauged supply via Eightfold.ai's inference technology.

Together, we uncovered the intricacies of essential technical skills shaping the future of financial services. This fusion of data not only clarifies the present talent acquisition and retention challenges but also frames a decision-making model to navigate these hurdles.

Contributors

EY Skills Foundry

EY Skills Foundry is a workforce upskilling and reskilling platform that helps businesses adapt at pace by equipping people with the skills they need to continuously realize transformation. Industry benchmarks are used to map the size and shape of client skills gaps while artificial intelligence is deployed to align the most relevant learning content to support skilling initiatives and talent market places.

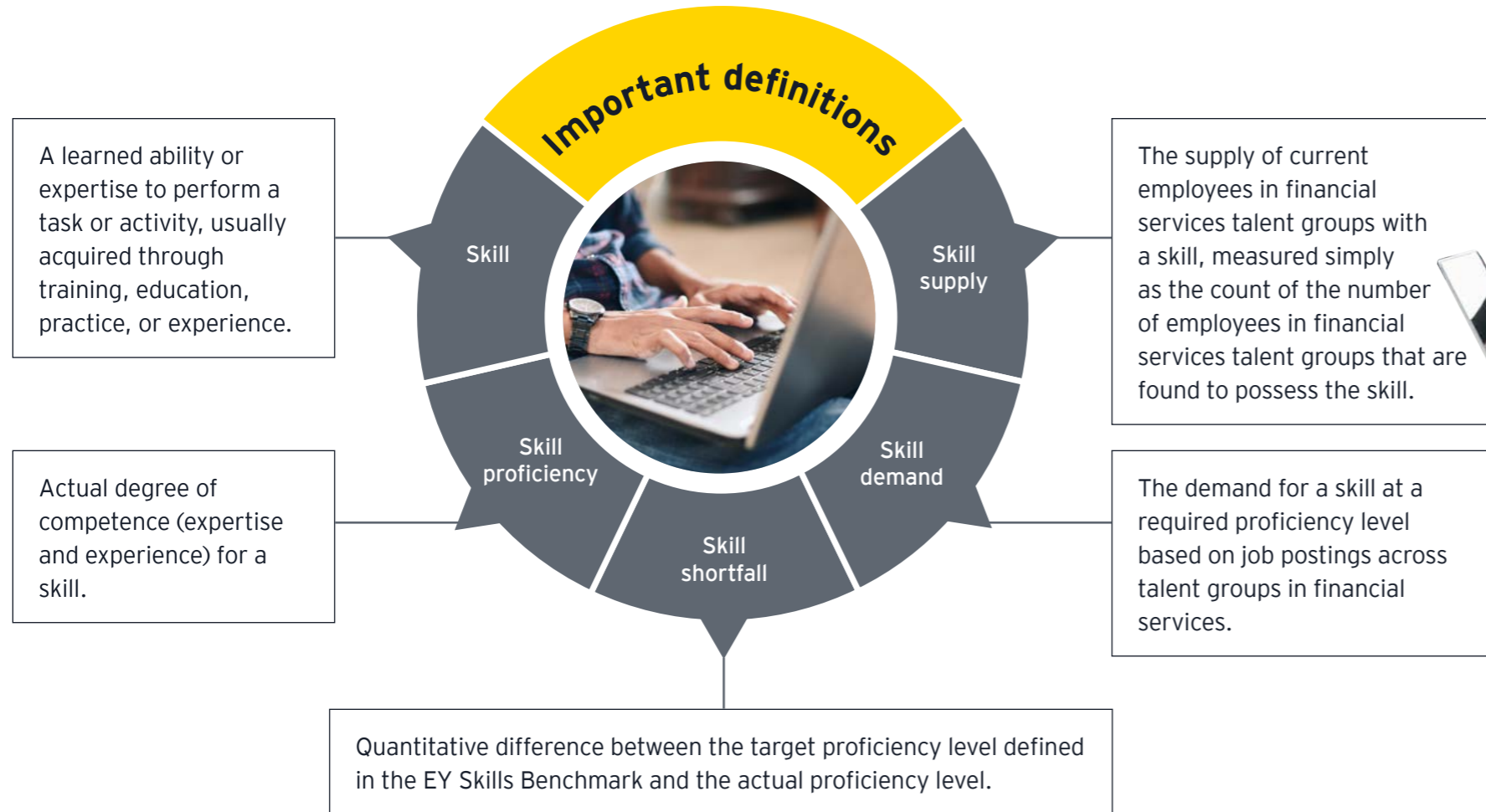
eightfold.ai

Powered by deep-learning AI, eightfold.ai's unrivalled Talent Intelligence Platform shows clients what they need, when they need it to provide support for talent acquisition; talent management; talent flex; workforce exchange and resource management.

