

Rocket-Hire

TALENT ASSESSMENT 2020/2021



MARKET ANALYSIS/VENDOR RESEARCH REPORT

JANUARY 2021

Prepared By: **Charles Handler, Ph.D.** Founder @ Rocket-Hire
Rocket-Hire.com

ABOUT THIS REPORT

Thank you for your interest in Rocket-Hire's 2020/2021 Talent Assessment Market Trends Report. For almost two decades, a core part of Rocket-Hire's mission has been to provide honest expertise about talent assessment and the context in which it operates. We are incredibly proud to present our latest effort in the form of this market report.

WHAT IS IT?

This report represents the capstone of decades of research and practice in the field of pre-hire talent assessments. It is a natural evolution of Rocket-Hire's *Buyer's Guide to Pre-Hire Assessment Tools (2003, 2009, 2012)* and an update to Rocket-Hire's *2015 Talent Assessment Market Overview*.

This report is differentiated from our past research efforts by the breadth of the research (i.e., in-depth analysis of 245 vendors of predictive hiring tools) as the foundation for a vendor classification scheme and the coding of data for 29 research parameters. For a bit of contrast, our 2003 report profiled just 20 vendors and did not look at aggregate data across vendors!

WHAT MAKES IT DIFFERENT?

Detailed, unbiased vendor research by experts with technical domain expertise and experience working with buyers and sellers of assessments makes this research effort unique. When coupled with a structured research methodology, the result is a data-based insight that is both broad and deep — providing detailed information about vendors while highlighting macro-level trends.

With 245 vendors (and more being added quarterly), this comprehensive and dynamic report is the only source that:

- ✔ Provides in-depth information and ratings for vendors (covering 29 parameters across finance, methodology, product mix, etc.)
- ✔ Presents market size and market growth estimates based on domain expertise and expert research
- ✔ Provides an accurate classification scheme to help make sense of a fragmented market
- ✔ Offers information on the science and methodologies used by each vendor
- ✔ Includes an accompanying interactive website with a vendor database (with the paid version) that fully unlocks the market and supports self-exploration into facts and significant market trends

WHO CAN BENEFIT FROM THIS REPORT?

Anyone who needs unbiased, factual information on which to base decisions about talent assessment vendors and the tools they sell will find this report valuable, including:

INVESTORS: This report tracks the growth of the industry over time, and includes information on company revenues and investments and analyst predictions for future growth. It is a perfect tool for those looking to identify investment/acquisition targets.

TALENT ACQUISITION PRACTITIONERS: This report provides access to unbiased information to help those looking to understand and adopt assessments. Vendor profiles are an essential resource for identifying a list of potential vendors, vetting specific vendors,

and understanding how vendors are differentiated. Information that simplifies complex technical information about vendors and supports an easy understanding of market trends is also included.

VENDORS: This report provides a foundation for competitive intelligence and benchmarking information to support product planning and marketing while providing a general understanding of the industry trends shaping the future of the market.



We appreciate your interest in our report and are confident that you will find the information presented within to be of great value to any efforts that require an understanding of the dynamic and increasingly important talent assessment industry.

Sincerely,

A handwritten signature in black ink that reads "Charles Handler". The signature is fluid and cursive, written over a background of a light teal hexagonal grid pattern.

Charles Handler Ph.D.

Founder @ Rocket-Hire

TALENT ASSESSMENT VENDOR RESEARCH PORTAL

A must-have compliment to our 2020/2021 market trends report

While our latest report is packed with valuable information, it does not tell the whole story.

Our research portal is the only place to find:

- A comprehensive list of vendors organized by classification scheme
- Detailed profiles for 245 vendors covering 29 different research parameters
- Expert analyst opinions about each vendor
- In-depth analysis of market trends based on our proprietary data
- New vendors added regularly (50 more are currently being profiled)

WHO CAN BENEFIT FROM OUR PORTAL?

TALENT ACQUISITION PROFESSIONALS

Your subscription is cheaper than the cost of one bad hire!

INVESTORS

Why pay untrained research analysts to study this complex market?

VENDORS

Don't get left behind by the competition.

WHAT IS INCLUDED IN YOUR SUBSCRIPTION?

We offer several packages as well as customized consulting engagements.

All packages include:

- Consulting time with Rocket-Hire analysts
- Proprietary content such as blogs, webinars, etc.
- Access to a curated selection of articles and research
- Access to detailed vendor profiles - and a searchable vendor database
- Unique insights and trends based on in-depth analysis of our database
- Our (unbiased) pick of vendors to watch

Learn More and Subscribe Now

<http://researchportal.rocket-hire.com>

EXECUTIVE SUMMARY

For almost two decades Rocket-Hire has tracked the talent assessment market. This report represents the next chapter of our market research, building on the many versions of our Talent Assessment Buyers' Guides and reports we have published since 2003.

THE GOAL OF THIS REPORT IS TO:

- ✔ Track and organize an exploding and fragmented market that is undergoing a slow, and potentially divisive, change
- ✔ Take a holistic view of the talent assessment market by reviewing the context in which talent assessment functions
- ✔ Track the size/value of the talent assessment market and the trends that are responsible for its growth between 2015 and 2025
- ✔ Identify macro-level market trends by rolling up the micro-level data our analysts used to create profiles for the initial group of 245 vendors in our database

THIS REPORT DOES NOT:

- ✔ Provide an in-depth analysis of different types of assessments
- ✔ Track and comment on vendors who provide only post-hire assessments
- ✔ Provide names or details about specific vendors in our database (this information is available via the [Vendor Research Portal](#) that accompanies this report)
- ✔ Involve vendors directly in the data collection and profile creation process

ABOUT OUR DATABASE

The data and information on the talent assessment market presented in this report are the result of a rigorous research project in which 245 vendors of predictive hiring tools were reviewed by expert I/O psychologists, classified, and rated on 29 different parameters covering:

DEMOGRAPHICS	USE OF AI
FINANCIALS	RISK LEVEL
PRODUCTS & SERVICES	ANALYSTS' OUTLOOK
SCIENCE QUALITY	CANDIDATE EXPERIENCE

The resulting data set was used as the foundation for analyses that provide insight into important market trends and the unique contribution of each individual vendor.

CRITERIA FOR INCLUSION IN OUR DATABASE

To be considered for inclusion in our database, vendors must provide products and services that support predictive decision-making during the hiring process.

The domain of vendors that fit this description includes any company that offers screening tools (via AI or manual methods), testing, interviewing, or systematic process for evaluating job applicants' potential. Also included are vendors that provide tools that seamlessly interface with (via an API), or are somehow embedded within, larger HR platforms such as those providing recruitment process outsourcing and talent marketplaces. Any company offering a relevant product was considered for inclusion, even if they also provide additional products and services unrelated to hiring.

THE SIX MOST IMPORTANT INSIGHTS DISCUSSED IN THIS REPORT

After looking at the talent assessment market from both a micro and macro perspective, we have identified the following as the most important trends driving market evolution.

1 Understanding the talent assessment market requires a holistic perspective.

The talent assessment market does not exist in a vacuum. From the most macro level perspective, the relationship between humans and the organizations that employ them is complex and dynamic, and any trends relating to HR technology, hiring, and talent assessments must take the bigger picture into account.

THE GLOBAL CONTEXT

Rapidly evolving technology and world events such as the COVID-19 pandemic are reshaping the relationship between humans and their employers — mandating a people first, humanistic approach that is deeply rooted in psychology.

Putting the Human Experience first creates a psychological bond between employer and employee that benefits all via increased happiness and productivity.

By supporting alignment between the values and desires of individuals and their employers, hiring tools of all types (talent assessment included) are a catalyst for the creation of value on a global scale — increasing their value proposition — even during a global pandemic.

THE HR TECH MARKET

Talent assessment is part of an HR technology market that has been on fire for the past decade. With an estimated value of \$25–\$100+ billion, the HR technology market is setting the pace for the rapid adoption of a wide variety of tools and technologies that align with the entire employee lifecycle (and beyond).

THE TALENT ACQUISITION MARKET

Talent acquisition is one of the strongest segments within HR tech, with a current market size estimated at somewhere between \$10 and \$100+ billion. Talent assessment is becoming increasingly tied directly to broader talent acquisition products, especially those that are using Artificial Intelligence (AI) and Recruitment Process Automation (RPA).

2

The Talent Assessment market is undergoing strong growth that has vastly exceeded expectations.

The talent assessment market is hot and seems to be getting hotter. The following provides insight into the magnitude of this growth:

A SURGE OF NEW PROVIDERS

The number of vendors in the talent assessment marketplace has doubled in the past decade! Over half the vendors in our database are 10 years old or less. We expect this number to increase significantly after we complete profiles for the 50 new vendors waiting to be added to our database.

MARKET SIZE AND GROWTH IS UNPRECEDENTED

- ✔ According to our data, the pre-hire talent assessment space has grown 98% between 2015 and 2020.
- ✔ We estimate that the overall global market for talent assessment software and services (including both pre- and post-hire) is valued at \$4.45 billion in 2020 and is expected to reach \$6.60 billion by 2025 with a CAGR growth rate of 8.21% in the forecast period from 2020 to 2025.

A LARGE NUMBER OF MERGERS AND ACQUISITIONS

Since 2015, our data indicates that there have been no fewer than 38 M&A-related events (representing a four-fold increase over the previous five-year period) worth an estimated total of \$2.5 billion.

LARGE AMOUNTS OF MONEY ARE BEING INVESTED

Our data indicate that:

- ✔ 36% of all the firms in our database have taken some form of investment.
- ✔ Of the 61 firms opened in the past five years, 56% have received investment capital.
- ✔ The total investment made into companies in our database is \$1.7 billion, with 80% of this investment coming from venture capital.

3

Traditional assessment methods are still the bedrock of the industry.

Despite all of the hype generated by new AI-based predictive hiring and assessment tools, our data clearly indicates that the tried-and-true methods on which the industry was founded still dominate the market.

For instance our data indicate that:

- ✔ Solution Providers (the most traditional segment in our classification system) dominate the assessment market. These providers are the largest of our four vendor classification categories, making up 29% of the market, while accounting for 71% of its revenue.
- ✔ When it comes to the most commonly offered assessment types, personality and cognitive assessments still dominate the market, being offered by 47% and 35% of all vendors respectively (the highest rates of any assessment type tracked). Even among Platform Providers, the newest and least traditional of our four classification categories, personality and cognitive assessments are by far the most common types of assessments (offered by 49% and 24% of our sample respectively).
- ✔ In contrast, while 66% of the vendors in our sample offer traditional assessment tools, only 33% offer the more advanced formats we have designated as “digital assessments”. The most commonly offered type of digital assessment — AI-based digital interviews — are the eighteenth most common of the 52 types of assessment tools we tracked in our database.

4

The market is experiencing increasing tension between the old ways and the new.

The talent assessment industry is entering into a crucial time in its history. The emergence of new and largely unproven AI-based tools is forcing much of the industry out of its comfort zone. While a growing number of more traditional providers are adopting some form of AI, the real change is being driven by companies that do not fit the traditional mold.

While there is a great deal of hype around, and interest in, the value of AI-heavy tools such as RPA platforms, there is a lack of quality research to support the accuracy and fairness of these tools. Despite this, the market does not seem to care as long as these tools offer a promise of efficiency.

Our data support the market's push into AI-based tools. For instance:

Investment is favoring firms offering AI-based tools:

- ✔ 63% of firms in our sample using AI — and 73% of firms offering RPA tools — received investment.
- ✔ Of the \$1.7 billion of total investment tracked in our database, 77% of these dollars (\$1.31 billion) went to firms that use some form of AI, while 17% (\$297 million) went to firms with RPA functionalities.

Firms offering AI-based tools are newer than most in the market:

- ✔ 62% of those less than five years old offer AI-based tools, while only 16% of those over 10 years old offer any AI-based tools.

Our science quality and risk ratings for those using the most extreme form of AI/RPA accentuate the difference between these vendors and more traditional ones.

For instance:

- ✔ 73% of RPA firms do not use psychometrics.
- ✔ 50% of RPA firms are seen as high risk.
- ✔ Our data indicates that only a small percentage (10%) of providers offering RPA have an I/O psychologist on staff, while 60% of all other vendors employ at least one I/O psychologist.
- ✔ 64% of firms offering any form of AI do not employ an I/O psychologist.

The extent to which traditional and modern assessment methodologies converge on a more integrated approach that values both science and technology equally — and is truly effective at managing bias — is yet to be determined. There is a significant chance that such a singularity will not happen as the evolution of the industry will no doubt follow the money at the expense of sound science and inclusivity (despite marketing claims to the contrary). With investment into new assessment companies and technologies at an all time high, and many end users of assessments largely choosing to focus on short-run efficiencies over a long-term strategy based on sound science, there is cause for concern.

5

Providers are shifting from selling tests to selling access to predictive decision making tools and data housed within technology platforms.

As the talent assessment industry evolves, it is becoming less dependent on the concept of selling individual tests — which have become highly commoditized — or professional services which can add cost and complexity. Instead, the future is all about selling technology that captures and manages data used to support predictive decision-making. Through advances in technology and the benefit of decades of accrued data, platforms are democratizing this value proposition, making assessment more accessible, cheaper, and easier to use than it has ever been.

This trend is also allowing assessment providers to move downmarket, packaging their existing assets into highly transactional platforms that are aimed at SMBs and the mid-market, two segments that represent a massive, untapped market.

Our data support this trend, indicating that:

- ✔ Platform Providers are the youngest of our four vendor classifications, with 83% being 10 years old or less.
- ✔ Platform Providers are focused downmarket, with 57% serving SMBs (including mid-market).
- ✔ Platform Providers offer the highest rate of transactional sales (30%) than any other vendor classification.

6

In the long run, COVID-19 will actually accelerate assessment's value proposition.

While COVID-19 has presented a short-term dip in market growth, we see it as a potential accelerator of growth in the coming years because:

Investment is favoring these firms:

- ✔ **Assessment is already virtual.** For at least the past decade, the bulk of assessment usage has been done remotely via the internet. For tests where security is a big concern, remote proctoring has evolved and now represents a viable option.
- ✔ **Assessment supports the ability to adapt and thrive in the new normal.** COVID-19 has pushed many companies to evolve and redefine their businesses and require them to staff up with new skill sets. COVID-19 has also created a demand for new skills such as resilience, the ability to deal with uncertainty, the ability to adapt, and the ability to work remotely. Assessment represents an excellent way for employers to evaluate these increasingly important traits.
- ✔ **Assessment increases the odds of successful hires in the new normal.** The show must go on and, despite layoffs in some industries, hiring is still happening at scale. Large-scale layoffs caused by COVID-19 have created a buyer's market for talent. Scenarios where there are more applicants than openings are where pre-hire assessments do their best work, providing an automated way to topgrade job applicants.
- ✔ **Assessment promotes the human experience at work.** The shared experience of COVID-19 has brought out the best in most employers. The value placed on the security and wellness of a workforce that is treated fairly has led employers to adopt a human-centric mindset that is welcomed by all. By ensuring that new hires share a sense of purpose and values with their employers, assessments offer an excellent way to promote a positive work experience and pave the way for employee engagement, wellness, and productivity.

Barring a cataclysmic global event well beyond the magnitude of COVID-19, we do not believe that there are any factors that will limit the growth of what has historically been a strong market built on decades of success adding value for employers and employees alike.

Even as unprecedented global events such as the COVID-19 pandemic rewrite the rulebook, as long as hiring is happening, talent assessment will have an increasingly important role to play in the survival, success, and evolution of companies of all sizes across the globe.

ADDITIONAL INFORMATION AND INSIGHTS AVAILABLE THROUGH OUR VENDOR RESEARCH PORTAL

While this report provides a great deal of information in support of our research agenda, the **Vendor Research Portal** that accompanies this report provides more, including detailed profiles for 245 vendors (with more added regularly) and in-depth findings from analysis of our data focusing on six different “Research Areas” that we feel are critical to a complete understanding of this complex market.

[Learn More and Subscribe Now](#)



TABLE OF CONTENTS

01. Overview of Methodology	12
02. Context: Macro Trends Shaping the Future of Talent Assessment	19
03. HR Tech Market Size and Growth	30
04. Talent Acquisition Market Size and Growth	38
05. Talent Assessment Market Size and Growth	46
06. Overview of the Trends Driving Market Growth	62
6.1 Global Trend #1: Capital Injection	69
6.2 Global Trend #2: Globalization	76
6.3 Global Trend #3: Productization	79
6.4 Global Trend #4: Automation	88
6.5 Global Trend #5: Specialization	92
6.6 Global Trend #6: Humanization	97
07. Example Insights from Our Vendor Research Portal/Conclusion	117
Appendices	
A. Vendor Rating Parameters	137
B. Assessment Types Tracked in Our Database	139
C. Elements of Our Vendor Classification Scheme	143

01

**OVERVIEW OF
METHODOLOGY**

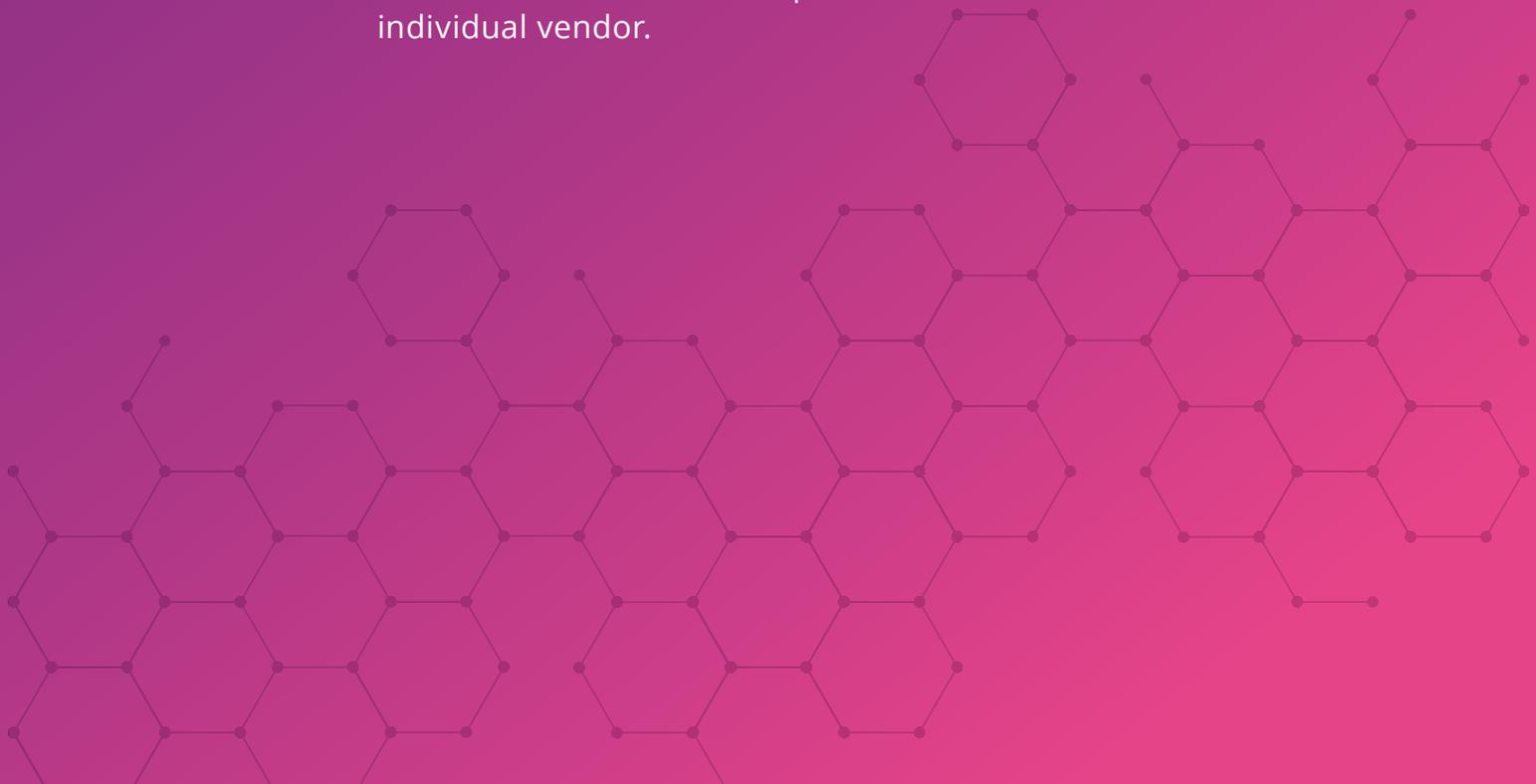


IN THIS CHAPTER

The data and information on the talent assessment market presented in this report are the result of a rigorous research project in which 245 vendors of predictive hiring tools were reviewed by expert I/O psychologists, classified, and rated on 29 different parameters covering:

DEMOGRAPHICS	USE OF AI
FINANCIALS	RISK LEVEL
PRODUCTS & SERVICES	ANALYSTS' OUTLOOK
SCIENCE QUALITY	CANDIDATE EXPERIENCE

The resulting data set was used as the foundation for analyses that provide insight into important market trends and the unique contribution of each individual vendor.