A person wearing a blue suit jacket and a white shirt is sitting at a desk, typing on a silver laptop. The scene is brightly lit, likely from a window on the right. In the foreground, there is a blue mug, a pair of glasses, and some papers. A large white circle is overlaid on the image, containing the word "Definitions".

Definitions

Definitions



A man with a shaved head and glasses, wearing a grey sweater, is seated at a desk in a bright office. He is looking at a large monitor displaying a data visualization. In front of him is a laptop and a tablet. A red mug is on the desk. The background shows a window with a view of a city.

Key tech skills

12 key tech skills

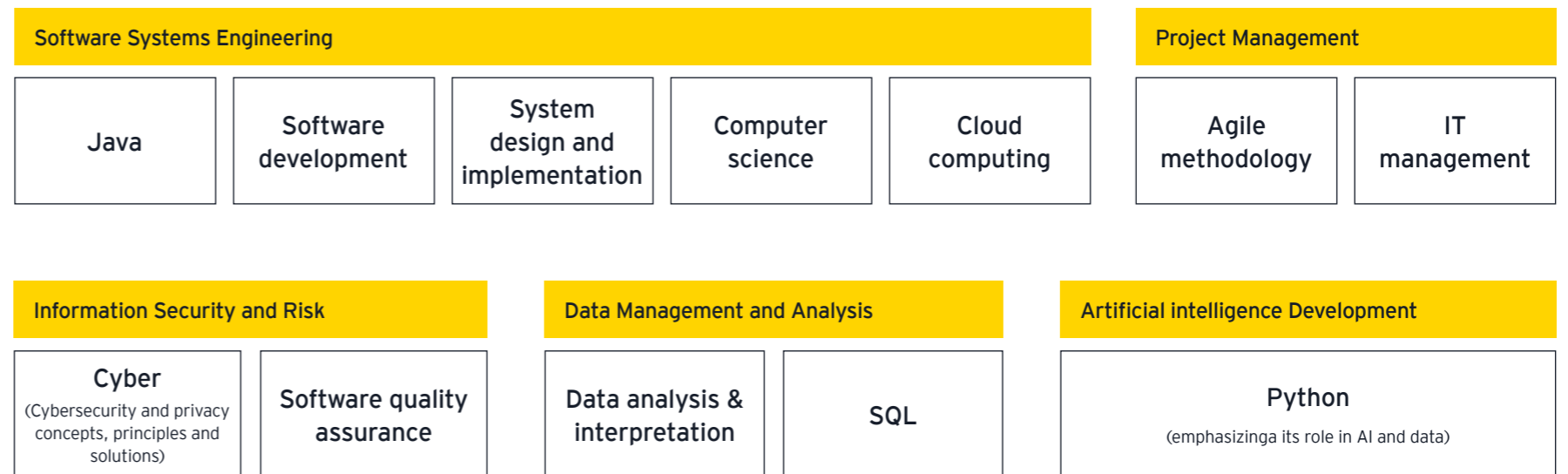


The 12 key tech skills were identified as essential for future success across financial services but are proving challenging to procure at the required proficiency level.

Our research focuses primarily on the technical skills with high demand and in some cases limited supply and high proficiency shortfall. The skills have been grouped into five buckets; Software Systems Engineering, Project Management, Information Security Risk, Data Management and Analysis and Artificial intelligence Development.

While crucial, behavioural skills have been omitted from this analysis due to the difficulty in accurately assessing them using inference and proxy based methods.

The 12 key tech skills in focus are ...





Methodology
and insights
overview

Methodology and insights overview



1. How proficient is the sector today in each of the key 12 skills identified?

The visual below compares the average proficiency for each skill against the target proficiency by industry.