OVERVIEW OF METHODOLOGY

This section provides an overview of the methodology used to collect and analyze the data used in the construction of this report.

IDENTIFICATION OF VENDORS

Rocket-Hire has maintained an ongoing list of vendors offering predictive hiring products and services for almost two decades, adding new vendors through our research and market outreach. As of January 2021, this list includes 245 different companies, with more being added each quarter.

To be considered for inclusion in the database for this research effort, vendors must provide products and services that support predictive decision-making during the hiring process.

The domain of vendors that fit this description includes any company that offers screening tools (via AI or manual methods), testing, interviewing, or systematic process for evaluating job applicants' potential. Also included are vendors that provide tools that seamlessly interface with (via an API), or are somehow embedded within, larger HR platforms such as those providing recruitment process outsourcing and talent marketplaces. Any company offering a relevant product was considered for inclusion, even if they also provide additional products and services unrelated to hiring.

At the start of this project (February 2020), Rocket-Hire's existing vendor database was augmented by additional research in the form of web searches, review of academic and popular literature, discussions with colleagues, attendance at trade shows such as the HR Technology Conference & Expo^[1] and the Society for Industrial/Organizational Psychology's (SIOP)^[2] annual conference, inbound contact from providers, and evaluation of marketing materials provided by vendors.

While many vendors included in the study do provide assessments for post-hire use cases, they were not included based on these tools, nor are these tools evaluated as part of their vendor profile. A list of vendors who offer only post-hire assessments is beyond the scope of this research effort; however, we have attempted to account for the revenue these vendors generate in our overall market size estimate.

DEVELOPMENT OF EVALUATION PARAMETERS

With the list of vendors in place, the team at Rocket-Hire developed a unique set of parameters to evaluate each vendor. Once the initial research parameters were defined, we validated and tested each parameter to ensure that the classification scheme could accommodate all of the vendors, and confirmed that criteria used to rate vendors would provide consistent and usable results.

We rated each vendor on 29 parameters which are listed in the table below. (See Appendix A for detailed information about the rating criteria associated with each parameter.)

COMPANY INFORMATION (DEMOGRAPHICS)

COMPANY NAME/ WEB ADDRESS	Name of company and web address
PRIMARY CLASSIFICATION	Assignment to one of six categories based on their business model, content provided, technology, and supporting services offered
SECONDARY CLASSIFICATION	Assignment to a secondary category within each of the primary categories to further differentiate and precisely classify the vendors
DIFFERENTIATOR	A one-sentence description of the company noting their most important attributes
DESCRIPTION	A three- to four-sentence objective description of the company covering the major types of products offered and their primary methodology
YEAR FOUNDED	The year in which the vendor opened for business
HQ COUNTRY	The most current location provided for the vendor's HQ as listed on their website (For companies that have multiple locations or have moved HQ locations, the location listed as the global HQ was used.)
# OF EMPLOYEES	Headcount based on publicly available information
I/OS ON STAFF?	The presence of any I/O psychologists on the vendor's staff or enlisted as an advisor

FINANCIALS

ESTIMATED REVENUE	The single best estimate of revenues within the stated revenue range for each vendor
EVENT	Any transaction in which the company was bought out, acquired, or merged
TYPE OF EVENT	The type of transaction that took place (acquisition, leveraged buyout, etc.)
AMOUNT OF TRANSACTION	The value of the transaction based on publicly available information (When no such information is available the transaction value was estimated using archival data and input from domain experts.)
DATE OF EVENT	The year in which the event occurred
FUNDING SOURCE	How the company has funded itself
FUNDING AMOUNT	The total amount of funding the company has taken

PRODUCTS AND METHODS

ASSESSMENT TYPES	List of the general types of assessments offered by each vendor (A detailed list of each product offered by name is beyond the scope of this research.)
MARKET SEGMENT SERVED	The typical size of the customers the vendor typically serves (i.e., enterprise, SMB, etc.)
POST-HIRE PRODUCTS AND SERVICES	Products and services for post-hire use cases such as training and development
OTHER PRODUCTS OR SERVICES	Other products and services the vendor offers besides assessments (Note: Products/services are grouped into categories. A detailed list of each product offered is beyond the scope of this research.)
TRANSACTIONAL SALES	On-demand tests using an automated system
PROFILE-BASED?	Uses one or both of the two profiling methodologies below to configure assessments
PREMADE?	Constructed using historical data and/or taxonomies created to classify and document the characteristics required for success at a given job (i.e., O*NET)
BENCHMARKING?	Uses scores from profiles built by giving the assessment to high performers and then using these scores as a benchmark for scoring assessments completed by job candidates

ANALYST RATINGS: EVALUATION/RATINGS MADE BY DOMAIN EXPERTS

CANDIDATE EXPERIENCE RATING	The extent to which the vendor's assessments are candidate-friendly
AI QUOTIENT	The extent to which the vendor actually uses AI (based on the opinion of Rocket-Hire experts, not on vendor-provided marketing materials)
RISK/EXPOSURE FACTOR	The extent to which a vendor's products comply with EEOC's Uniform Guidelines on Employee Selection Procedures and the level of exposure associated with their assessments
SCIENCE QUALITY	The extent to which a vendor's assessments are based on best practices for psychometrics, test development, and validation
ANALYSTS' TAKE	Analysts' opinion about how the vendor is differentiated from others in the same category, as well as opinion on the viability of the company and its products
5-YEAR OUTLOOK	The extent to which the analyst feels the company will grow over the coming five years

CREATION OF VENDOR PROFILES

With the final classification scheme and parameters in place, Rocket-Hire analysts completed ratings for each vendor. The rating process included the following steps:

- ✓ *Review of website by expert*
- ✓ *Review of online profiles in other databases (i.e., Owler, CrunchBase, etc.)*
- ✓ *Review of articles and press releases*
- ✓ *Review of archival information, notes from past demos*
- ✓ *Discussions with colleagues*

Note: There was no direct interface with vendors as part of the profile creation process. The large number of vendors covered and the desire to keep reported information objective were primary reasons for this decision.

RATINGS CALIBRATED AND VENDOR INFORMATION VALIDATED

Once all profiles were completed, our analysts reviewed each parameter's rating to ensure the criteria used were applied consistently. Adjustments were then made to ratings and information as needed. Analysts also reviewed the information in each vendor profile, conducting additional research where required to ensure accuracy.

QUERIES RUN TO EXPLORE TRENDS

Once the database had been cleaned and checked, we analyzed the data to identify trends and answer research questions.

Note: We do not have historical, year-after-year data for each vendor, making some analyses looking at trends over time impossible. We were able to use the date which a company was founded as a way to examine some trends — for instance, the recent surge of AI vendors can be credibly estimated by looking at the number of firms founded in the past five years.

REPORT WRITE UP

The findings uncovered in our analysis of the data, combined with that from other references, were used to create this report and its accompanying vendor research portal.

ENDNOTES

[1] [HR Technology Conference & Exposition](#), accessed September 16, 2020.

[2] [Society for Industrial and Organizational Psychology](#), accessed September 16, 2020.

02

**CONTEXT: MACRO TRENDS
SHAPING THE FUTURE OF
TALENT ASSESSMENT**



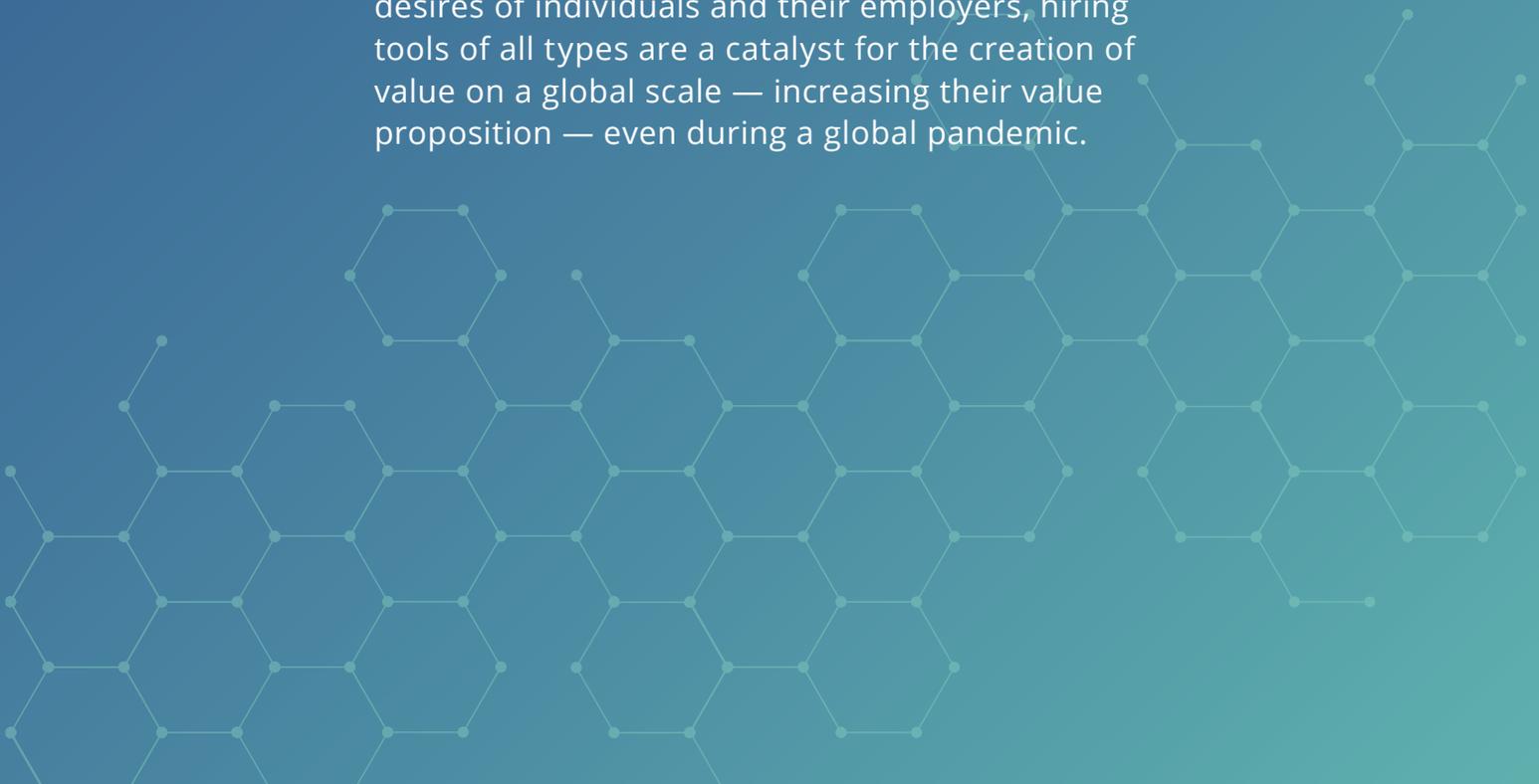
IN THIS CHAPTER

The relationship between humans and the organizations that employ them is complex and dynamic and any trends relating to HR technology, hiring, and talent assessments must take the bigger picture into account.

Rapidly evolving technology and world events such as the COVID-19 pandemic are reshaping the relationship between humans and their employers — mandating a people first, humanistic approach that is deeply rooted in psychology.

Putting the **Human Experience** first creates a psychological bond between employer and employee that benefits all via increased happiness and productivity.

By supporting alignment between the values and desires of individuals and their employers, hiring tools of all types are a catalyst for the creation of value on a global scale — increasing their value proposition — even during a global pandemic.



MACRO TRENDS SHAPING THE FUTURE OF TALENT ASSESSMENT

In the five years since our last report, fundamental shifts in the workplace and the world at large have created increased opportunity in the already thriving HR tech spaces and the talent acquisition and assessment industries nested within.

Engaging in a meaningful analysis or discussion of talent assessment trends requires a contextual understanding of how assessments fit into a broader, global value chain built on human talent. Hiring fuels this value chain via its critical function of creating and sustaining organizations. Assessment tests and decision-making tools are only part of the equation.

Understanding trends in HR tech, talent acquisition, and talent assessment requires the study of three essential ingredients — **people, organizations, and technology** — the alignment of which determines value creation on a global scale.

Hiring — and the value it creates — exists within and at the mercy of a **global context**^[1] of geopolitical and natural phenomena that individual organizations, and even entire industries, cannot easily control. The COVID-19 pandemic is a very real example of how unanticipated disruptions are forcing change and accentuating the interconnectedness of people, organizations, and technology with the potential to redefine the relationship between humans and their employers.

Figure 2.1 provides a model for understanding the evolving relationship between work, humans, and technology and the value that is created as they become increasingly aligned within a global context. This alignment allows one's work to satisfy intrinsic needs such as security, belonging, and fulfillment creating a **Human Experience** that is a powerful and essential ingredient in the global value chain.

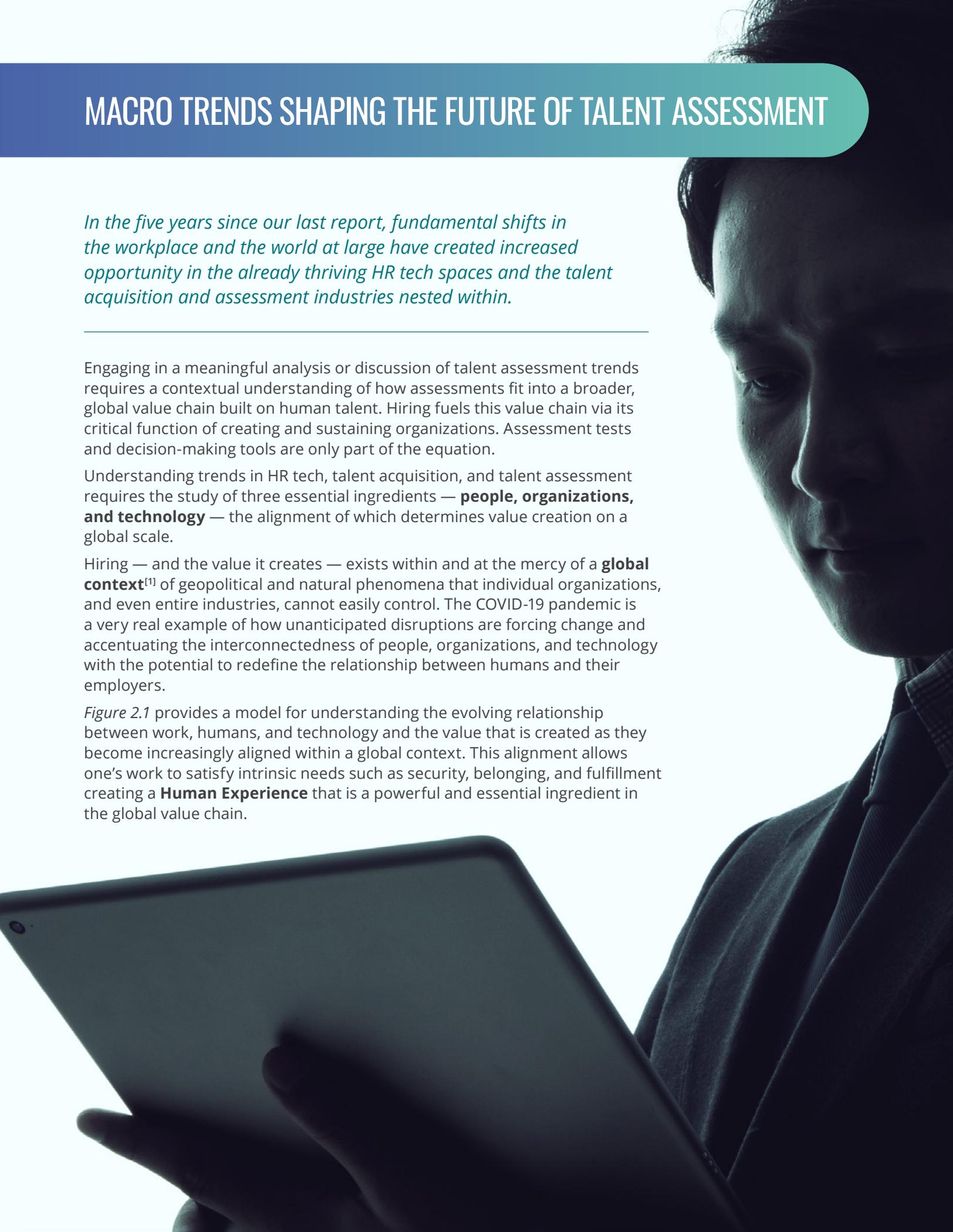
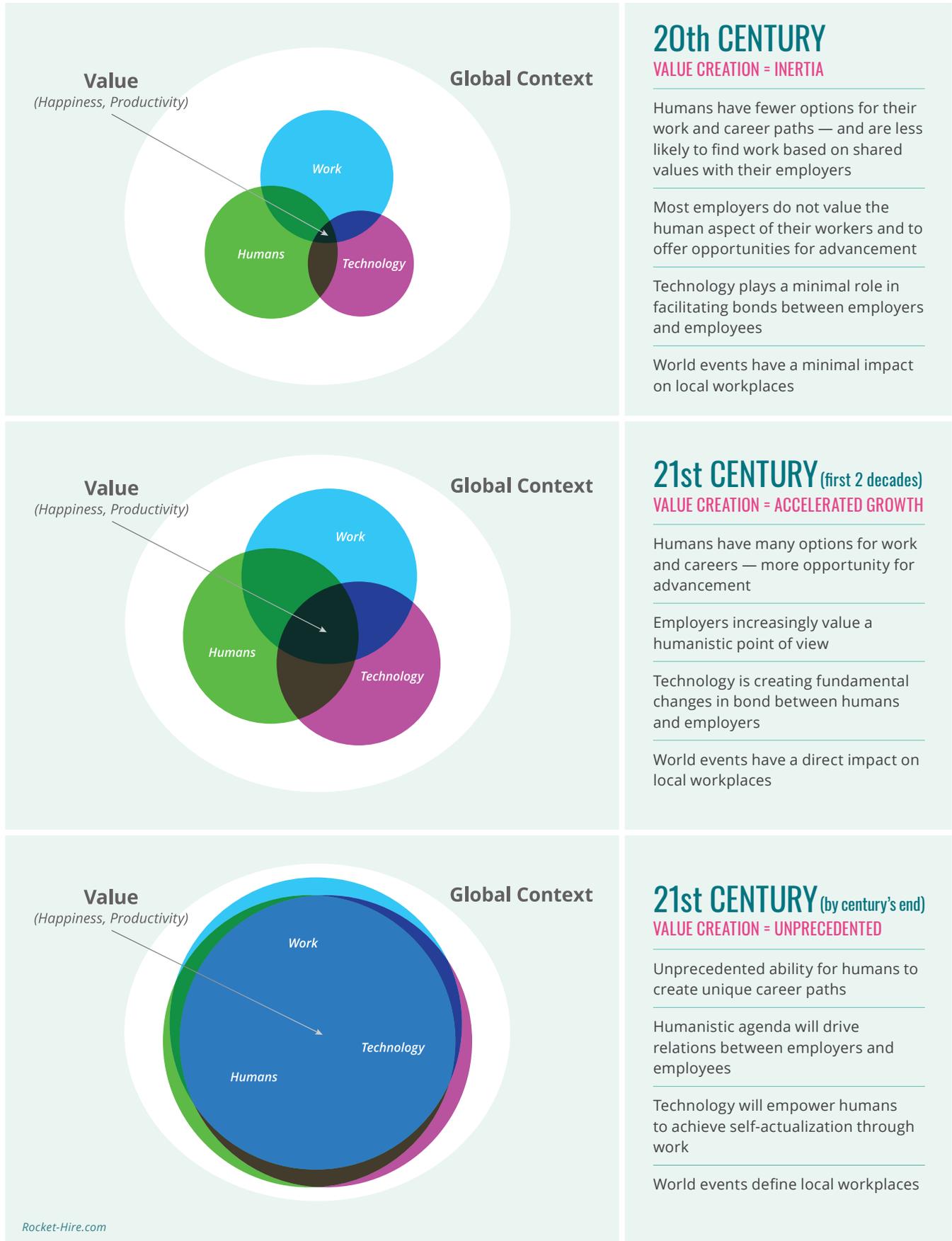


Figure 2.1: Alignment Between Humans and Their Work Brings Unprecedented Productivity and Happiness



THE ALIGNMENT OF HUMANS AND ORGANIZATIONS CREATES VALUE THROUGH ENHANCEMENT OF THE HUMAN EXPERIENCE

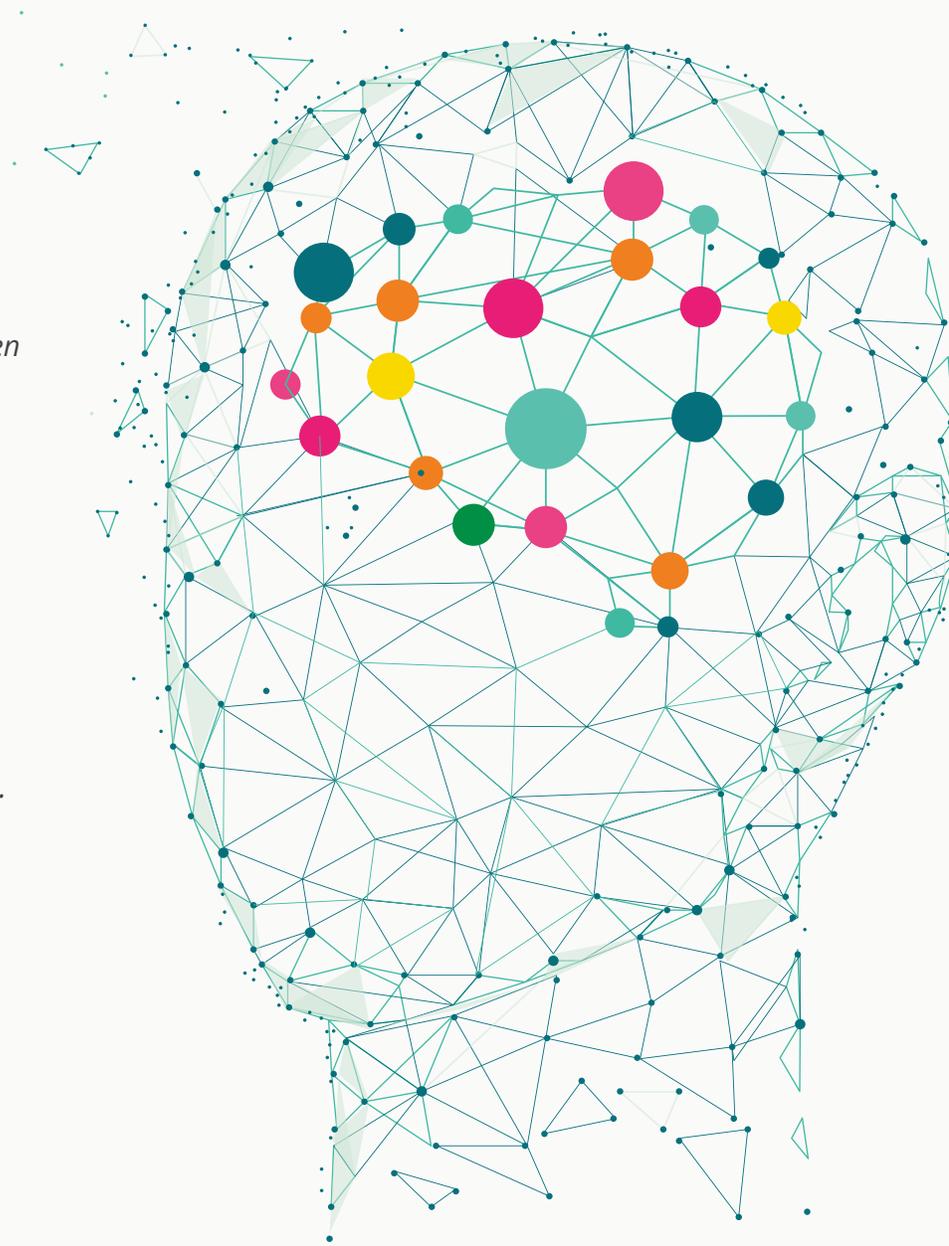
Perhaps the most important trend that is poised to impact the global economy is a growing and sincere focus among employers on the **Human Experience**^[2] in the workplace. Human Experience provides an opportunity for organizations to express and expand the concept of Employee Experience to address the Human Experience at work focusing on creating a positive, supportive, and personalized atmosphere that allows employees to find personal connection, meaning, and purpose in their work.^[3]

Human Experience is monumentally significant because it creates the potential for increased global productivity by fostering unprecedented levels of alignment between people and organizations. A recent study by Deloitte Digital^[4] found companies that focus on the Human Experience were twice as likely to outperform their peers over a three-year period.

When one factors in the evolution of technology and events unfolding within the global context, the opportunity to create value through hiring becomes increasingly significant.

Both humans and organizations are driven by purpose and goals, the alignment of which creates a state of harmony that leads to greater happiness and increased productivity.

A look at the overlap between humans' inherent desires/values and that of businesses provides a foundation for understanding the significance of Human Experience as an engine of value creation.



HUMANS WANT: SECURITY, BELONGING, AND OPPORTUNITY

Through their relationship with work, humans seek the ability to support their loved ones within a secure/stable environment where they can grow and find meaning (aka Dynamic Stability).^[5] Inherent human needs fulfilled via work include:

WELL-BEING	Care for the health, safety, and welfare of the worker and their family
EQUITY	Being compensated fairly (monetarily and otherwise) for what they bring to the table and their effort through their work
INCLUSION	Feeling valued as a unique individual whose characteristics are important to the employer
SENSE OF PURPOSE	Ability to contribute to a higher purpose through one's work
PERSONAL OWNERSHIP/ PERSONALIZATION	Ability to set and achieve career goals with support from their employer
OPPORTUNITY TO SHOW WHAT THEY CAN DO	Opportunity to learn new skills and acquire the knowledge needed to evolve personally and professionally
EASY ACCESS	Ability to interact and communicate with systems and persons within the organization anywhere, at any time, without friction

EMPLOYERS WANT: DIFFERENTIATION, RECOGNITION, AND PRODUCTIVITY

Through their human capital, organizations seek to differentiate themselves in their markets and foster the outcomes that create value for themselves and other stakeholders. To be successful in their missions, organizations require:

PRODUCTIVITY	Creating value via the effort and engagement of their workforce
ALIGNMENT	Attracting a workforce and customers who share the company's values
ACTIONABLE DATA	Ability to efficiently gather and analyze data to support effective decision-making and strategic planning
BRAND RECOGNITION/ DIFFERENTIATION	Clear definition of its unique offerings and ability to create identification with its values, products, and services
EFFICIENCY	Ability to effectively focus resources and minimize waste
THE RIGHT STUFF	Ability to recruit and develop an evolving inventory of human capital that possesses the skills and attributes, both individually and on the whole, required to create and execute strategies, fuel organizational growth, and innovate



When the needs and values of humans and employers are shared and aligned, there is a symbiotic relationship that can be explained through a number of classical psychological theories.

PSYCHOLOGY AS THE MECHANISM

The **Psychological Contract**,^[6] a mutual bond built on the alignment and fulfillment of the needs of individuals and their employers, is the primary force behind Human Experience in the workplace and can be explained via a number of important psychological theories such as:

SELF-ACTUALIZATION (MASLOW'S HIERARCHY)

The ability to meet basic human needs provides the security required for an individual employee to realize their true calling.

EQUITY THEORY

When individuals feel equitably compensated, they are motivated and feel a sense of belonging. Feelings of inequity create a mismatch that negatively impacts both individuals and the organizations for which they work and vice versa.

BELONGING

Shared values create a sense of identification and oneness that bonds employers and employees.

SENSE OF PURPOSE

Through a shared purpose, individuals and organizations create value for one another.

ORGANIZATIONAL JUSTICE THEORY^[7]

Feelings that corporate practices are fair leads to the attitudes and perceptions essential for engaging employees to create value through outcomes such as organizational commitment, job satisfaction, increased performance, and trust.

TECHNOLOGY AND THE PSYCHOLOGICAL CONTRACT

Technology creates value for individuals and organizations alike by serving as a lubricating force that becomes a catalyst by reducing friction, freeing up resources, and supporting evolution. Technology supports the human experience and fosters productivity through:

ACCESS

Technology provides easy access to information for employers and employees, both pre- and post-hire. Talent acquisition, training, and career development are all made more accessible through technology.

FREEDOM

Technology provides organizations with the flexibility to attract and engage their workforce through attention to individual needs such as geographic location. Technology provides freedom to workers by allowing them to work from anywhere and at any time, giving them the ability to take ownership of their careers.

INSIGHTS

Technology provides organizations with a window into key metrics that provide understanding and drive the insights required to increase productivity and support evolution. Likewise, technology allows employees to gain insights into their own abilities and productivity which helps them with career development and job performance.

COMMUNICATION/CONNECTIVITY

Technology provides the entire organization, as well as its internal and external stakeholders, with a means to remove barriers to communication, strengthen relationships, and increase collaboration.

AUTOMATION

Technology provides the ability to automate routine tasks which reduces friction and frees up resources for higher value activities. Automation allows organizations to increase productivity and focus resources on the things required for growth and evolution. Automation also allows workers to grow and evolve their potential through the use and development of higher-level skills and abilities.

ALIGNMENT

Technology supports the mutual alignment of organizational and individual goals through its ability to drive engagement through the support of the human, employee, and candidate experience.



THE GLOBAL CONTEXT: COVID-19 ACCELERATES THE EVOLUTION OF WORK AS WE KNOW IT

The interaction of individuals, organizations, and technology does not take place in a vacuum. In fact, the external global context in which they function is an overarching factor that determines each one's fate. With every passing day, technology continues to shrink the globe, deepening the reality that is shared by its citizens. The global context (including the COVID-19 pandemic) is now playing a more significant role in shaping business strategies and the relationship between the parties (employers and employees) responsible for executing them. The global context is responsible for shaping the future of work mainly through its impact on the psychological contract and the technologies required to build and maintain it.

The COVID-19 pandemic is an excellent example of the global context's impact on work. While the pandemic is creating immediate hardship for humans and

organizations alike, it is sure to catalyze positive change in the long run. By accelerating the future of work and amplifying already evolving trends, the pandemic is accelerating a positive shift that brings the human experience to the forefront by forcing employers and employees to gain a deeper understanding of what they mean to one another.

Humans have survived thus far due to our ability to adapt and evolve faster than that of other animals whose required adaptations take tens of thousands of years. There is nothing like a crisis to create a shared sense of purpose that drives transformation. The primary force driving emotion and action during a time of crisis centers around creating and maintaining the security required to survive. Survival and creating long-lasting security requires adaptation.

THE IMPACT OF COVID-19 ON HUMANS AND ORGANIZATIONS

The impact of COVID-19 on both individuals' and organizations' efforts to survive and find security center around its acceleration of the following trends:

FOCUS ON THE HUMAN EXPERIENCE

The root of positive human experience centers around the security needed to support wellness, opportunity, individualism, and inclusion. COVID-19 has placed a premium on the adaptations required for both individuals and organizations to create security via tools, policies, and procedures that drive the creation of a positive Human Experience.

ORGANIZATIONAL CITIZENSHIP

The COVID-19 crisis is a truly global phenomenon, and combating it requires a sense of responsibility to oneself and the rest of the world. This places a mandate on organizations to take the lead through an increased premium on global citizenship — making the world a better place through helping others in crisis.

NEED FOR THE RIGHT SKILLS

The pandemic has forced and accelerated evolution. Survival has required many organizations to make bold bets on new strategies. The execution of strategy requires the right inventory of skills. Surviving COVID-19 and navigating an uncertain future demands a more intense focus on skills such as agility, flexibility, adaptation, and resilience. Organizations must be flexible in the way they acquire and foster these skills. For instance, acquiring the right skills quickly may require tapping into the gig economy while also building programs for reskilling and "self-skilling" the organization's existing workforce. It has never been easier for individuals to guide their own development. Access to self-skilling allows the individual to more easily grow and shift their career, creating a more fluid workforce that can adapt to the market's needs while supporting one's individuality and ability to create security.

INVESTMENT IN TALENT ACQUISITION

COVID-19 has allowed many employers to reboot their approach to talent — refocusing the talent equation to focus on competing for top talent while looking to fill less important roles via the gig economy. With so many employers eventually needing to rehire or acquire an evolved set of skills, the competition will be fierce, forcing employers to rethink and evolve their hiring processes.

BRAND

A firm's reaction to COVID-19 is and will continue to have a major impact on its brand image. COVID-19 is providing an excellent opportunity for employers to provide their workforce with a sense of security and send strong messages about individuality and differentiation. How a company has handled the pandemic will, for better or worse, have a significant impact on their employment brand and their ability to attract and retain talent.

ADOPTION OF TECHNOLOGY

All of the adaptations and changes needed for survival require technology. The crisis has sped up the evolution and adoption of technology that supports the human experience.

FLEXIBLE WORK ARRANGEMENTS

Perhaps the most immediate and potentially long-lasting adaptation for surviving COVID-19 is the shift to remote working arrangements. We have reached the point of no return in this regard, and the flexibility required of both employers and employees will become standard practice. The rise of flexible work arrangements will likely increase the reliance on workers who are part of the rapidly growing gig economy.

Emerging Trends Are Here to Stay



Emerging trends currently happening in the world of work are here to stay. The global context is demanding that organizations and humans become more connected to their purpose, creating an opportunity for the strong psychological contracts needed to maximize global productivity through the happiness of the individuals who contribute to it through their work.

Ultimately, survival and long-term value creation depend on creating and nurturing Human Experience. Human Experience is created via human capital management strategies and technologies, including the talent acquisition process and the predictive hiring tools that comprise it.

Increasing demands to manage the intersection of human experience, organizational strategies, and technology — and the global context in which they operate — has created significant opportunity in the already thriving HR technology spaces, and by extension, the talent acquisition and assessment industries. It is through this context that the following sections discuss market size and growth within the HR tech, talent acquisition, and assessment markets.

ENDNOTES

- [1] [“What Does the New Global Context Mean?” World Economic Forum](#), last modified January 16, 2015.
- [2] [“Employee Experience? Try Human Experience,” CMO Insights from Deloitte](#), The Wall Street Journal, last modified August 14, 2019.
- [3] Erica Volini, [“From Employee Experience to Human Experience: Putting Meaning Back Into Work: 2019 Global Human Capital Trends,” Deloitte Insights](#), last modified April 11, 2019.
- [4] [“Companies That Focus on Human Experience Receive Performance Boost,” HRDive](#), last modified August 8, 2019.
- [5] [“Returning to Work in the Future of Work,” Deloitte Insights](#), last modified May 15, 2020.
- [6] [“Psychological Contract,” Wikipedia](#), last modified June 22, 2020.
- [7] [“Organizational Justice,” Wikipedia](#), last modified June 30, 2020.

03

**HR TECH MARKET
SIZE AND GROWTH**



IN THIS CHAPTER

HR tech has been an extremely hot market, growing much faster and larger than was predicted five years ago.

Innovative technologies such as AI are lowering barriers to adoption and reducing friction between humans and employers.

While COVID-19 and the uncertainty it is creating have presented a bump in the road, the HR tech market will continue to grow, as continued investment fuels the evolution of tools that support the human experience in the new normal.



HR TECH MARKET SIZE AND GROWTH

The HR tech marketplace has exploded over the last five to seven years. Not only are there innovative technology solutions to digitize and automate traditionally manual HR processes, but the last decade has also seen a number of new ventures offering technology-enabled solutions for use cases that weren't even dreamed of just a decade ago, such as *peer rewards* and *recruitment process*

automation (RPA). However small a particular niche of HR tech may be, chances are there's an HR technology vendor offering a solution for it today with many more to follow. *Figure 3.1* provides an overview of the core areas of HR tech, within which there are an ever increasing number of solutions with supporting platforms and services required for their integration and delivery.

Figure 3.1: Core Areas of HR Tech Across the Employee Lifecycle

EMPLOYMENT LIFE CYCLE FUNCTIONALITY

Pre-Hire	Hire / Onboarding			Compensation	Talent Management		Post
Sourcing / Tracking	Qualify	Interview	Post-Hire	Benefits	Learning	Performance	Succession
Branding Templates	Assess	Interview Scheduling	Onboarding	Benefits Administration	Learning Management System	Talent Management	Succession Planning
Applicant Tracking	Cultural Fit Testing	Automated E-mails	Drug Testing	Health Insurance	Content integration	Customizable Forms	Skill Gap Reporting
Job Board Integration	Background Credential	Video	Automated Data Capture	Retirement Services	Compliance & Certification Management	Goal Setting & Tracking	Talent Pools and Planning
Candidate Compliance	Offer Letter Automation	Real-Time Evaluation Tools	Information Integration	COBRA	COBRA	Performance Improvement	Offboarding
Talent Bench	Skill Testing / Validation	Offer Letter Automation	Task Tracking	Compensation Management	Test & Survey	Employee Recognition	
Social Recruitment			E-Signatures				
Programmatic Recruitment			Payroll				
			Time & Attendance				
			Employee Scheduling				

Platform Decision Spectrum	Outsource (Managed Services) or Insource
	Best of Breed vs. Single Platforms (and Extended Community)
	Industry Workflow Integration
	Workforce Data / Analytics & Forecasting

Source: Delancey St. Partners – Human Capital Management: Special Focus on HR Technology October 2019

Rocket-Hire.com

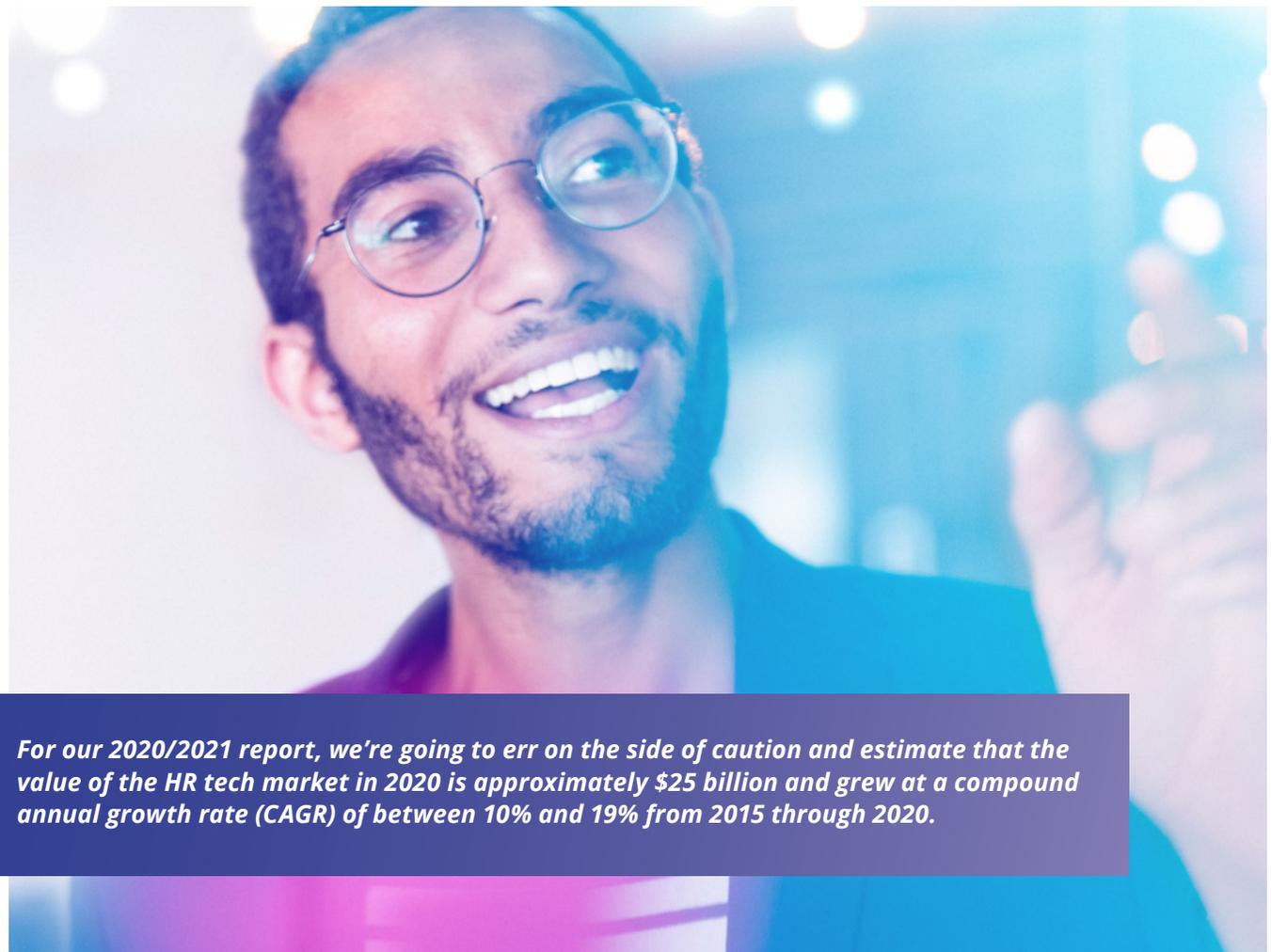
Prior to the sudden emergence of the COVID-19 pandemic, we had been ***“in the peak of an up-cycle where venture capital firms and private equity firms [had] invested more than \$19 billion in [HR tech] startups and new ventures over the last five years,”*** according to industry analyst Josh Bersin.^[1] While this eye-popping investment figure translates into dozens of venture-backed firms that have entered the HR tech market over the last five-plus

years, they’re not the only ones driving the growth in the HR tech space. The largest players such as Microsoft, Oracle, IBM, SAP, ADP, Accenture, and others are pumping investment into the HR tech marketplace while also developing the products and platforms that are driving market growth via innovative technology that solves real and present problems.