Key insights

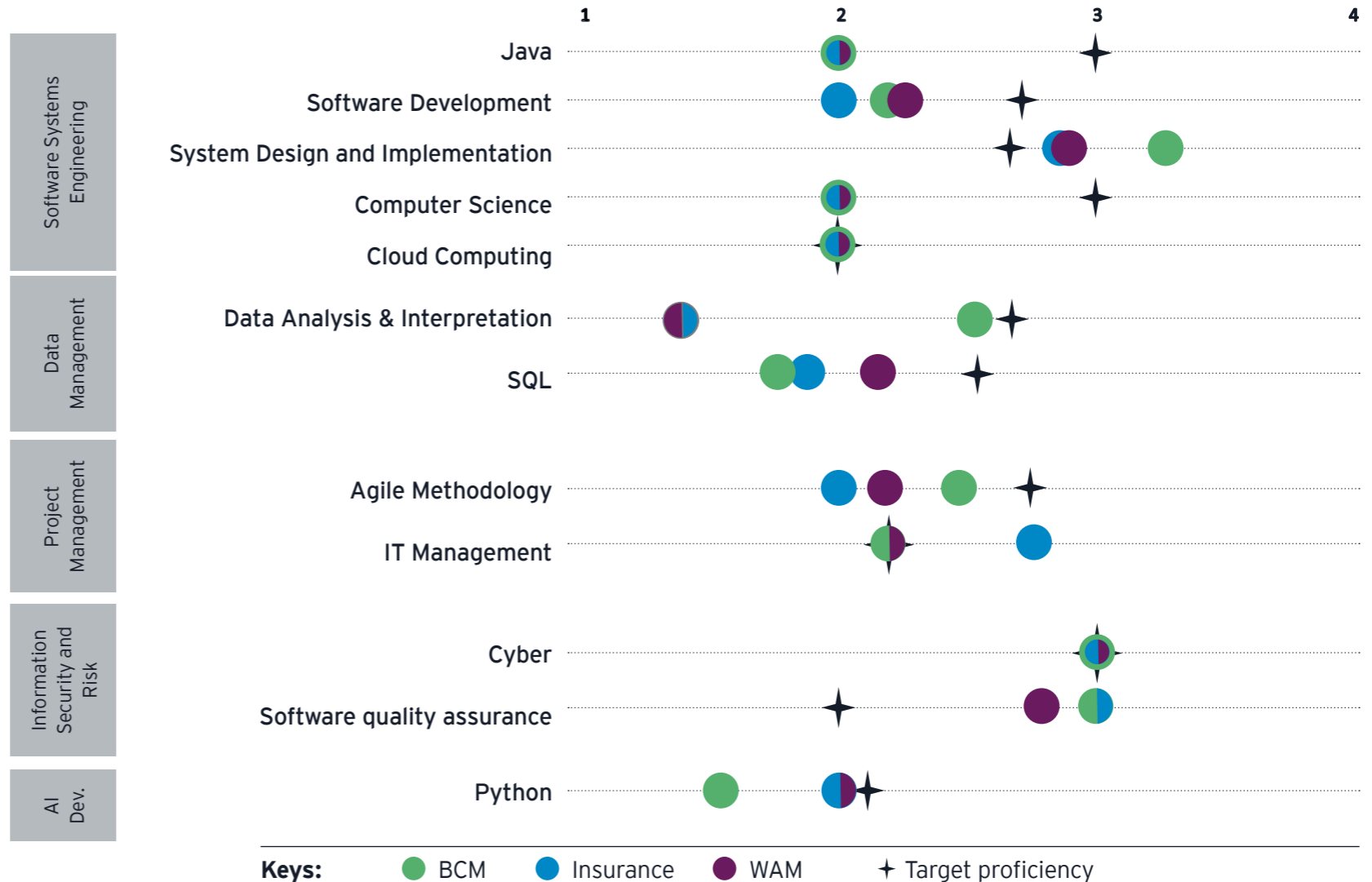
Overall proficiency in financial services is ahead of the target level required for Software Quality Assurance and Systems design and implementation, while there is a gap across the remaining nine critical skills.

Proficiency of Java, Cyber and Computer Science is consistent across all three sectors within the industry.

The biggest range in sector proficiency levels can be seen across Agile Methodology and SQL.