Our current research leads us to believe that the actual size of the HR tech market in 2020 significantly exceeds any projections made in 2015.

*In fact, among the analysts’ estimates we reviewed, the value of the HR tech market in 2020 ranged from **\$25 billion** on the low end^[2], all the way to a value of **\$148 billion** on the high end.^[3]*

While we acknowledge that differing views on how to define the HR tech market contributes to a range of valuations, our research reveals a clear trend: ***over the last five years, the HR tech market has significantly outperformed past growth estimates, achieving a larger value than expected in 2020 with a steeper rate of growth than projected by published research reports.***



For our 2020/2021 report, we’re going to err on the side of caution and estimate that the value of the HR tech market in 2020 is approximately \$25 billion and grew at a compound annual growth rate (CAGR) of between 10% and 19% from 2015 through 2020.

WIDESPREAD ADOPTION OF AI IS A MAJOR DRIVER OF GROWTH

One of the primary drivers of this increased rate of growth has been the emergence of Artificial Intelligence [AI] technology, particularly in the area of talent acquisition. While AI was an already well-established concept in 2015, the breadth and depth of its adoption by so many emerging HR tech vendors over the last five years was not necessarily

predicted back in 2015. The AI-enabled solutions these vendors have brought to market aren't restricted to the largest enterprise customers either. Quite the opposite, in fact — AI technology is now a feature of relatively affordable solutions and platforms targeted at the SMB and mid markets.

While AI is definitely responsible for a growing interest in HR tech, there are a number of other factors adding fuel to the fire. These include:

GLOBAL INCREASE IN THE USE OF TECHNOLOGY	Virtually every industry across the globe has come to rely on technology to foster growth and innovation. As emerging technologies evolve, technology's role as a growth engine will continue to increase.
MASSIVE ADDRESSABLE MARKET	The global number of employers is huge and the market for HR tech is far from saturated. The SMB market alone provides a source of previously untapped revenue.
UNPRECEDENTED ABILITY OF TECH TO SCALE	Technology is transforming the world of HR and HCM by allowing services-based businesses to scale their core value propositions.
EASY ACCESS TO HR TECH	Trends in technology have resulted in more options and lower prices for end users, reducing barriers to adoption and allowing HR tech companies to expand both vertically downmarket and horizontally into new market verticals.
"APPIIFICATION" ALLOWS FLEXIBILITY	The market is shifting to modular plug-and-play solutions that can stand alone to address specific needs or easily plug into an existing HCM platform.
ANALYTICS CAPABILITIES POWER INSIGHT	Like many other areas of the market, HR tech's ability to collect, measure, and interpret actionable data is a significant value in and of itself. The number of success stories that speak to the increased ability to quantify human capital will continue to grow, further driving market growth.
ACCESS TO NEW POSSIBILITIES	Put simply, tech is fueling unprecedented advances in solving business problems.
UNPRECEDENTED LEVELS OF INVESTMENT	The trends listed above are not going unnoticed. The amount of investment being pumped into the HR tech space is perhaps the most significant factor in accelerated market growth.

WHAT ABOUT COVID-19?

As we close the books on 2020, we are still living in a time of massive uncertainty caused by the global COVID-19 pandemic. While some industries have been able to prosper during the pandemic, others have been decimated. No one really knows when a full recovery will happen, or what that recovery will look like.

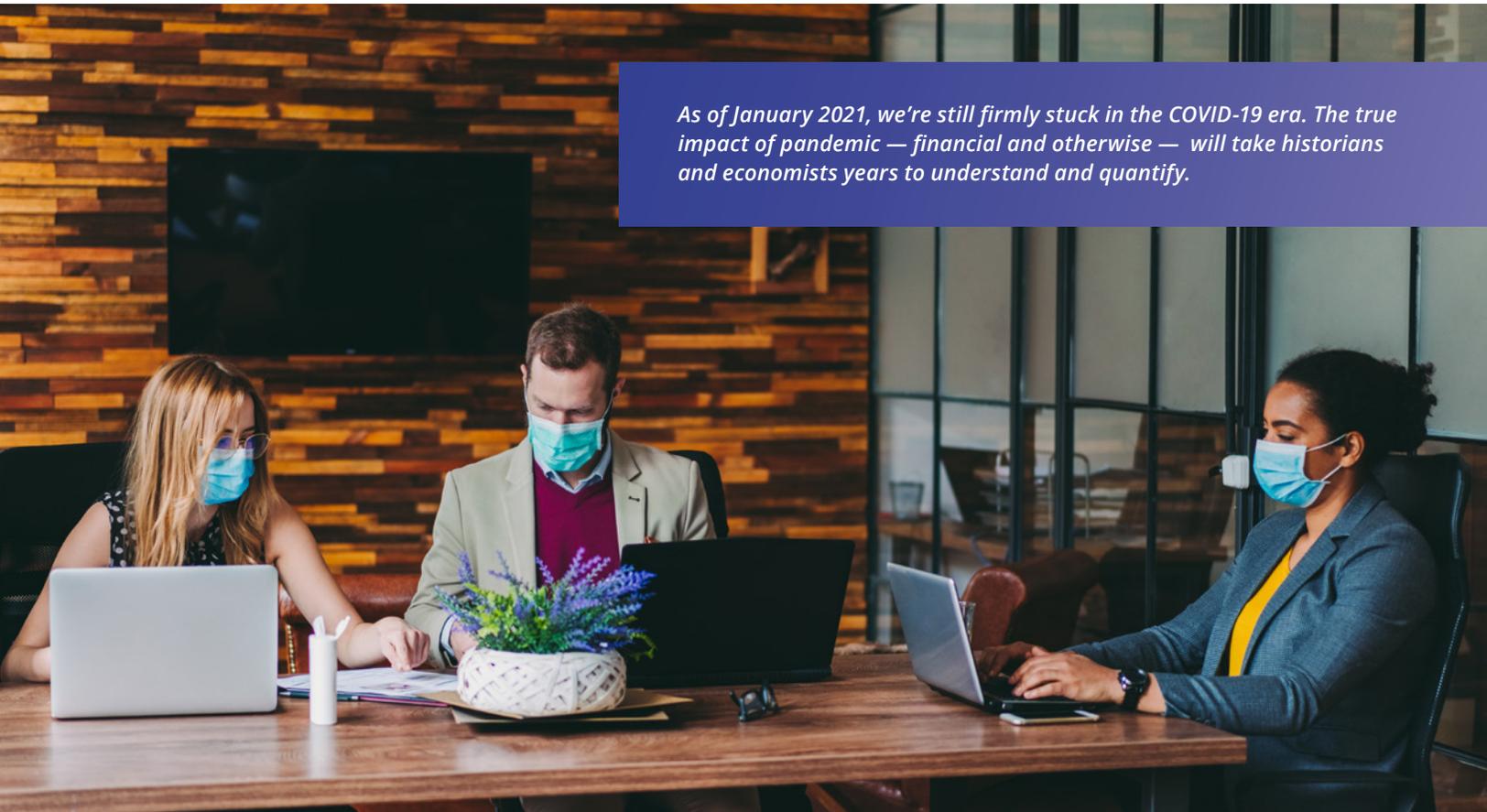
Over the first two quarters of 2020, sales of new HR technologies have slowed down significantly due to COVID-19, greatly eroding confidence in market projections, including those published in this report. However, investment in HR has not slowed due to the pandemic.

“According to HRWins’ Q2 2020 HR Tech Global VC Update, investment activity in the HR technology space continued at a consistent pace during 2020’s second quarter, despite concerns that the COVID-19 pandemic would act as a brake. Venture capital investment in HR tech has increased more than 14% from the first quarter during the period.”^[4]

In the face of uncertainty, adaptations often focus on the need for immediate survival. For example, restaurants are shifting their dine-in business models to delivery and curbside pickup. When it comes to jobs and hiring, the increased use of video-based interviews and the shift to working from home are just two adaptations out of many different that took hold almost overnight.

Rocket-Hire’s COVID-19 benchmarking study (Q2 2020)^[3] supported these trends with 57% of our sample indicating they have increased the use of video interviews and 69% indicating their companies transitioned their office-based workers to work-from-home.

Seismic shifts in society caused by the pandemic’s fog of uncertainty mean that employers will have an expanded role in their employees’ financial, physical, and mental well-being. The pandemic has accelerated a movement that has been gathering momentum in HR — a focus on creating a human experience for its workforce (and customers). This mindset encompasses the importance of communication, creative upskilling and reskilling, and business continuity while keeping employees and customers safe and healthy.^[5]



As of January 2021, we’re still firmly stuck in the COVID-19 era. The true impact of pandemic — financial and otherwise — will take historians and economists years to understand and quantify.

In the long term, COVID-19 will serve as an accelerator for HR tech, and the need for tools to accompany the new normal will fuel increased growth and investment driven by:

- ✔ *Increased focus on human experience (HX) as a foundational means of survival and growth for employers and employees alike*
- ✔ *Increased need to connect employees and support remote work*
- ✔ *Increased need for continuous access to learning and development to career pathing, upskilling, and “self-skilling”*
- ✔ *Increased need for speed and efficiency in hiring*
- ✔ *Increased need to identify and retain top talent*
- ✔ *Increased need for rapid access to data to support fluid decision-making*

HR TECH MARKET ESTIMATE 2025

Taking our 2020 HR tech market estimate of \$25 billion and factoring in CAGR of 10% to 19% for 2020 to 2025, we estimate this market to reach our estimated total value of \$40.25 to \$59.65 billion by 2025.

While the trajectory may be delayed or somewhat flattened (at least temporarily) by the pandemic, we believe that the HR tech market will rebound and continue to grow and thrive as the new normal drives the need for continued innovation and evolution.

The trends of strong value and rapid growth within the HR tech market sets the stage for the growth of the markets nested within, including talent acquisition and talent assessment. Market size and growth estimates for these core areas of HR tech are discussed in the following sections.

We estimate the total value of the HR tech market in 2025 to be:

\$40.25 BILLION
— TO —
\$59.65 BILLION



ENDNOTES

- [1] Josh Bersin, "[HR Technology Market 2019: Disruption Ahead.](#)" last modified January 27, 2019.
- [2] "[HR Tech Market Map: 145+ Startups Reinventing Human Resources.](#)" [CBInsights](#), last modified June 6, 2020
- [3] "[HR Tech Market Map: 145+ Startups Reinventing Human Resources.](#)" [CBInsights](#), last modified June 6, 2020
- [4] "[Is Investor Focus Shifting?](#)" [#HRWins Q2 2020 HR Tech Global VC Update](#), last modified July 7, 2020.
- [5] "[COVID-19 Talent Acquisition Benchmarking Report.](#)" [Rocket-Hire](#), last modified June 17, 2020.
- [6] "[This Next Digital Era Will Be an Intensely Human Experience.](#)" [Forbes.com](#), last modified May 27, 2020.

04

TALENT ACQUISITION
MARKET SIZE AND GROWTH



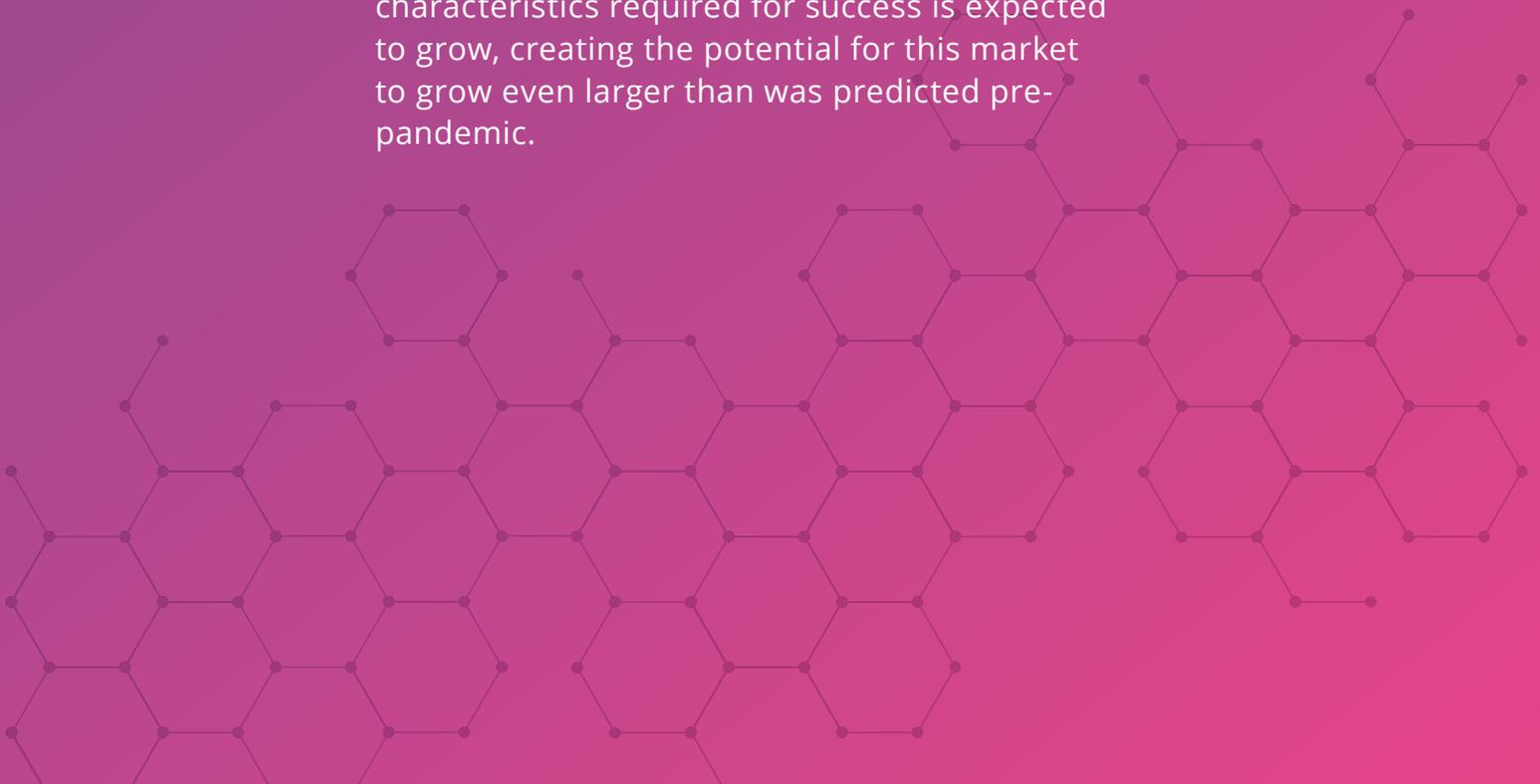
IN THIS CHAPTER

The market for Talent Acquisition tools and technologies (and thus the market for talent assessments) is directly impacted by overall trends in hiring and the jobs market.

While COVID-19 has led to massive reductions in hiring globally, hiring is an essential function for all organizations and can be expected to rebound strongly — even as the pandemic drags on.

Navigating hiring during the pandemic and the new normal is creating an increased demand for talent acquisitions technologies that can support adaptations and evolutions required for survival.

The demand for automated hiring tools that can reduce friction in the hiring process while identifying and measuring new human traits and characteristics required for success is expected to grow, creating the potential for this market to grow even larger than was predicted pre-pandemic.



TALENT ACQUISITION MARKET SIZE AND GROWTH

Talent acquisition is the core area of HR tech that is most directly linked to talent assessment. Critical functions within talent acquisition include:



Rocket-Hire.com

Talent acquisition is likely the area of HR that has been hardest hit by the pandemic. Large scale layoffs and business closures have been the norm since the second quarter of 2020, and as we move forward, a second wave of layoffs^[1] is expected to impact **6 million** white-collar workers.

The impact of layoffs due to COVID-19 is likely to be long lasting, with some researchers estimating that **42%** of pandemic-induced layoffs will result in permanent job loss.^[2]

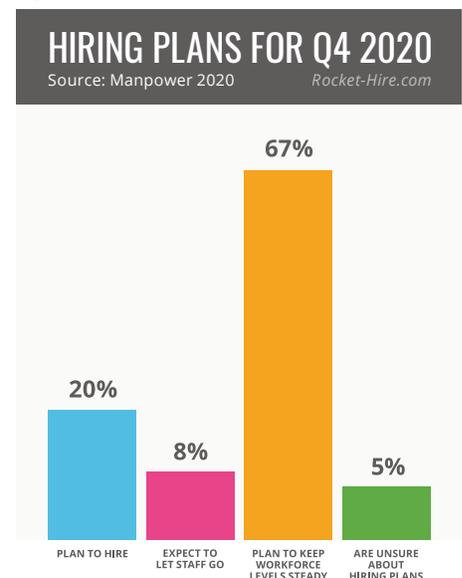
Rocket-Hire's own survey research conducted in Q2 of 2020 found that **85%** of respondents predicted a decrease in hiring in 2020 from pre-pandemic hiring plans, with half predicting a greater than **50%** reduction, and almost half indicating that they have completely ceased hiring or have laid off employees.

As we enter 2021, there is reason for optimism that hiring will return to or even exceed previous levels at some point in the hopefully not too distant future. Even during COVID-19, hiring has not stopped, and will always be essential for all of the tens of millions of businesses across the globe that survive the pandemic.

As of the final quarter of 2020, the unemployment rate has rebounded somewhat from its all time high of around **14%** to a COVID-19-era low of **8.4%**,^[3] with hiring picking up significantly in sectors such as construction, manufacturing, and finance.^[4]

A survey of over **8,700** employers conducted by Manpower (Figure 4.1) suggests a great deal of optimism among respondents when it comes to their hiring plans for the fourth quarter of 2020,^[5] with employers indicating that layoffs and furloughs are not presently part of their immediate plans.

Figure 4.1:



As the world gets back to work, employers will find themselves facing increased competition for top talent and will need tools to help them efficiently mine a talent pool whose ranks have been swollen by COVID-19.

Finding, engaging, and hiring the talent needed to get back to business faster than the competition will amplify the need to reduce friction in the hiring process. Technologies that create efficiency and augment predictive decision-making will be the most important trend that reshapes recruiting in the new normal.

In our 2015 report, we foresaw the potential for technology to reshape the talent acquisition market, predicting great things to come:

“Talent acquisition is a subset of talent management that is seeing a disproportionate increase in growth and investment when compared to other areas of talent management. This is because talent acquisition is the area of talent management that is best suited for disruption by new technologies. For instance, social and mobile technologies are having a profound impact on recruiting and sourcing.

Advanced sourcing technologies are providing a gateway to the rapid development of social-based recruiting and applicant tracking functionality, providing the entire recruiting process with an increasingly sharp set of new teeth.”

Five years later, despite COVID-19, this prophecy seems to be coming true as technology’s influence on talent acquisition is approaching nothing short of revolutionary.

Artificial Intelligence (AI) is undeniably at the forefront of this revolution, and recruiting is now the biggest AI market in HR.^[6] AI-powered products and solutions are at the heart of Recruitment Process Automation (RPA) tools that cover all the major areas of talent acquisition, including:

SOURCING	CANDIDATE ENGAGEMENT/EXPERIENCE	CANDIDATE QUALITY
Search for passive and active candidates (via open web and existing databases)	Engage candidates with chatbot to:	Match candidates/applicants vs. ideal profile
Match passive talent with requirements/profile	Inform about company	Automate the assessment experience
Deliver candidates based on match score	Inform about relevant jobs	Automate video interviews
	Start and automate the application process	Provide analytics
	Auto-schedule candidates	
	Communicate with candidates via personalized responses/updates	

THE RISE OF RECRUITMENT PROCESS AUTOMATION

Recruitment process automation built on artificial intelligence is a significant force fueling this seismic shift, as it underlies automation that is creating efficiencies for the TA function. RPA enables acquisition teams to automate specific tasks in the hiring process traditionally performed manually, creating efficient digital workflows. RPA is a force multiplier for recruitment teams — reducing friction, extending their reach, amplifying their brand, increasing candidate engagement, and providing insights needed for process optimization.

Another factor in the increased uptake of RPA tools is their accessibility. RPA tools are now being offered by a host of new vendors entering the marketplace. **Our database notes 30 vendors (around 13% of our sample) offering some form of RPA, with a third (10) of these vendors entering the market since 2015.**

Many RPA vendors offer point solutions that can be used stand-alone by smaller companies or easily integrated into larger HR tech platforms. While large-scale platform vendors make up much of the market for RPA tools, there are many smaller vendors who sell easily plugged in apps that allow end users to choose various components of RPA (such as sourcing or scheduling) to add specific RPA-technology to their existing hiring workflow.

RPA is reshaping all areas of talent acquisition and assessment is no exception. When modeling out the assessment market, it is impossible to ignore the impact of RPA-based tools. The ability to automate the candidate screening and matching process is beginning to erode the use of traditional assessments. Here in 2021, we predict that the boundary between RPA and the assessment market will continue to blur as the former gobbles up the latter.

As 2021 begins, understanding the short-term impact of RPA tools on the TA market remains difficult. With layoff, unemployment, and hiring numbers shifting

seemingly on a weekly basis, predicting recovery feels like shooting at a moving target. But with RPA reshaping recruiting and talent acquisition, its long-term impact on the market feels significant making estimates and predictions of the future of the TA market important.

It is through a lens of optimism created by the intersection of circumstance and technology that we must look at market size and growth estimates created before COVID-19, while presenting our best estimates of how we expect it to shape the market in the years to come.

TALENT ACQUISITION MARKET SIZE AND GROWTH

As services and tech continue to merge into combined offerings, we can expect an increasing amount of difficulty in market size estimation, compounded significantly by COVID-19. As with the HR tech market in which it is nested, published estimates on the talent acquisition market size in 2020 vary considerably. Estimates range from \$10 billion^[7] on the low end and climb to \$74 billion,^[8] with the upper ranges reaching \$151 to \$250 billion^[9] on the high end.

In his projections for the entire recruitment market, noted analyst Josh Bersin suggests: *“More than 40% of the US workforce changes jobs every year, creating a \$250 billion-plus market for recruitment, advertisement, assessment, and interviewing.”*^[10]

Pre-pandemic estimates of growth in the recruitment and talent acquisition process suggest a CAGR of around 8% to 10%,^[11] suggesting a realistic market size for tech and supporting services of \$14.7 billion to \$16.1 billion by 2025.

IMPACT OF COVID-19 ON TA MARKET: ACCELERATED EVOLUTION FUELS ADAPTATION

While the long-term impact of COVID-19 is unknown, there is no doubt that the adoption of new recruitment and talent acquisition tools and services ground to a halt in the second and third quarters of 2020.

In Q2 of 2020, Rocket-Hire’s COVID-19 benchmarking survey revealed that:

- ☑ **HALF OF ALL RESPONDENTS** plan to decrease their overall spending on talent acquisition technologies over six months beginning in April 2020 due to the pandemic.
- ☑ **HALF OF ALL RESPONDENTS** who were adopting new technologies indicated that they were putting the acquisition process on hold. (The other half of respondents who were continuing adoption indicated that they were already in either the contracting or implementation phases.)
- ☑ **69% OF RESPONDENTS** indicated that they had no plans to adopt any new technologies if they had not already begun the process before the pandemic took hold.

Our survey results clearly show that COVID-19 has slowed the adoption of new talent acquisition technologies in the early days of the pandemic and reveals an inability to focus on the future during times of uncertainty.

While few estimates of the impact of COVID-19 on the talent acquisition technology market exist, according to Statista.com: *“The US staffing and recruiting market is predicted to decrease from 151.8 billion US dollars in 2019 to 119.4 billion US dollars in 2020 due to the coronavirus outbreak, a 21 percent decrease from the previous year.”*^[12]

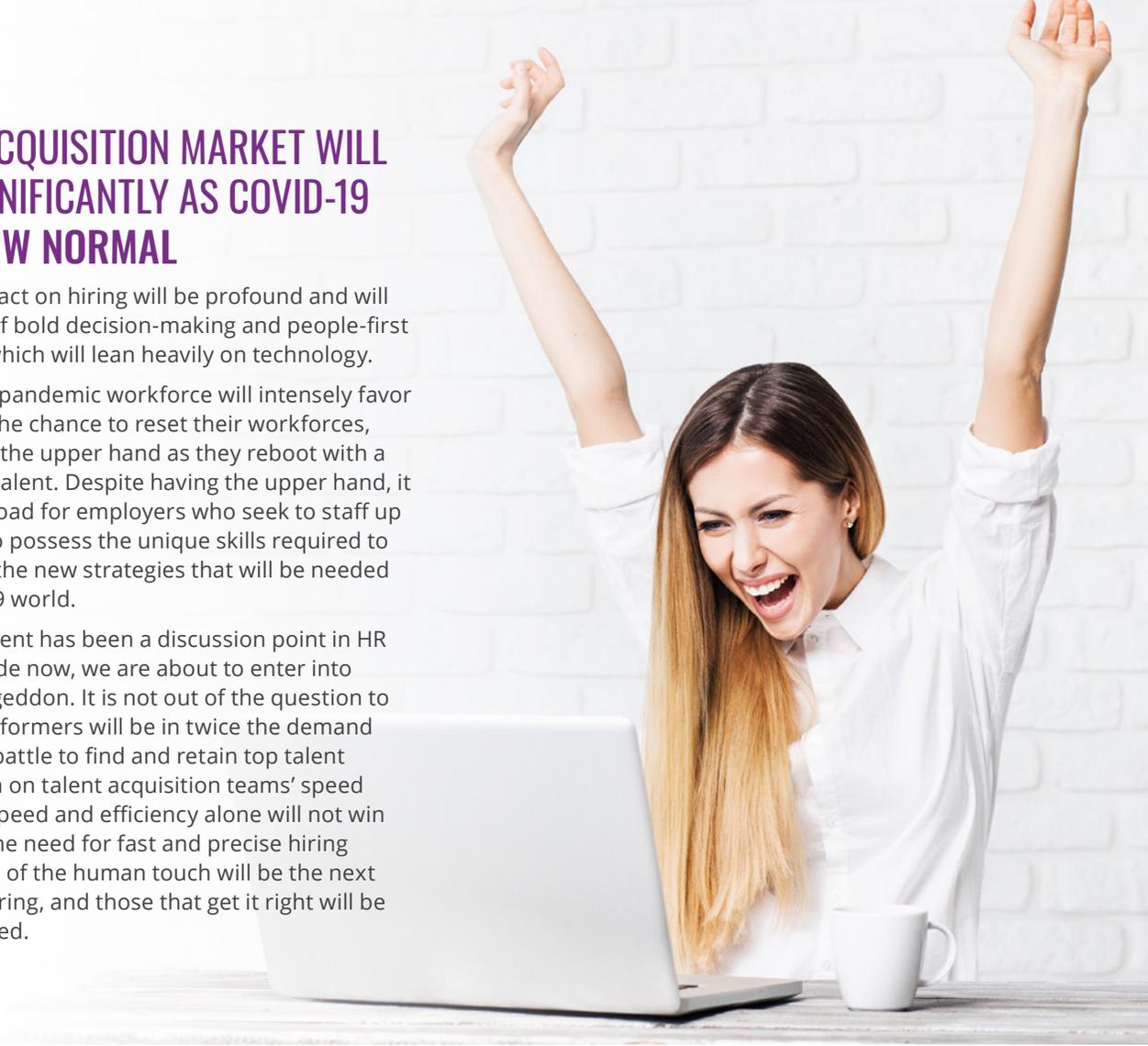
While the short-term impact of the pandemic on the talent acquisition market is clear, we believe it will rebound stronger than any other sector in HR tech, driven by the need for companies to staff back up with the talent needed for the future.

THE TALENT ACQUISITION MARKET WILL REBOUND SIGNIFICANTLY AS COVID-19 CREATES A NEW NORMAL

The pandemic's impact on hiring will be profound and will require a mash-up of bold decision-making and people-first strategies, both of which will lean heavily on technology.

The rules for a post-pandemic workforce will intensely favor employers.^[13] With the chance to reset their workforces, employers will have the upper hand as they reboot with a mix of old and new talent. Despite having the upper hand, it will not be an easy road for employers who seek to staff up with candidates who possess the unique skills required to devise and execute the new strategies that will be needed in the post-COVID-19 world.

While the war for talent has been a discussion point in HR tech for over a decade now, we are about to enter into the top talent armageddon. It is not out of the question to assume that top performers will be in twice the demand than before.^[14] The battle to find and retain top talent will place a premium on talent acquisition teams' speed and efficiency. But speed and efficiency alone will not win the day. Balancing the need for fast and precise hiring with the importance of the human touch will be the next great challenge in hiring, and those that get it right will be handsomely rewarded.



RECOVERY MEANS BALANCING HUMAN TOUCH WITH TECH

RPA is here to stay, and the pandemic will likely accelerate its adoption after the initial shock wave and the pandemic is under control. While RPA adds efficiency to the hiring process via automated sourcing, scheduling, and communication, the real winners will find creative ways to include the human touch in their tech stacks.

The playbook for human-centric hiring is not a secret. It starts with a mindset of compassion and flexibility from which spring pillars such as:

KARMA	How you treated your employees during the pandemic will be public knowledge and will send strong signals to job seekers.
COMMUNICATION	Maintaining a genuine connection with talent throughout the hiring process will be even more essential.
UNDERSTANDING	Knowing what job seekers want (stability, financial peace of mind, opportunities to grow and develop) should be at the forefront of the dialogue.
WORKPLACE WELLNESS	A focus that goes beyond the nuts and bolts of the job to include wellness, health, and family will become expected.

Michael Wright, Head of Talent Acquisition for Media Investment Company GroupM, shares an interesting approach to balancing the human touch with tech in reaction to the pandemic.

“This crisis has led us to reimagine recruiting. We immediately adapted our [artificial intelligence]-driven video interview tools to be more empathetic and more contextually aware than they were pre-COVID-19. We’ve also set up what we’re calling video handshakes, which are more focused on discovering what people can be and become, rather than what they do and have done [previously in their career.]”^[15]

Because COVID-19 is causing companies to rethink and evolve their hiring processes and driving large-scale evolution that relies heavily on new technologies such as AI and RPA, one could argue that it is actually opening the door for new products and services needed to support recruiting and hiring in the new normal.

Once we recover from the initial dip in hiring due to COVID-19, we can expect talent acquisition technology and services to reach potentially higher levels than expected before COVID-19 because:

- ✔ COVID-19 will create an inevitable need for mass hiring resulting in high volumes of job seekers making the efficiency provided by RPA more in demand than ever as we recover from the initial devastation of the pandemic.
- ✔ COVID-19 has provided an opportunity for companies to reinvent themselves, a process that requires retooling their hiring processes and competing for the top talent needed to support new strategic directions. These changes will be built on a foundation provided by new and evolving talent acquisition technologies.
- ✔ COVID-19 has increased the demand for technologies that support remote hiring such as digital interviews, remote proctoring, and onboarding.

While technology is reshaping the recruiting process, the need for the human touch remains clear. The future of hiring will depend on a partnership of humans and machines that is built on science and a humanistic focus. The need for a human touch in predictive decision-making and talent evaluation plays directly to the strengths of talent assessment.

The evidence is clear — despite a global pandemic, and perhaps because of it, the future seems bright for hiring and, by extension, talent assessment. A closer look at trends in the size and growth of the talent assessment market reinforces this point of view.

ENDNOTES

- [1] [“Next Wave of U.S. Job Cuts Targets Millions of Higher-Paid Workers,” Bloomberg](#), last modified June 3, 2020.
- [2] [“How 2 Out of Every 5 Jobs Lost During COVID19 May Not Come Back,” World Economic Forum](#), last modified May 25, 2020.
- [3] [“Monthly unemployment rate in the United States from August 2019 to August 2020,” Statista](#), last modified September 8, 2020.
- [4] [“America’s Private Sector Adds 135K Jobs in September,” Housing Wire](#), last modified October 2, 2019.
- [5] [“How Has COVID-19 Impacted Hiring Across the U.S.?” Manpower Group](#), accessed September 20, 2020.
- [6] [“2020 HR Technology Market: Disruptions Ahead,” Human Resource Executive](#), last modified September 25, 2019.
- [7] [“Online Recruiting Sites in the U.S.: Market Size 2005-2025,” IBISWorld](#), last modified December 31, 2019.
- [8] [“Digital Talent Acquisition Market is Expected to Reach at USD 74 Billion by 2025,”](#) last modified June 21, 2019.
- [9] [“Staffing and Recruiting Industry Market Size in the United States from 2012 to 2021,” Statista](#), last modified June 18, 2020.
- [10] [Josh Bersin, “HR Technology Market 2019: Disruption Ahead,”](#) last modified January 27, 2019.
- [11] [“Online Recruiting Sites in the U.S.: Market Size 2005-2025,” IBISWorld](#), last modified December 31, 2019.
- [12] [“COVID-19 Coronavirus: Facts and Figures,” Statista](#), last modified September 18, 2020.
- [13] Joe Galvin, [“How to Prepare for Hiring in the Post-Pandemic World,” Inc](#), last modified May 16, 2020.
- [14] Robin Ryan, [“How the Coronavirus Is Changing Hiring and Recruiting Going Forward,” Forbes](#), last modified May 27, 2020,
- [15] Scott Steinberg, [“Coronavirus Hiring: How Recruiters Are Selecting and Interviewing Job Candidates During the Pandemic,” CNBC](#), last modified May 24, 2020.

05

**TALENT ASSESSMENT
MARKET SIZE AND
GROWTH**

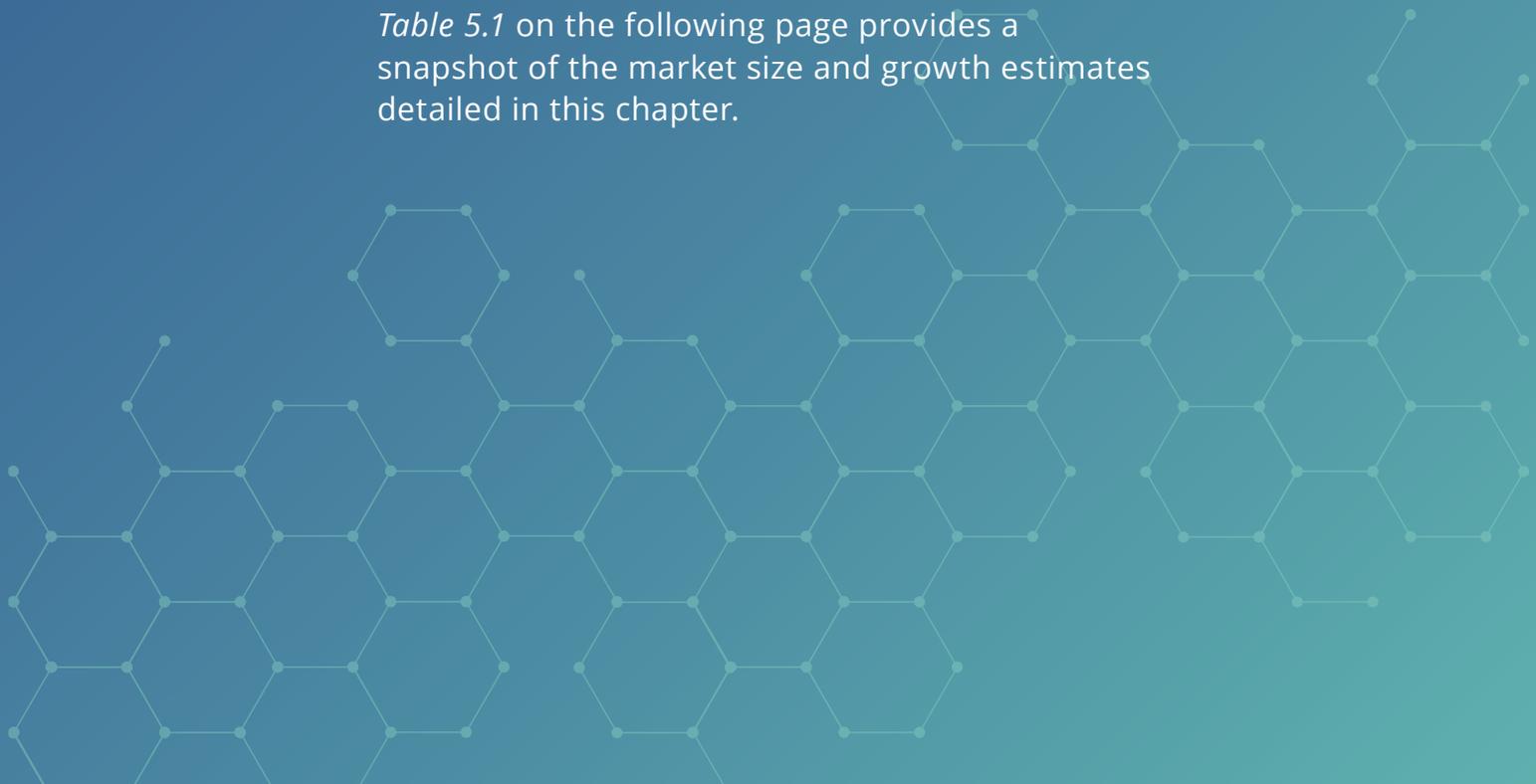


IN THIS CHAPTER

Talent assessment tools include much more than just employment tests. For this report we utilize an expanded definition of talent assessment that includes any source of data that is used to predict future job success for job applicants and current employees.

Assessments have a very long and well-documented history of creating value for those who choose to use them properly. The known value of predictive hiring tools and the emergence of new technologies in the space has created a very strong market for talent assessments that continues to grow more rapidly than we predicted in 2015. And, despite a short-term decline due to COVID-19, we expect to see the assessment market continue to grow over the next five years.

Table 5.1 on the following page provides a snapshot of the market size and growth estimates detailed in this chapter.