Key sector outliers include:

- ▶ IT Management proficiency is highest in Insurance
- ▶ Data Analysis & interpretation is highest in BCM
- ▶ Systems design and implementation is highest in BCM
- ▶ Python proficiency is lowest in BCM



2. Where are the skills distributed across organizations?

A view of gaps within different Talent Groups provides a view of skill distribution across organizations

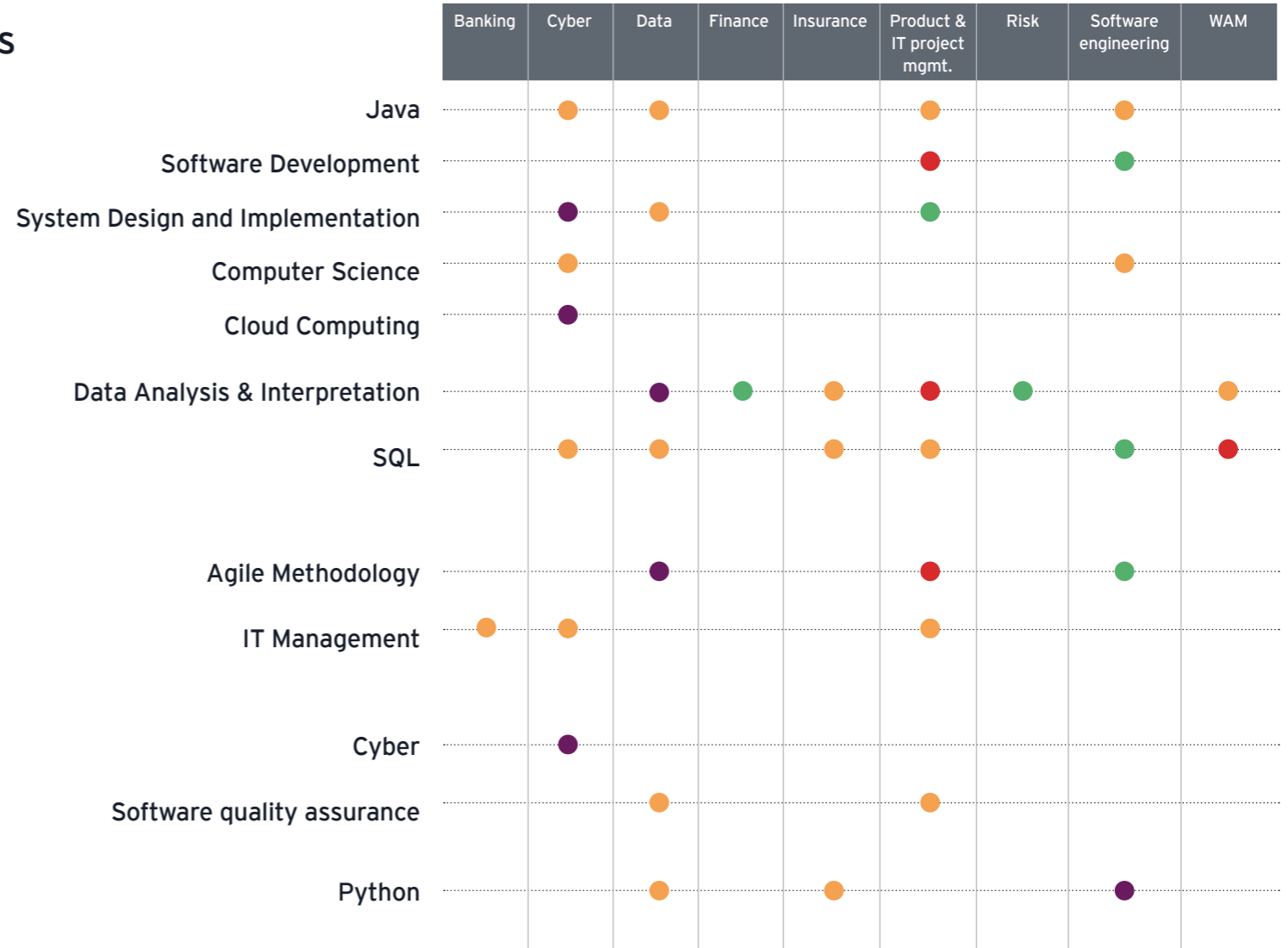
Data analysis and SQL are present across 6 of the 9 Talent Groups.

Data Analysis present gaps in all 6 apart from within the Data talent group, with the biggest gaps within Insurance, Product and IT Project Management and WAM. This highlights biggest gaps for using Data Analysis within traditional roles which are increasingly requiring Data analysis as a core part of the role.

SQL has gaps in all Talent groups, with the smallest being with Software Engineering where the skill would be most required.

Agile methodology is skill present within Data, Product & IT Project Management and Software Engineering and interestingly has the biggest gap in capability where you'd expect the highest requirement for the skill, within Product & IT project management.

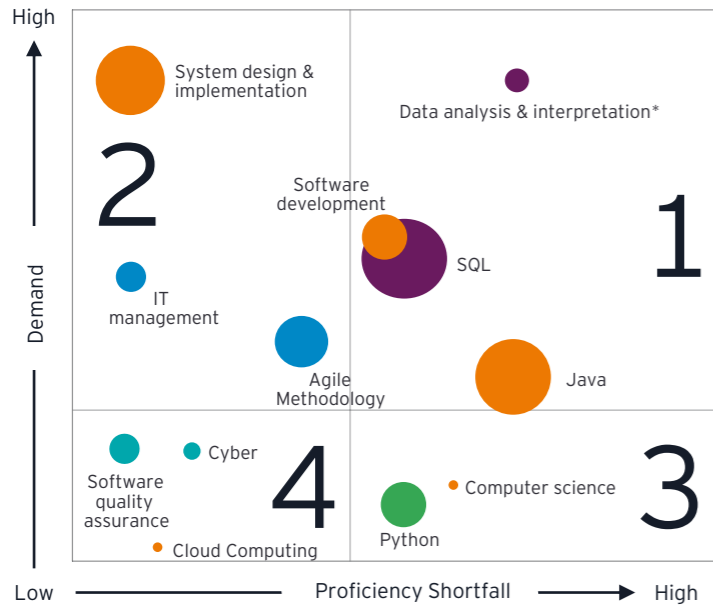
Key skills



Keys: ● No gap/at target ● Low gap ● Medium gap ● High gap

3. How do we evaluate the drivers of skill criticality?

When analysing the critical skills within the sector, it is vital to review **demand for those skills in the job market and the current proficiency gaps within organizations**, allowing for informed decision making on the most appropriate talent interventions to alleviate the skills gap in the sector.



Bubble size = supply

- Software Systems Engineering
- Project Management
- AI Development
- Data Management
- Information Security and Risk

Quadrant 1:

High demand and a high proficiency shortfall

- ▶ **Data analytics and interpretation** is unique in that it has high demand, high proficiency shortfalls and low supply.* This is also the case for Software development, although to a lesser extent. Organizations may struggle to find the qualified candidates to fill positions requiring these skills.
- ▶ **Java and SQL** all have relatively strong supply when compared to other skills, requiring organizations to look to differentiate themselves to attract talent, but also consider investment in training and development to bridge proficiency gaps for current and newly acquired talent.

Quadrant 2:

Higher demand and lower proficiency shortfall

- ▶ **Agile Methodology, System design and implementation and IT management** were found to have high demand and a lower proficiency shortfall, which suggests that there is currently a good match between the supply of skilled professional and demand for the skills.
- ▶ However, given rises in large scale IT implementation projects, this could result in supply challenges, given an increase in competition to acquire skilled individuals.

Quadrant 3:

Low demand and high proficiency shortfall

- ▶ **Computer science and Python** are important skills in the sector, however they often face lower demand due to their specialism and a relatively smaller pool of skilled professionals.
- ▶ However, it's crucial to recognize the urgent need to address and enhance proficiency levels in these areas, given their critical role in driving artificial intelligence innovation and development.

Quadrant 4:

Low demand and low proficiency shortfall

- ▶ **Software quality assurance and Cyber** have lower demand but also the lowest proficiency shortfall. This may be the result of surplus capacity within the industry or the specialist nature of the role, but organization should consider opportunities to reskill resources within this category where possible to support skills gaps in complementary capabilities.

4. What does this mean for the industry to build the skills the sector needs?

With a more nuanced understanding of the three drivers of criticality (demand, supply or proficiency), we developed a skilling response framework driven by the combination of demand/supply gap and proficiency shortfall.