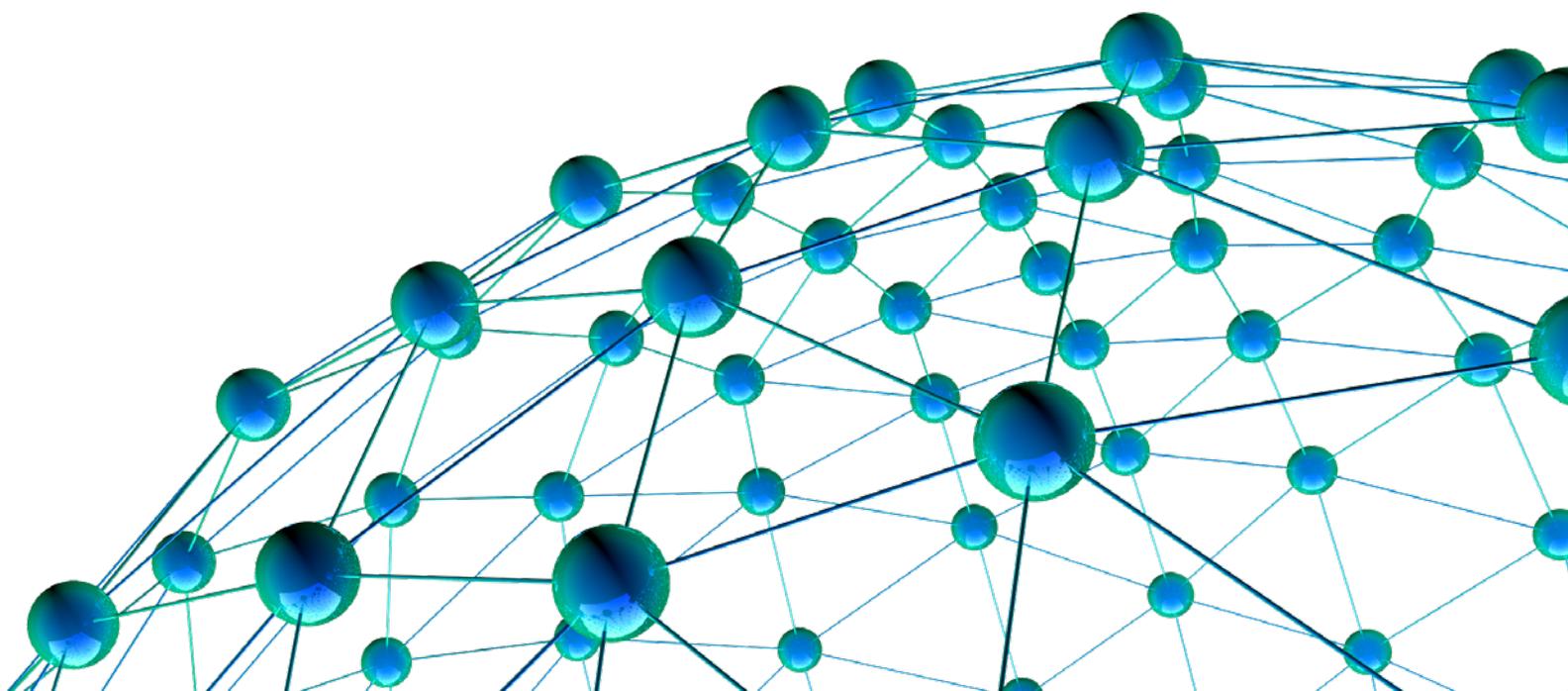
Summary of Our Talent Assessment Market Size and Growth Estimates
 (as presented and explained in this chapter)

ESTIMATE OF GLOBAL TALENT ASSESSMENT MARKET SIZE AND GROWTH: 2020

Table 5.1: Overview of Market Size and Growth Estimates

	PRE-HIRE	POST-HIRE	TOTAL
2015 Market Size Estimate	\$1.25B	\$1.75B	\$3B
2020 Market Size Estimate	\$2.48B	\$1.97B	\$4.45B
Projected CAGR for 2015-2020 (2015 Report)	14.9%	7.4%	10.8%
Actual CAGR (based on 2020 data)	14.69%	2.4%	8.21%
Total Increase	98.4%	12.57%	48.33%
Projected Value: 2025 (using 2020 CAGR estimates)	\$4.92B	*\$2.22B (2.4% CAGR) – \$3.91B (7.4% CAGR)	\$6.6B – \$8.83B

*Since actual CAGR is likely higher than 2.4%, projections were also run using the 7.4% CAGR estimated in 2015.



PRE-HIRE TALENT ASSESSMENT MARKET SIZE AND GROWTH

Talent assessment has been around since the Chan Dynasty of ancient China (1115 BC) when candidates for civil service jobs were required to complete a competitive testing process to evaluate their abilities in areas critical for success on the job (i.e., horsemanship, military affairs, civil law, writing, and arithmetic).^[1]

The core concepts behind assessment's value proposition of predicting job success have not changed in almost 3,000 years. Here in 2021, because it introduces a science-based toolset that has a direct and measurable impact on mission critical outcomes, talent assessment continues to establish itself as an important part of the hiring process for organizations of all sizes across the globe.

We are entering into an exciting time in the evolution of talent assessments. The integration of proven science and new technologies is helping reduce friction in configuring and deploying assessments while increasing levels of accuracy extending assessment's value proposition.

The talent assessment space is recognized as a leading area of innovation within the HCM/HR tech market. According to a recent report by Ithaka S+R,

"Assessment technology, a segment within the Talent Acquisition market, is primed to be one of the biggest areas for innovation in this sector."^[2]



The increasing value-add of assessments has not gone unnoticed as investment is pouring into this market segment. *With almost \$2 billion invested in the past five years (according to our data), it is no wonder that renowned HR technology analyst Josh Bersin is predicting that: **We can expect a new war for assessment technology to emerge again.***^[3]

While there is great momentum behind talent assessment, it remains a very challenging subject for analysts, investors, and end users alike.

More so than most other areas of HR, the inner workings and methodologies of assessment are a mystery to the untrained eye. With the complexity of psychometrics, AI, and stricter regulations by governments worldwide, it is no wonder that the realm of assessments has been closely guarded by a seemingly increasingly-iconoclastic brain trust.

The talent assessment market is also extremely fragmented, with a growing array of predictive tools and methodologies available. Throw in

technologies that are creating entirely new categories of tools — and the uncertainty caused by the COVID-19 pandemic — and it is easy to see how tracking the market requires continual attention and deep domain expertise.

This chapter combines Rocket-Hire's decades of experience studying the talent assessment market with our vendor database to tell the story of the growth of the talent assessment market in the five years since our last report, summarize the size of the market in 2020, and predict market growth over the next five years.

TALENT ASSESSMENT DEFINED

Before looking at the commercial market for talent assessment tools, it is important to clearly define what is meant by the term **talent assessment**.

The domain of tools that are considered to be talent assessments includes more than just employment tests. An understanding of the entire domain is important because all tools falling under this definition are subject to the various government regulations with which all hiring practices must comply. Here in the United States, the EEOC's Uniform Guidelines for Employee Selection Procedures (UGESP)^[4] define what is legally acceptable when it comes to making hiring decisions. The UGESP broad definition of what is considered an assessment states the following:

"...all selection procedures used to make employment decisions, including written tests, interviews, review of experience or education from application forms, résumés, work samples, physical requirements, and evaluations of performance."

The UGESP also presents a broad definition of what constitutes an *employment decision*, stating:

"Employment decisions include, but are not limited to, hiring, promotion, demotion, membership (e.g., a labor organization), referral, retention, and licensing and certification."

The fact that the UGESP has not been updated since its creation in 1978(!) does not mean that newer AI-based hiring tools are exempt from its jurisdiction. While newer technology-enabled assessments are not listed by name in the UGESP, as long as the use case for a predictive tool involves making *employment decisions* it is considered to be an assessment and is subject to the same standards as traditional assessments.

OUR WORKING DEFINITION OF TALENT ASSESSMENT

Using the UGESP and a deep knowledge of the talent assessment market, the working definition we used to determine a vendor's suitability for inclusion in our database and analysis is:

"...any company that offers tools for screening (via AI or manual methods), testing, interviewing, or systematically evaluating the potential of job applicants and employees. This includes tools for testing, screening, and matching employees that are embedded into larger platforms such as recruitment process outsourcing and talent marketplaces."



Given this expanded definition of talent assessment, in addition to traditional assessment tools such as tests and interviews, our database also includes vendors of recruitment process automation (RPA) tools that perform functions that fall under our definition of the term assessment (i.e., screening, matching, interviewing).

TYPES OF ASSESSMENTS AND THEIR WORKING DEFINITIONS

The major categories of assessments that are coded in our database, along with a few examples of the types of assessments in each category, are listed below. For the complete list of categories and assessment types, see Appendix B.

CUSTOM ASSESSMENTS

Tools or platforms that allow for the creation of custom assessments and batteries of assessments from multiple providers. Examples include:

- ✔ Assessment Authoring Platforms
-

DIGITAL ASSESSMENTS

Assessments based on AI or other advanced technologies (such as Virtual Reality). Includes tools that perform various functions within Recruitment Process Automation (e.g., job matching, screening, etc.). Examples include:

- ✔ AI-based Screening
 - ✔ AI-based Digital Interviews
-

INTERACTIVE ASSESSMENTS

Assessments that provide a high level of engagement, requiring the test-taker to do more than click on radio buttons. Examples include:

- ✔ Game-based Assessments
 - ✔ Job Simulations
-

OTHER TYPES OF ASSESSMENTS

Relatively unique assessments that are not common enough to have their own category. Examples include:

- ✔ Career Interest Inventories
 - ✔ Reference Checking
-

PACKAGED/POINT FOCUSED ASSESSMENTS

Assessments that are designed for specific jobs, roles, or environments – often combining content from other categories such as traditional assessments – into a packaged format. Examples include:

- ✔ Graduate Assessment
 - ✔ Role/Industry-based Solutions (e.g., sales, customer service, technician, etc.)
-

SKILLS/KNOWLEDGE BASED ASSESSMENTS

Assessments that measure specific technical knowledge-based and skills. Examples include:

- ✔ IT/Coding Assessment
 - ✔ Knowledge/Skills Assessment
-

TRADITIONAL ASSESSMENTS

The most common assessment types that have traditionally made up the bulk of the offerings in the market. Examples include:

- ✔ Personality Assessment
- ✔ Cognitive Assessment
- ✔ Culture Fit Assessment

VALUE PROPOSITION FOR ASSESSMENTS

Over a century of data suggests that talent assessments offer a highly effective way for organizations to create value through their hiring processes. Assessment's value proposition lies in its ability to measure a person's knowledge, skills, abilities, and other attributes (KSAOs) and use the results to support a standardized process of informed decision-making.

Assessments based on psychometric science provide organizations with a reliable and accurate way to systematically evaluate an applicant's ability to successfully perform a specific job while fitting into a specific organization.

ASSESSMENT PROVIDES DIRECT AND IMMEDIATE BUSINESS IMPACT BY:

Identifying Top Talent Efficiently and Accurately. Automating sorting to reduce workload on talent assessment while sensing for quality adds efficiency to the hiring process.

Increasing Productivity. Assuring that employees are a good fit for the job and the organization has a significant and positive impact on an organization's ability to create value.

Supporting Insight. Providing diagnostic data is an important ingredient in large-scale people analytics for the short and long run.

ASSESSMENT SUPPORTS THE HUMAN EXPERIENCE BY:

Providing Reliable Data on Individual Differences. Applicants' characteristics are compared to organizational needs, allowing insight into foundational soft skills needed for future success.

Providing a Foundation for Personalized Growth and Development. A foundation for *self-skilling* and reskilling is created via critical inputs to personalize and shape investment in employee growth.

Creating Alignment. Employers and workers bond through shared values.

Driving Engagement. Research shows that a great experience in the hiring process leads to increased job satisfaction, commitment, and longevity. Assessment gets a bad rap when it comes to candidate experience. Data shows that candidates prefer the opportunity to showcase their talents and feel favorably about assessment when the experience is properly framed.

Specific examples and case studies of ROI realized by assessment tools, including the value returned via the efficiency provided by automated AI-based tools, are readily available from most vendors in this space and are beyond the scope of this report. In order to maintain a neutral stance, we have chosen not to include outcomes data provided by vendors in the present report; instead, we focus on more general information about why assessment is effective as well as evidence from research reports by third parties.

Several recent survey efforts clearly show the value assessments can add. For instance, a recent survey by Aptitude Research Partners^[5] found that:

According to Aptitude Research, companies that invest in assessments are:

4x

more likely to improve
quality of hire

3x

more likely to improve
retention

42%

more likely to improve the
candidate experience

A 2017 study by Aberdeen^[6] provides additional evidence for the value of assessments, finding that *best-in-class organizations* were:

- ✔ **36%** more likely than all others (85% versus 54%) to use pre-hire assessments to drive consistent flow of information in the hiring process.
- ✔ **22%** more likely than all others (73% versus 57%) to value assessments as having a medium to high impact on improved revenue per Full-Time Employee (FTE).

The results of a research study conducted by Boris Groysberg^[7] and his colleagues published in Harvard Business Review provides strong evidence of assessment's value proposition. Groysberg writes:

"..improving the quality of assessments is three times more profitable than increasing the size of the candidate pool — and six times more profitable than getting the chosen candidate to accept a lower compensation package.

A good assessment yields more than a good candidate — it can actually improve the company's bottom line and market value in a very significant way. Specifically, a company can increase its yearly profits and market value by about a third through the disciplined generation and assessment of candidates for a CEO position. The typical cost of a search (with or without professional external recruiters) is negligible when compared with the expected return on investment in candidate assessment. Even for a small company — say, one with a market value of \$100 million — a 10% improvement in the quality of candidate assessments would have an expected return of almost \$2 million in additional profits per year and mean an increase in market value of \$30 million to \$40 million."

It is clear that assessment uses a proven formula that has consistently generated successful outcomes for companies of all sizes across the globe. A long history of success, along with advances in technology that have lowered the barriers to adoption, have fueled the continued growth of the talent assessment industry. The remainder of this section summarizes the size and continued growth of the talent assessment market.

TALENT ASSESSMENT MARKET SIZE AND GROWTH: 2015-2025

In this section we review the market size and growth estimates from our 2015 report and use data collected in 2020 to evaluate the accuracy of our predictions, present market size and growth estimates for 2020, and make predictions about market size in 2025.

ESTIMATING THE SIZE OF THE TALENT ASSESSMENT MARKET IS A DIFFICULT TASK

While there is significant reason to believe talent assessment's value proposition, there is little published information available about its market size. In 2015, we suggested the size of the talent assessment market was hard to estimate because:

- ✔ Few talent assessment companies are public — in fact, the majority are very small.
- ✔ Vendors who sell talent assessments often sell a range of other products so revenues from assessment are hard to isolate.
- ✔ The talent assessment market is very fragmented — there is huge variation in product type and quality — and it is difficult to define, break down, and track the market.
- ✔ It is very hard to tease apart revenues from pre- and post-hire assessments since many companies do both.

The exercise of tracking, classifying, and estimating the market for assessment has grown exponentially harder since our last report in 2015 due to:

Increased fragmentation in the market. The assessment market is more fragmented now than ever. Predictive decision-making tools for use in the hiring process have become part of broader products and solutions (e.g., RPA, talent marketplaces), and many vendors sell a wide variety of other products and services besides assessments.

Increased difficulty separating pre- and post-hire revenues. Many vendors of pre-hire solutions have expanded their product offerings to include post-hire assessments (and vice versa). Without revenue breakdowns from individual providers around their pre- versus post-hire sales, it is hard to determine how much of total revenue is accounted for by each type.

Increased number of mergers and acquisitions. Mergers and acquisitions change the landscape of a vendor's product mix and often result in assessment revenues being combined with revenues from other sources. As the market continues to consolidate, tracking revenues contributed by assessments becomes increasingly difficult.

Increased number of vendors. The entry into the assessment/predictive hiring space is unprecedented. Our research shows an astonishing 62 entrants into the space since 2015. This represents almost 25% of our total sample. It is hard to keep up with the rapid pace of new entrants into the marketplace, making comprehensive estimates difficult.

Impact of COVID-19. The fluid situation created by COVID-19 means that all projections of market size in the second half of 2020 and into 2021 must be viewed as subject to change.

Despite the challenges in estimating market size, Rocket-Hire's market expertise and the information in our database provide access to enough credible information to generate realistic estimates of market size/growth and a solid identification of the trends shaping the future of this market segment.

The remainder of this section provides a summary of our market size and growth estimates for the period of 2015-2025.

IN 2015, WE ESTIMATED THE TALENT ASSESSMENT MARKET SIZE AND GROWTH AS FOLLOWS:



The **overall** global market for talent assessment in 2014 and 2015 across both talent acquisition and talent management (i.e., post-hire) is somewhere around **\$3 billion**.



We expect significant growth in the range of 15-20% over the coming five years as new technologies find their way into the space and distribution channels continue to open up.



Based on the very real and present trends we have identified, we expect the overall talent assessment market (combined pre- and post-) to top **\$5 billion** by 2020.



When focusing on talent assessments used **pre-hire**, we feel the market is around **\$1.25 billion** — or slightly less than half (around 40%) of the overall market for talent assessments.



We believe that the **pre-hire talent assessment market** will experience the most growth (versus the post-hire market) over the coming five years. We estimate this market for **pre-hire assessments** to grow to well over **\$2.5 billion by 2020** and move past post-hire talent assessment to represent over 50% of the overall market for talent assessments by 2020.

Our 2015 estimates were calculated using a relatively simple approach in which we summed our best estimates of the revenues for the approximately 50 vendors in our database at that time. We then added to this sum a rough estimate of the revenue contributed by unknown vendors in each of three size categories (small, medium, and large).

Our market size estimates for 2020/2021 are more complete, and likely more accurate, than those made in 2015 because they are based on more thorough research and include a more comprehensive sample (245 vendors as of January 2021).

IMPACT OF COVID-19

At the time this report was written (January 2021), the uncertainty presented by COVID-19 makes any market size estimate subject to a great deal of change (either for the positive or negative). The estimates provided in this section do not account for the pandemic, as estimating the impact of COVID-19 thus far is next to impossible.

In keeping with the theme from our estimates of the HR tech and talent acquisition markets, we expect the market for assessments to dip into 2021, but expect the potential for usage rates that are potentially greater than would be predicted pre-COVID-19. This is due to the importance of hiring for companies who are restaffing and evolving their businesses in new directions, and continued investment in the development of existing employees. Our thoughts on the specific impact of COVID-19 on the assessment market are provided throughout this report.

PUBLISHED ESTIMATES

There are almost no published estimates of the talent assessment market size to be found in 2020.

The lone estimate provided by Insight Partners in 2018 — was not created by market experts and is not based on a comprehensive list of vendors — estimated the market size and growth as follows:

The global corporate assessment services market was valued at \$2.71 billion in 2018 and is expected to reach \$4.69 billion by 2027 with a CAGR growth rate of 6.5% in the forecast period from 2019 to 2027.^[8]

ROCKET-HIRE'S 2020/2021 MARKET SIZE ESTIMATES

Our estimates are summarized below:

MARKET SIZE FOR VENDORS IN OUR DATABASE

(includes both vendors offering only pre-hire assessments and those offering both pre- and post-hire assessments)

Simply summing the revenues for the 245 vendors in our database suggests a market size of \$2.59 billion.

However, this figure does not present a complete picture of the market because it does not account for revenues contributed by unknown vendors, nor does it provide separate estimates for the individual contributions of both pre- and post-hire assessment to the overall market size.

MISSING VENDORS

We acknowledge that there are likely to be a good number of vendors whom we have yet to identify. The revenue from these vendors represents a meaningful addition to overall market size estimates. To ensure our estimates provide a complete picture of the market, we created logic to calculate:

- ✔ Revenue contributed by missing vendors representative of the vendors in our database (i.e., vendors selling either pre-hire assessment only or vendors selling both pre- and post-hire assessments).
- ✔ Revenues contributed by vendors who sell only post-hire assessments.

In both cases, we used data and trends from our existing database to project the number of missing vendors in both categories and estimate the revenue they contribute.

PRE- VERSUS POST-HIRE USAGE RATES

Forty-eight percent (48%) of the vendors in our database sell ONLY pre-hire assessments. Interestingly, these firms account for \$677.4 million which is only about 25% of the overall revenue for firms in our database (versus \$2.24 billion for the 52% of the sample offering both pre- and post-hire assessments). This suggests that the bulk of market value comes from vendors who sell both pre- and post-hire assessments (we refer to these as “blended vendors”).

With so much of the revenue in the assessment market coming from blended vendors, creating separate estimates for both the pre- and post-hire assessment market segments is difficult and requires an understanding of the relative usage rates for both pre- and post-hire assessments.

Estimating the independent contributions of pre- and post-hire assessments to the overall market size is a difficult undertaking because:

- ✔ For blended vendors, it is difficult to tease apart the relative contribution of each type to their overall revenues. There is a great deal of variation in the relative contribution of revenue from pre- versus post-hire assessments across the vendors in our sample. For instance, it is very common for firms that focus on pre-hire assessment to offer a developmental version of these assessments. Creating post-hire versions of pre-hire assessments is relatively easy because it typically requires only the development of a separate report and scoring. On the other hand, many of the larger HCM-focused firms that provide assessments for the development of existing employees derive much more revenue from post-hire assessments.
- ✔ Secondly, our research focuses on pre-hire assessments and thus does not include vendors who offer only post-hire assessments. Our process for estimating revenue from these vendors is likely to be somewhat imprecise as they are based on the data we have in hand and our experience and expertise, versus dedicated research into the post-hire assessment market.

While far from a perfect indicator of the relative contribution to overall assessment market size accounted for by pre- and post-hire assessments, it is logical that revenues contributed by each type of assessment closely follow their usage rates. In the absence of concrete data, existing research into the relative usage of pre- versus post-hire assessments provides important inputs to our estimation process.

- ✔ A 2018 study by Mettl^[9] (a provider of assessments) found that 80% of talent assessments are being done at the recruitment stage while only 20% are focused on post-hire learning and development.
- ✔ Another study conducted in 2018 by SHL,^[10] another provider of assessments, found that fewer respondents reported using assessments for development (60%) compared to using assessments for hiring (93%).

Taking the variation in these estimates into account, for the purposes of this study we assume a 70/30 split (70% of assessment usage is pre-hire versus 30% for post-hire). This is higher than the 50/50 ratio we expected to see in 2020 based on our 2015 growth estimates, but is substantiated by market dynamics that have exceeded our past market size estimates.

Our estimated 70/30 ratio of pre- to post-hire assessment usage is an essential part of our calculations for the size of both the pre- and post-hire markets as presented below.

PRE-HIRE ASSESSMENT MARKET SIZE ESTIMATE: 2020/2021

Table 5.2 summarizes our estimates for the size of the pre-hire assessment market at the time of this report, and includes a confidence interval that accounts for a 20% margin of error in our calculations.

Table 5.2: MARKET SIZE FOR PRE-HIRE ASSESSMENT	
Revenue from firms offering only pre-hire assessments +	\$677M
Pre-hire revenue from unknown vendors +	\$232M
Pre-hire revenue from blended vendors	\$1.57B
Total Market Size of:	\$2.48B
Range (±20% margin of error)	\$1.98 – \$2.97B

POST-HIRE ASSESSMENT MARKET SIZE: 2020/2021

Table 5.3 summarizes our estimates for the size of the post-hire assessment market in 2020, and includes a confidence interval that accounts for a 20% margin of error in our calculations.

Table 5.3: MARKET SIZE FOR POST-HIRE ASSESSMENT	
Revenue from unknown post-hire vendors +	\$1.3B
Post-hire revenue from blended vendors +	\$672M
Total Market Size of:	\$1.97B
Range (±20% margin of error)	\$1.58 – \$2.36B

OVERALL COMPREHENSIVE MARKET ESTIMATE

To arrive at the grand total for market size in 2020/2021, we simply added up our estimates of pre- and post-hire market size — revenue from pre-hire (\$2.48 billion) + revenue from post-hire (\$1.97 billion) — to arrive at an overall estimated market size for talent assessment of \$4.45 billion.

We recognize that our estimation efforts are not perfect. To account for potential error in our estimates we created a confidence interval using a 20% margin of error, **suggesting an overall market size that ranges from \$3.56 billion to \$5.34 billion.**

TALENT ASSESSMENT MARKET GROWTH: 2015-2025

Our 2015 and 2020 market size estimates provide the ability to calculate estimates for the CAGR for the overall assessment market and the individual markets for both pre- and post-hire assessments for the period of 2015-2020. These figures also allow us to predict the growth of these markets in the coming five years (2020-2025). The table below summarizes these estimates.

Table 5.4: Overview of Market Size and Growth Estimates

	PRE-HIRE	POST-HIRE	TOTAL
2015 Market Size Estimate	\$1.25B	\$1.75B	\$3B
2020 Market Size Estimate	\$2.48B	\$1.97B	\$4.45B
Projected CAGR for 2015-2020 (2015 Report)	14.9%	7.4%	10.8%
Actual CAGR (based on 2020 data)	14.69%	2.4%	8.21%
Total Increase	98.4%	12.57%	48.33%
Projected Value: 2025 (using 2020 CAGR estimates)	\$4.92B	*\$2.22B (2.4% CAGR) – \$3.91B (7.4% CAGR)	\$6.6B – \$8.83B

*Since actual CAGR is likely higher than 2.4%, projections were also run using the 7.4% CAGR estimated in 2015.

SUMMARY: OVERALL MARKET GROWTH

The uncertainty created by the COVID-19 pandemic makes predicting market growth in the coming five years extremely difficult. Due to this uncertainty, we chose to use the 8.21% CAGR we calculated for the period of 2015-2020 (versus predicting a new one) to compute our projected 2025 market size because it is a conservative and credible estimate that reflects the status quo.

Our estimates for overall market growth reveal that:

- While our 2020 CAGR estimate of 8.21% is lower than the 10.8% we predicted in 2015, our current estimate still suggests very strong growth, projecting the overall market size for talent assessment in 2025 to be between \$6.6 billion and \$8.83 billion.
- Our estimate of a 8.21% CAGR indicates that the overall talent assessment market has doubled in size over the past five years.
- In 2015 we predicted that the unique contributions to overall market size from pre- and post-hire assessments would shift from 60% post-, 40% pre- to an even 50/50. Our 2020 estimates suggest this figure is closer to 60% pre- and 40% post-hire.

SUMMARY: PRE-HIRE GROWTH

Our estimate of 14.69% CAGR for the pre-hire market seems to be credible and consistent with our 2015 estimate of 14.9%. Our current estimated CAGR suggests that the talent assessment market has grown at a rate that is similar, if not a bit higher, than the HR tech and talent acquisition markets in which it is nested (both of which grew at around 10% CAGR over the past five years).

While COVID-19 makes it hard to predict the extent of growth for the pre-hire assessment market in the next few years, the continued importance of hiring to business survival suggests a strong growth rate. We estimate the pre-hire market to grow at between 10% and 15% in the coming five years, suggesting a market size of **between \$3.99 billion to \$4.92 billion in 2025**.

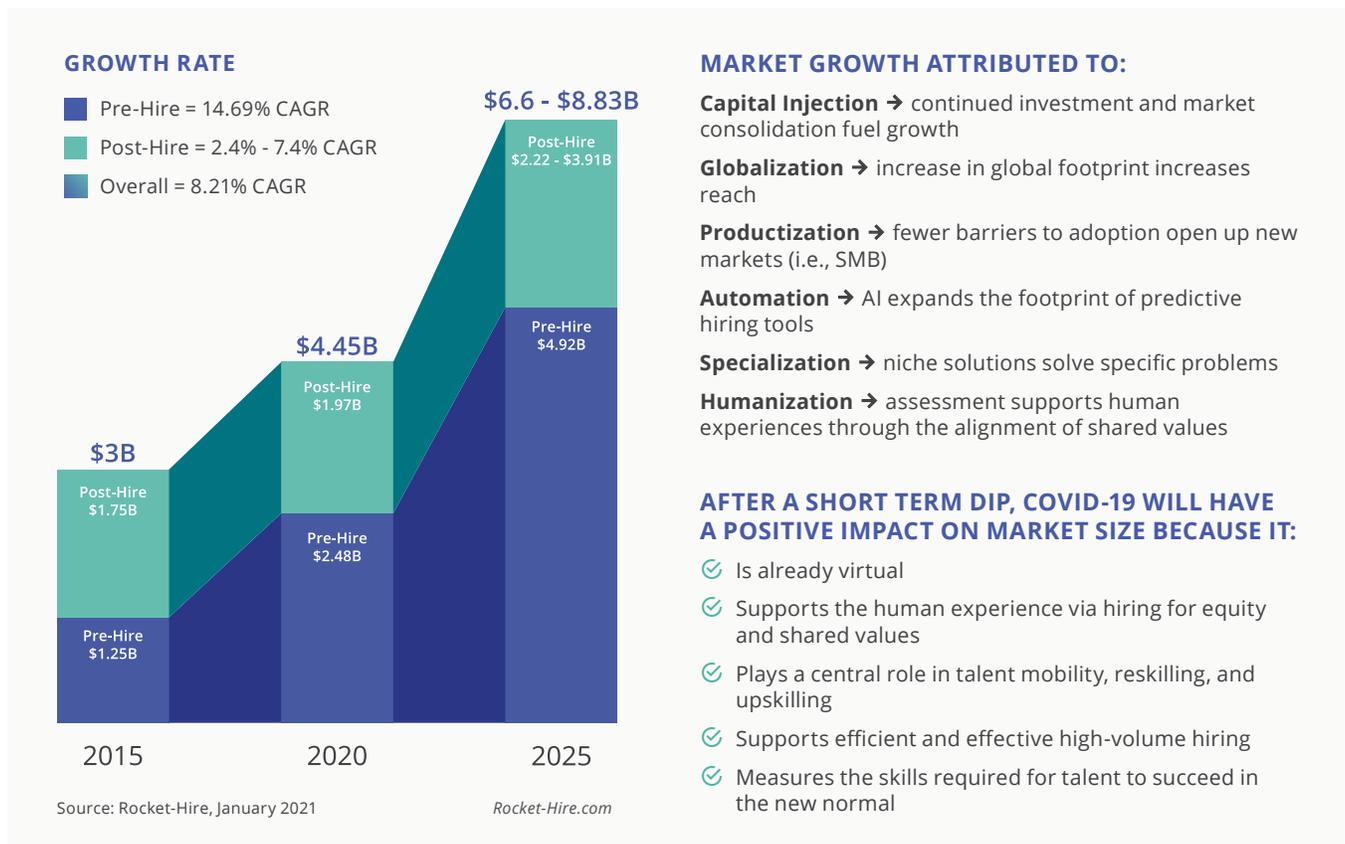
SUMMARY: POST-HIRE GROWTH

While COVID-19 makes it difficult to project market size in 2025, the value of assessments for retaining existing top talent and providing them with increased opportunities for development and re-skilling suggests a bright future for post-hire assessments.

Given our focus on pre-hire, the difficulty estimating the post-hire market, and the positive outlook for post-hire assessments, our estimated CAGR of 2.4% for post-hire assessments is likely on the low side. The real growth rate is more likely to be similar to the 7.4% we predicted in 2015, **suggesting a potential market size of between \$2.22 billion (2.4% CAGR) and \$3.91 billion (7.4% CAGR) in 2025**.

Figure 5.1 provides a summary of talent assessment market size and growth estimates from 2015 to 2020 and provides projections for 2025.

Figure 5.1: Talent Assessment Market Size and Growth: 2015-2025



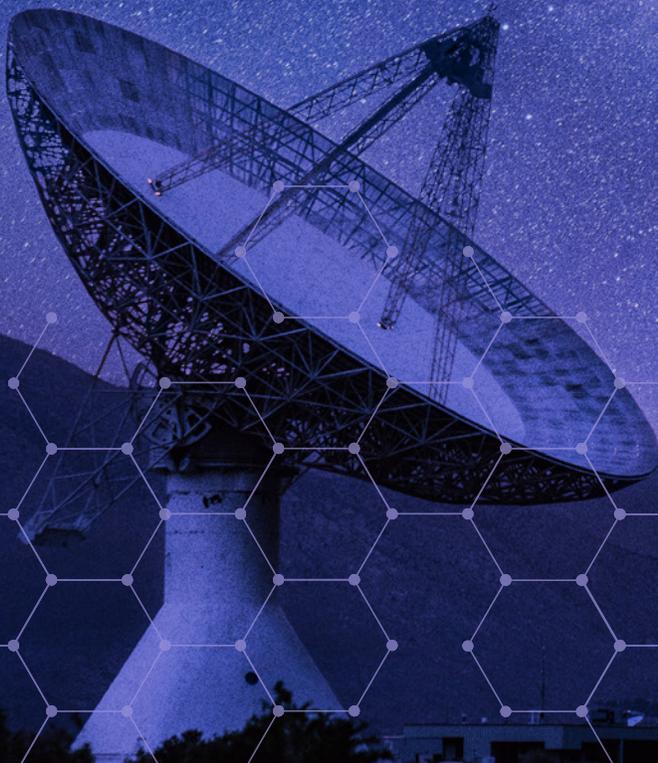
The next chapter looks back at the trends we predicted would fuel market growth in 2015 and uses the data we collected in 2020 to evaluate the accuracy of our predictions and suggest reasons for continued market growth over the coming five years.

ENDNOTES

- [1] [“The Value of Assessments in Talent Selection and Development,”](#) Mercer, 2012.
- [2] [Meagan Wilson, Martin Kurzweil, and Rayane Alamuddin, “Mapping the Wild West of Pre-Hire Assessment: A Landscape View of the Uncharted Technology-Facilitated Ecosystem,”](#) Ithika S+R, last modified December 11, 2018.
- [3] [Josh Bersin, “HR Technology Market 2019: Disruption Ahead,”](#) last modified January 27, 2019.
- [4] [“Uniform Guidelines on Employee Selection Procedures,”](#) Biddle Consulting Group, 2018.
- [5] Madeline Laurano, [“The Future of Pre-Hire Assessments: Business Outcomes, Candidate Experience, and Predictive Analytics,”](#) Modern Hire, October 2019.
- [6] [“Pre-Hire Assessments: The First Test to Understanding the Candidate,”](#) Aberdeen Group, 2017.
- [7] Boris Groysberg, Nitin Nohria, and Claudio Fernández-Aráoz, [“The Definitive Guide to Recruiting in Good Times and Bad,”](#) Harvard Business Review, 2009.
- [8] [“Corporate Assessment Services Market to 2027: Global Analysis and Forecast by Product \(Cognitive, Personality, Knowledge, Performance, Company Fit, Others\); Application \(Campus Recruitment, Entrance Assessment Services, Recruitment & Promotion Assessment Services, and Certification Assessment Services\); Hiring Phase \(Pre-Hire, and Post-Hire\); Hiring Level \(Executive, Entry Level, Professional, and Others\),”](#) The Insight Partners, January 2020.
- [9] [“Talent and Assessment Study 2018: Key Trends, Challenges, and Best Practices to Hire and Retain Top Talent,”](#) Mettl, last modified 2018.
- [10] Tracy Kantrowitz, Kathy Kuzinski, and Justin Raines, [“2018 Global Assessment Trends Report,”](#) SHL, 2018.

06

**OVERVIEW OF THE TRENDS
DRIVING MARKET GROWTH**



IN THIS CHAPTER

The rapid growth of the talent assessment market can be attributed to a variety of factors — many of which we have been tracking since our last report in 2015.

Most of the trends we identified as driving market growth in 2015 have indeed made a significant impact, while several new trends have also made a contribution.

The data captured in our database allows us to look at these trends objectively — an exploration that has yielded the valuable insights discussed in this chapter.

These insights all point to an industry that, while thriving, is at crossroads between newer vendors offering AI and advanced technologies and older vendors of more traditional psychology-driven tools.

As evidenced by what our data says about the growth trends summarized in this chapter — no matter what transpires in the coming years when it comes to tensions between old and new — interest in predictive hiring tools will not slow down anytime soon.

Finally — this chapter includes a series of relatively in-depth *stories* about assessment's role in supporting humanistic trends that are shaping the future of work (i.e., reducing bias, increasing opportunities for those marginalized by traditional pathways to employment, and an evolved and more inclusive definition of cultural fit).

OVERVIEW OF THE GROWTH TRENDS DISCUSSED IN THIS CHAPTER

GROWTH TREND #1: CAPITAL INJECTION

Through acquisitions and investment, growth in the assessment space is being fueled by outside capital that recognizes its long-term potential.

SUPPORTING FACTORS:

- A. Acquisitions.** In the past five years there have been 38 acquisitions of companies offering predictive hiring tools worth approximately \$2.5 billion.
- B. Investment.** In the past 10 years, 36% of all providers in our database have received investments totalling \$1.7 billion.

GROWTH TREND #2: GLOBALIZATION

Talent assessment is a global industry whose footprint in markets outside the US is growing.

SUPPORTING FACTORS:

- A. Global footprint.** Providers in our database represent 22 different countries.
- B. Global distribution.** 67% percent of these providers sell assessments outside their own countries.

GROWTH TREND #3: PRODUCTIZATION

Providers, including an increasing number of newer firms started by persons outside of the testing industry, are going after new revenue streams by creating easy-to-use, inexpensive platforms designed to serve SMBs (including the mid-market).

SUPPORTING FACTORS:

- A. Focus on SMB.** 56% of all providers in our database serve SMBs (among other size companies).
- B. Transactional sales.** 49% of these providers offer transactional products to SMBs.
- C. Product innovation led by newer, non-traditional companies.** Providers five years old or newer are three times more likely to offer digital tools (but are 15 times more likely to be seen having a high degree of risk).

GROWTH TREND #4: AUTOMATION

Despite a lack of psychometrics and higher levels of perceived risk, newer firms offering AI-based Recruitment Process Automation (RPA) are creating efficiencies which are valued by the market.

SUPPORTING FACTORS:

- A. Newer firms.** 92% of firms offering RPA are under 10 years old.
- B. Without psychometrics.** 73% of these firms do not use psychometric tools as part of their process.
- C. Increased risk.** 50% of vendors offering RPA are seen as high risk — but the market does not care.



GROWTH TREND #5: SPECIALIZATION

Smaller providers offering specialized solutions make up a significant portion of the market. These providers are finding increased opportunities to solve problems via their point solutions, often via integration into the vendor ecosystems of ERP and HCM platform providers.

SUPPORTING FACTORS:

- A. Niche providers.** 31% of the market is made up of specialty providers offering one of 22 different specialties, 60% of which employ fewer than 25 people.
- B. ERP/HCM integration.** Large platform providers have chosen to plug assessment into their vendor ecosystems instead of building or acquiring it.



GROWTH TREND #6: HUMANIZATION

Assessment is an essential tool in creating meaningful bonds between employers and their workers because it can level the playing field for non-traditional job seekers, reduce systematic bias in hiring decisions, support inclusive hiring based on shared values, and help close the “opportunity gap” by supporting career empowerment.

SUPPORTING FACTORS:

- A. Level playing field.** Assessment provides fair and objective signals of employability.
- B. Reduced bias.** Assessment has a role in reducing bias.
- C. Culture fit.** Assessment can ensure hiring for fit is objective and inclusive.
- D. Career empowerment.** Skills assessment can help close the skills gap and create opportunity for those who show potential.

OVERVIEW OF THE TRENDS DRIVING MARKET GROWTH

Our 2015 report summarized a number of trends that provide reason to be optimistic about continued growth in the talent assessment market. The data we collected 2020 provides insights about how these trends have played out and provides a foundation for predictions for the coming five years.

This chapter offers an overview of the trends we feel will drive market growth over the coming years by revisiting our predictions from 2015, suggesting new trends not identified in 2015, and predicting how these trends will shape the market in 2025.

This chapter does not:

- ☑ Provide evidence of the efficacy of assessments as a way to justify continued market growth. This information is summarized in the previous chapter and is an assumed foundation for the growth trends discussed in the present chapter.
- ☑ Provide information about trends in the evolution of assessments themselves (i.e., new assessment formats, methodologies). These trends are discussed briefly in a subsequent chapter and in more detail in the Vendor Research Portal that accompanies this report.