We identified 6 potential talent intervention types for organizations to deploy against skills, depending on the combination of criticality drivers. Talent interventions, in addition to recruitment, which may be used alone or in combination, include:

- ▶ **Collaborate** – Focusing on sector solutions to improve sector supply pipelines
- ▶ **Upskill** – Focusing on correcting proficiency shortfalls with existing supply
- ▶ **Reskill** – Focussing on improving supply by converting current staff capabilities to meet supply gaps
- ▶ **Displace** – Focusing on reducing or displacing demand for roles with limited supply through automation or other forms of technology adoption
- ▶ **Maintain** – Focus on business as usual talent management

The framework provides a platform for a more a systematic approach to address skills challenges and enable the development of a robust pipeline of skills within the organization. Nuances to the framework can also be applied with regards to non technical skills where displacement and reskilling of the skill may not be possible.

We recommend single interventions in response to High and Low skills criticality, whereas combined interventions are most appropriate in response to medium criticality.



4. What does this mean for the industry to build the skills the sector needs?

Utilizing the Skilling Response Framework, we are able to provide an overview of the 12 key tech skills, outlining the recommended resolution options for each of the skills. The picture developed for each skill is represented through the combination of criticality drivers assessed by EY and Eightfold, recommended resolution options and recommended industry collaboration. Attaining a differentiated understanding of which of these drivers of criticality (demand, supply or proficiency) will enable firms to take informed and strategic decisions on the optimum talent.

Skills	Criticality Drivers				Talent intervention
	Overall	Demand	Supply	Proficiency Shortfall	
Java	●	↑	↑	↑	Given the high criticality, our recommended talent intervention includes focusing on upskilling the workforce across Java, Software Development, and SQL
Software development	●	↑	↑	↑	
SQL	●	↑	↑	↑	
Agile Methodology	●	↑	↑	↓	Given higher demand and supply than proficiency, our recommended interventions include Maintain + Upskill
Data analysis & interpretation	●	↑	↓	↓	Given higher demand and proficiency than supply, our recommended interventions include Collaborate + Upskill + Reskill + Displace
IT Management	●	↑	↓	↑	Given lower supply and proficiency than demand, our recommended interventions include Collaborate + Reskill + Displace
System design & implementation	●	↑	↑	↓	Given higher demand and supply than proficiency, our recommended interventions include Maintain + Upskill
Computer science	●	↓	↓	↑	Given lower demand and supply than proficiency, our recommended interventions include Collaborate + Upskill
Python	●	↓	↑	↑	Given higher supply and proficiency than demand, our recommended interventions include Upskill + Maintain + Displace
Cyber	●	↓	↓	↓	Given low criticality, our recommended talent intervention is to maintain Cyber and Software Quality Assurance across the workforce
Software quality assurance	●	↓	↓	↓	Given low criticality, our recommended talent intervention is to maintain the skill

● High ● Medium ● Low

5. How can this framework be used going forward?

The data insights can be used to help organizations use data informed interventions to support building an AI-enabled workforce. In the midst of the AI revolution, where headlines are dominated by the transformative potential of artificial intelligence, it's crucial to recognize that alongside the buzz surrounding AI technologies, there is a pressing need for interpretive skills to harness the insights generated by these systems effectively.

	Build the technology	Implement the technology	Adapt to the technology
Workforce segment	<p>AI specialists (0.5-1.5% of workforce)</p>	<p>Technology function: Technology specialists, Project Managers, Software Engineering, Business Analysts</p> <p>X function: Change Management, Project Managers, Product teams, Process controllers</p> <p>(10-15% of workforce)</p>	<p>Whole workforce</p>
Purpose	Integration with existing systems and processes		
Example skills	<ul style="list-style-type: none"> ▶ AI interfacing ▶ Machine Learning Proficiency ▶ Engineering skills ▶ AI Programming Languages ▶ Natural Language Processing ▶ Knowledge management 	<p>Build trust in AI</p> <ul style="list-style-type: none"> ▶ Project management ▶ Change management ▶ Prompt Engineering (short-term) ▶ Compliance and Ethics ▶ Strategy ▶ Communication 	<p>Upskill to use the AI</p> <ul style="list-style-type: none"> ▶ AI fluency and collaboration (AI.IQ) ▶ Data analytics & insights ▶ Leadership skills ▶ Coaching, empathy, ▶ Adaptability ▶ Ensure use of AI does not equate to loss of expertise of underlying skill or subject
Employer considerations	<ul style="list-style-type: none"> ▶ Attraction and retention of the specialists skills required ▶ Implications for organization design 	<ul style="list-style-type: none"> ▶ Scope versus value (business case) ▶ Speed versus security (risk appetite) 	<ul style="list-style-type: none"> ▶ Permission to 'play' (experimentation) ▶ Personalized learning programmes ▶ Team upskilling sessions ▶ Company-wide learning
	Supply constraints likely to drive criticality	Proficiency constraints likely to drive criticality	Demand constraints likely to drive criticality

5. How can this framework be used going forward?

The below outlines how the framework can be applied to some of the key skills in focus throughout this report which can be used to help organizations use data informed interventions to support building an AI-enabled workforce.

	Build the technology	Implement the technology	Adapt to the technology
Workforce	<p>AI specialists (0.5-1.5% of workforce)</p>	<p>Technology function: Technology specialists, Project Managers, Business Analysts X-Function: Change Management, Project Managers (10-15% of workforce)</p>	<p>Whole workforce</p>
Focus	Integration with existing systems and processes		
Key skills – insight from analysis	<p>AI Development (Python) Python proficiency is highly valued in the AI domain due to its versatility and suitability for AI development. Yet, despite the proficiency shortfall, there's a shortage of skilled Python developers. This shortage could be attributed to a focus on acquiring AI-specific skills at the expense of foundational programming expertise. Additionally, the lower demand for Python skills amidst the AI buzz may reflect a misunderstanding of the role of programming languages in AI development and data science</p>	<p>System Design and Implementation (System Design and Implementation, Computer Science): in the realm of AI, system design and computer science skills are essential for developing robust AI algorithms and systems. However, the shortage of professionals with these skills, coupled with a proficiency shortfall, underscores the need for interpretive skills to understand and integrate AI-generated insights effectively. The lower demand for these skills amidst the AI hype may reflect a misconception that AI technologies alone can address complex organizational challenges without human intervention.</p> <p>Software Development (Java, Software Development): while AI technologies continue to capture the spotlight, the demand for software development skills remains strong. Proficiency in languages like Java is vital for building and maintaining AI systems. However, despite the high supply of Java professionals, there's a significant proficiency shortfall. This discrepancy could stem from a focus on acquiring AI-specific skills rather than foundational software development expertise. Additionally, the lower demand for Java skills amidst the AI hype might reflect a misconception about the role of traditional programming languages in AI development.</p> <p>Project Management (Agile Methodology, IT Management): despite the growing adoption of AI, there's a glaring gap in interpretive skills needed for understanding and responding to the insights produced by AI-powered systems. Proficiency in Agile Methodology and IT Management is crucial for adapting to evolving project needs and leveraging AI technologies effectively. However, the high supply and proficiency shortfall in these areas suggest a need to prioritize foundational project management expertise alongside AI-specific skills.</p> <p>Information Security and Risk (Cyber, Software Quality Assurance): AI is increasingly integrated into cybersecurity and software quality assurance practices, but human interpretive skills remain paramount for assessing and addressing security vulnerabilities and software defects identified by AI systems. Despite the proficiency shortfall, low demand may indicate a lack of full appreciation of the importance of interpretive skills in complementing AI-driven security measures.</p>	<p>Upskill to use the AI</p> <p>Data Management & Analysis (Data Analysis & Interpretation, SQL) Data Analysis & Interpretation remains a critical foundational skill. Despite high demand, it has low supply and proficiency levels, making them a key focus area for upskilling the masses. This situation combines all three lenses of criticality: supply-driven, demand-driven and proficiency-driven. The proficiency gap of Data Analysis & Interpretation may be mitigated by the impact of AI, while proficiency gaps in Python and Java will have an emphasized impact due to AI. This underscores the dynamic nature skill requirements in the age of AI.</p>
Criticality Driver	Supply driven	Proficiency driven	Demand and proficiency driven



Conclusion

Conclusion

The research methodology adopted in this paper is a comprehensive analysis of 12 key tech skills based on supply, demand and proficiency shortfall. The study essentially permits a foresight into the reason why critical skills could evolve, which can be used by organizations to better plan for their workforce's future skills needs.

By analysing the labor market data, the paper provides valuable insights into how different drivers of criticality apply to skills and highlights the need for deliberate interventions to upskill, reskill, or recruit in different areas. The careful analysis of future critical skills unveils potential areas of skill gaps and opportunities to increase employees' effectiveness and marketability in the industry.

Overall, the research methodology and analysis provide a holistic view of the skills landscape, highlighting crucial interventions that can better serve the industry's immediate and evolving needs.

Appendix 1

The skilling response framework

Combinations of the three key data points and the informs:

Overall criticality	Criticality driver breakdown			Recommended talent intervention
	Demand	Supply	Proficiency shortfall	
●	High ↑	High ↑	High ↑	Upskill
●	Low ↓	Low ↓	High ↑	Collaborate + Upskill
	High ↑	High ↑	Low ↓	Maintain + Upskill
	Low ↓	High ↑	Low ↓	Maintain + Displace
	Low ↓	High ↑	High ↑	Upskill + Maintain + Displace
	High ↑	Low ↓	Low ↓	Collaborate + Reskill + Displace
	High ↑	Low ↓	High ↑	Collaborate + Upskill + Reskill + Displace
●	Low ↓	Low ↓	Low ↓	Maintain

● High ● Medium ● Low



Appendix 2

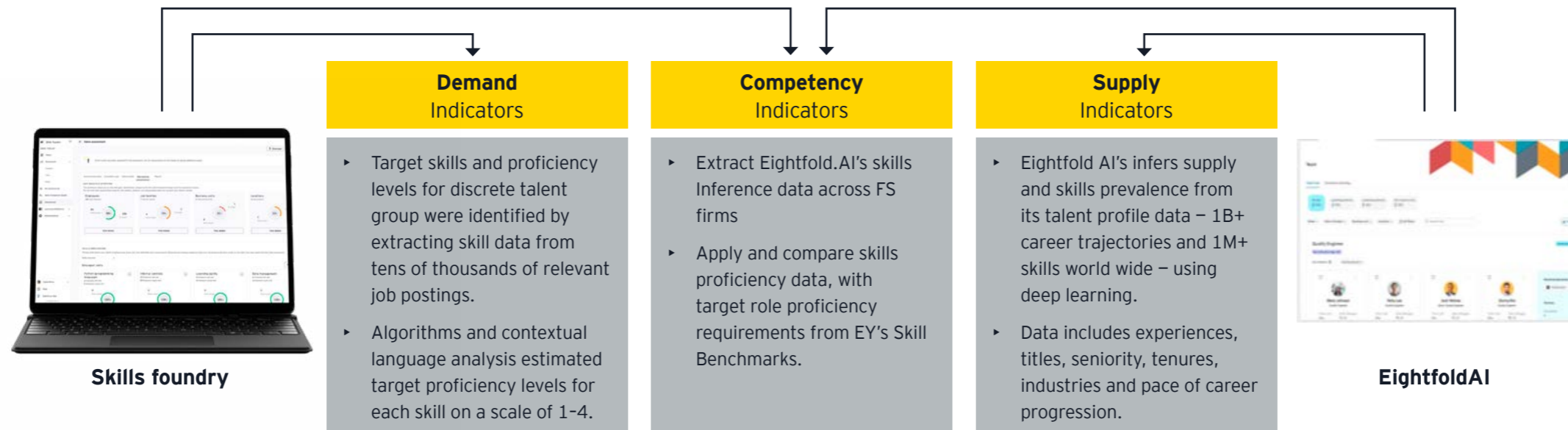
Data method

Our analysis combines various data sets to provide a unique view of demand, supply and proficiency in the market.

- ▶ Demand data was developed by mining job board advertisements.
- ▶ Supply data was estimated by measuring the number of people currently working in sector with specified skills using Eightfold.ai's skills inferencing capabilities.
- ▶ Proficiency shortfall data were estimated by comparing Eightfold.ai's skills proficiency assessment with EY's target Skill Benchmark for financial services.

12 key skills were selected as a focus for the report as they were either skills in high demand, high proficiency shortfall or are of critical interest to financial services transformation.

The results enabled us to create additional lenses through which to assess the future skills and develop a decision framework that can be applied to these additional metrics as guide to potential talent interventions.



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