Before we review the trends that will continue to define market growth, it is worth looking at factors that might potentially constrain it, beginning with a review of some of the limiting factors we identified in our 2015 report.

IN 2015, WE PREDICTED THE FOLLOWING FACTORS AS POTENTIAL LIMITATIONS TO MARKET GROWTH

ASSESSMENT CONTINUES TO BE A HARD SELL AT THE ENTERPRISE LEVEL	2020/2021 update → Not a significant limitation. While this prediction remains somewhat true, it has not been a significant limitation because providers are supplementing their enterprise sales by offering transactional products designed to tap into the mid-market/SMBs.
ASSESSMENT IS BECOMING COMMODITIZED	2020/2021 update → Not a significant limitation. While commoditization has continued, the market is shifting away from selling tests to selling data that supports predictive decision-making via full service platforms. While inexpensive assessments have saturated the market, they have also led to increased usage by tapping into significant opportunities downmarket.
ASSESSMENTS STILL LOOK (MOSTLY) OLD FASHIONED	2020/2021 update → Not a significant limitation. While there have been some encouraging bright spots in the development of new and interesting assessment modalities, the majority of the assessments used today look the same as they did five years ago. The slow development of new modalities has not limited interest in assessments.
INCREASING PRESSURE FOR MOBILE ASSESSMENTS REMAINS UNMET	2020/2021 update → Not a significant limitation. While some assessment formats are impossible to replicate on a small screen, 95% of providers offer solutions that work well on mobile devices.

The potential limiting factors carried over from our 2015 report, as discussed above, are relatively narrow in focus. With all that is going on in the world in 2020/2021, it is appropriate to look more broadly at the global context when examining potential limitations to market growth.

Here in 2020/2021, macro-level reasons for potentially short-selling this market include:

- ☑ **Severe global crisis.** Devastating events such as the continued grip of COVID-19 (or another pandemic), a large-scale natural disaster, or a world war all have the potential to devastate the global economy. Of course, these things have presented a danger to almost every market in the global economy for centuries, and thankfully the odds of them occurring are relatively low.
- ☑ **Assessment proper becomes obsolete.** While AI and advanced technology are definitely changing the assessment marketplace, the change is slow and it is highly unlikely that technology will make the bedrock of the assessment industry completely obsolete within the coming five years.
- ☑ **Legal/privacy issues force reduction in usage.** This is the most realistic reason for a decline in the use of assessments, but is still an unlikely one. Privacy, fairness, and bias concerns are critical considerations that must be addressed. However, the business value of assessments is too strong to see privacy concerns organically slow the use of assessments, making the enactment of new global policies the most realistic factor in reduced usage. While policy to ensure privacy and end discrimination is welcomed, it is highly unlikely that any such widespread policies will take hold globally within the next five years. Thus, we do not feel legal issues will have a negative impact on assessment usage in the coming five years. In fact, one could argue (and we do) that when done correctly, assessments can actually reduce bias and increase fairness while also creating a level playing field by replacing the use of restrictive and potentially unfair predictors of job success such as resumes and educational attainment.

While COVID-19 has presented a short-term dip in market growth, we see it as a potential accelerator of growth in the coming years because:

- ☑ **Assessment is already virtual.** For at least the past decade, the bulk of assessment usage has been done remotely via the internet. For tests where security is a big concern, remote proctoring has evolved and now represents a viable option.
- ☑ **Assessment supports the ability to adapt and thrive in the new normal.** COVID-19 has pushed many companies to evolve and redefine their businesses and require them to staff up with new skill sets. COVID-19 has also created a demand for new skills sets such as resilience, the ability to deal with uncertainty, the ability to adapt, and the ability to work remotely. Assessment represents an excellent way for employers to evaluate these increasingly important traits.
- ☑ **Assessment increases the odds of successful hires in the new normal.** The show must go on and, despite layoffs in some industries, hiring is still happening at scale. Large-scale layoffs caused by COVID-19 have created a buyer's market for talent. Scenarios where there are more applicants than openings are where pre-hire assessments do their best work, providing an automated way to topgrade job applicants.
- ☑ **Assessment promotes the human experience at work.** The shared experience of COVID-19 has brought out the best in most employers. The value placed on the security and wellness of a workforce that is treated fairly has led employers to adopt a human-centric mindset that is welcomed by all. By ensuring that new hires share a sense of purpose and values with their employers, assessments offer an excellent way to promote a positive work experience and pave the way for employee engagement, wellness, and productivity.

Barring a cataclysmic global event well beyond the magnitude of COVID-19, we do not believe that there are any factors that will limit the growth of what has historically been a strong market built on decades of success adding value for employers and employees alike.

Taking COVID-19 into account, and using the data we collected in 2020, the remainder of this section examines the current state of six growth trends identified in our 2015 report and provides predictions of their impact on market growth in the coming five years.



GROWTH TREND #1: CAPITAL INJECTION

Following the money is an excellent way to gauge the strength and potential of any given market. In the case of talent assessment, the money trail indicates a strong belief in the value of assessment and its long-term potential. Our data on acquisitions and investment shows a clear pattern of faith in the future of the talent assessment market.

1A: ACQUISITIONS ARE HAPPENING AT AN UNPRECEDENTED PACE

IN 2015:

We predicted that market consolidation would be the most significant trend influencing market growth, writing:

Market consolidation has been significant and will continue, opening more distribution channels for assessments resulting in increased usage. We believe that this will be the number one trend that will drive the market. Larger firms with complimentary products and significant distribution are able to offer their existing client base talent assessment as an additional value-added product. The sales cycle for talent assessment is unusually long (and growing longer), so leveraging existing client relationships makes a great deal of sense. The fastest way in will be to ride the coattails of vendors who already have a trusted relationship, a foot in the door, or an existing master services agreement. Given the technical nature of talent assessments and the time needed to build a mature talent assessment product, it makes more sense to purchase assets than it does to build new ones.

We based our prediction in 2015 on the large number of high-value acquisitions — 10 events worth approximately \$2.5 billion — occurring between 2009 and 2014 as shown below.

Table 5.4: Acquisitions Occurring Between 2009 and 2014

COMPANY	ACQUIRED	YEAR	DEAL SIZE
Mercer	Censeo	2009	NA – \$3-5M (est)
Symphony Technology Group (PE)	First Advantage (testing assets – not whole company)	2010	\$265M
CEB	SHL	2012	\$660M
CEB	Valtera	2012	NA – \$5-10M (est)
IBM	Kenexa	2013	\$1.3B
PeopleMatter	PeopleClues	2013	NA – \$3-5M (est)
Korn Ferry	PDI	2013	\$80M with \$15M earn-up
Infor	PeopleAnswers	2014	NA – \$100-150M (est)
Wiley	Profiles International	2014	\$51M
Hay Group	Talent Q	2014	NA – \$5-10M (est)

Note: These acquisitions are not listed in the 2020 database because they are over five years old. A complete and up-to-date list of the acquisitions since 2015 can be found in the online Vendor Research Portal that accompanies this report.

ACQUISITIONS – STATUS IN 2020/2021:

Market consolidation has been even greater than anticipated, and has been a strong force in market growth.

Continued market consolidation has greatly exceeded expectations and has definitely been a factor in increased assessment usage. **Since 2015, our data indicates that there have been no fewer than 38 consolidation events (representing an increase four times greater than the previous five-year period) worth an estimated total of \$2.5 billion.**

Interestingly, the total value of the transactions since 2015 (\$2.5 billion) is the same as the total value of events from 2009 to 2014 (\$2.5 billion). The dollar size of these deals alone does not tell the whole story as the total value of all 10 deals prior to 2015 is skewed by three very large deals, with one of these, IBM's \$1.6 billion acquisition of Kenexa, serving as an outlier that accounts for over half of the combined value of these events. In comparison, the largest deal since 2015 was \$500 million (Carlyle's acquisition of HireVue). The sheer number of deals in the past five years speaks loudly to the increasing value of assessments to the overall HCM/HR tech industry. The reasons driving the trend in acquisitions have not changed since 2015. These include:

- ☑ The ability to instantly increase the value of the acquiring company via IP, revenue, and intellectual capital.
- ☑ An easier path to adding assessments than building them in-house.
- ☑ The ability to sell new value-added products and services to existing customers.
- ☑ The opportunity to consolidate vendors to create feature-rich platforms with appeal to a broader customer base.

It is also important to note that approximately half of the acquisitions made in the past five years have been by private equity companies whose intentions are likely to consolidate vendors, increase profits by streamlining combined operations, and resell the assets for a profit three to five years down the road. While these types of acquisitions may go slightly against the grain of overall market growth, it is still more likely than not that increased sales will occur under the guidance of new ownership and the capital they bring to the equation.

ACQUISITIONS – PREDICTION FOR 2025:

Market consolidation will continue, but a lack of vendors in the target revenue range will slow the pace and shift the focus from mature companies with significant revenues to younger companies who can provide innovative point solutions.

While COVID-19 makes confidence in future projections difficult, there is no reason to believe that interest in M&A will slow down significantly. In fact, interest in acquiring assessment companies is likely to remain strong based on the increased role of assessments for solving issues created or accentuated by COVID-19 (i.e., the movement to remote work, the need to efficiently screen large volumes of applicants, and the need to hire for new skills needed for success in an ever-changing world).

While market consolidation will no doubt continue, we believe the pace may slow because the supply of mature assessment companies with ideal revenues is drying up. The majority of acquisitions in the past decades have been of mature firms with strong product and IP, a large customer base, intellectual capital, and revenues over the magic threshold of \$5 million.

According to our data, of the 38 companies acquired between 2015 and 2020:

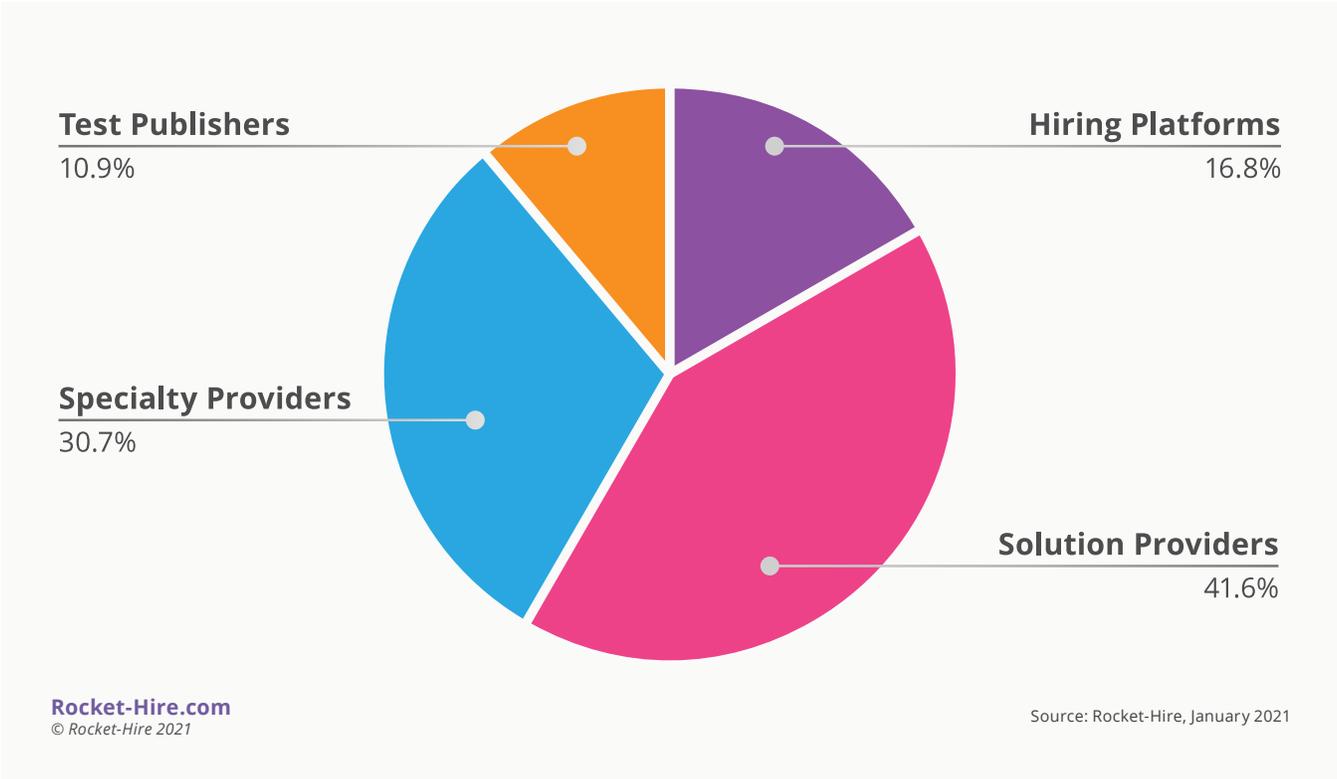
- ☑ The average time in business was 21 years and the average revenue was \$13 million.
- ☑ Only 27% of these acquisitions were of companies under \$5 million in revenue

Our data indicates that about 60% of firms in our sample generate under \$5 million in yearly revenue, while 10% generate over \$20 million, leaving a relatively small number (30%) of firms in the ideal target revenue range of between \$5 million and \$20 million annually.

As shown in Figure 6.1, our data suggests that acquired vendors tend to have a more traditional approach (i.e., Solution Providers at 42%) and a more focused product set (i.e., Specialty Providers at 31%), while the most old-fashioned companies (i.e., Test Publishers at 11%) and more advanced, but less mature, approaches (i.e., Hiring Platforms at 17%) were much less likely to be acquired.

Note: Definitions for each of the elements in our vendor classification scheme, including the primary classifications presented here can be found in Appendix C of this document.

Figure 6.1: Primary Classification of Vendors Acquired since 2015



Our data and experience lead us to predict that, in the coming five years, the overall number of acquisitions will slow down slightly due to the lack of viable targets and the deal size will go down as most of those acquired will be younger companies with lower revenue. While many new vendors are entering the market at a rapid pace, most of these companies lack the strong revenues, library of proven content, and seasoned intellectual capital that have defined the target profile for acquisitions. What these less mature vendors do have to offer is innovative point solutions that can be plugged into broader product offerings or bolted onto existing platforms offering related functionalities.

Beyond the value created by mergers and acquisitions, the large amount of investment that is being put into the market is also contributing to market growth.

1B: INVESTMENT IS SETTING UP FUTURE GROWTH

IN 2015:

We predicted a great deal of investment would be pumped into the market, accelerating product innovation and contributing significantly to market growth, writing:

Investment in start-ups and new technologies is creating and will continue to create a disruptive force, with change in the assessment space coming from new companies with new ideas, not from the traditional players. Traditional talent assessment vendors have a poor track record with the use of technology and have struggled mightily with innovation. The mature vendors in the space have felt little pressure because they remain highly profitable doing things the same way they have been done for decades. The real innovation in the assessment space is coming from a host of startups and early-stage companies that are blending advanced technologies and talent assessment content to create new tools that will eventually replace more traditional talent assessments.

INVESTMENT – STATUS IN 2020/2021:

Investment into the talent assessment market since 2015 has greatly exceeded expectations.

Note: We counted capital provided by private equity under acquisitions. The information presented below relates exclusively to outside investment by venture firms and angel investors.

Note: Our data does not include the date on which funding was received because we were not able to consistently determine this information nor can we accurately account for situations where there have been multiple rounds of investment over time.

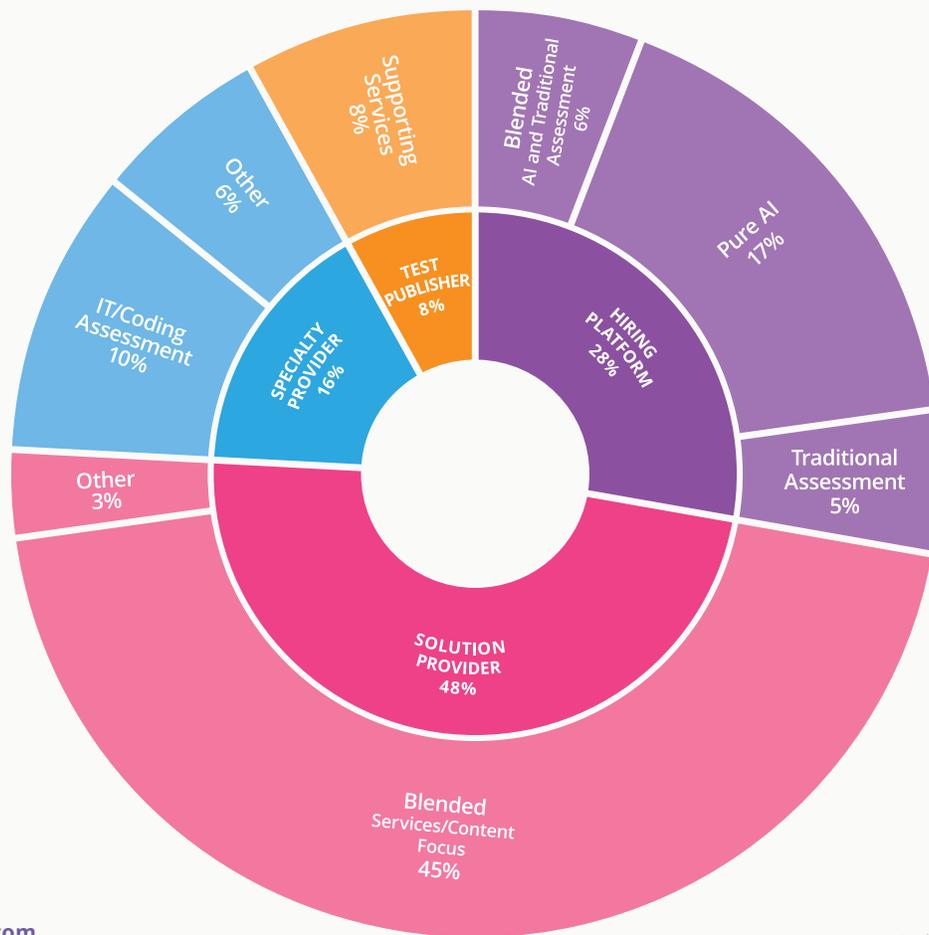
While we didn't track outside investment in assessments in our 2015 report, our 2020 data make it clear that the level of investment in the space in the past five years has far surpassed expectations and is a driving force in market expansion.

Our data shows:

- ☑ Thirty-six percent (36%) of all the firms in our database have taken some form of investment.
- ☑ Of the 61 firms opened in the past five years, 56% have received investment capital.
- ☑ The total investment made into companies in our database is \$1.7 billion, with 80% of this investment coming from VCs.

Figure 6.2 shows the total breakdown of investments made by primary and secondary categories.

Figure 6.2: **Breakdown of Investments Made by Primary and Secondary Categories**



Rocket-Hire.com
© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

A closer look at the data shows some interesting trends regarding investments.

Solution Providers: Received **48%** of the total investment tracked in our database, with **\$831.3 million** invested in 10 firms for an average of \$83 million per investment.

Hiring Platforms: Received **28%** of the total investment tracked in our database, with **\$473.5 million** invested in 41 firms for an average of \$11.5 million per investment.

Specialty Providers: Received **16%** of the total investment tracked in our database, with **\$274 million** invested in 35 firms for an average of \$8 million per investment.

Test Publishers: Received **8%** of the total investment tracked in our database, with **\$132 million** invested in 3 firms for an average of \$44 million per investment.

Our data indicates that a relatively small number of Solution Providers and Test Publishers account for over half of the investment dollars put into the space. While many more Hiring Platforms and Specialty Providers received funding, the average amount of these investments is much lower than that of the other provider types.

While it is difficult to track investment made in specific assessment products, **looking more closely at funding received by Specialty Providers clearly shows that IT/Coding assessment is by far the hottest specialty assessment type when it comes to receiving investment. Firms specializing in IT/Coding assessments account for 60% of all dollars (\$165 million) invested in Specialty Providers, and almost 10% of the total dollars invested into the space.** In comparison, none of the other specialty assessment types received more than 9% of the investment made in Specialty Providers.

INVESTMENTS – PREDICTION FOR 2025:

Investment in predictive hiring tools will not slow down, will continue to support the entry of new companies into the market, and slowly drive market growth through innovation and increased go-to market resources.

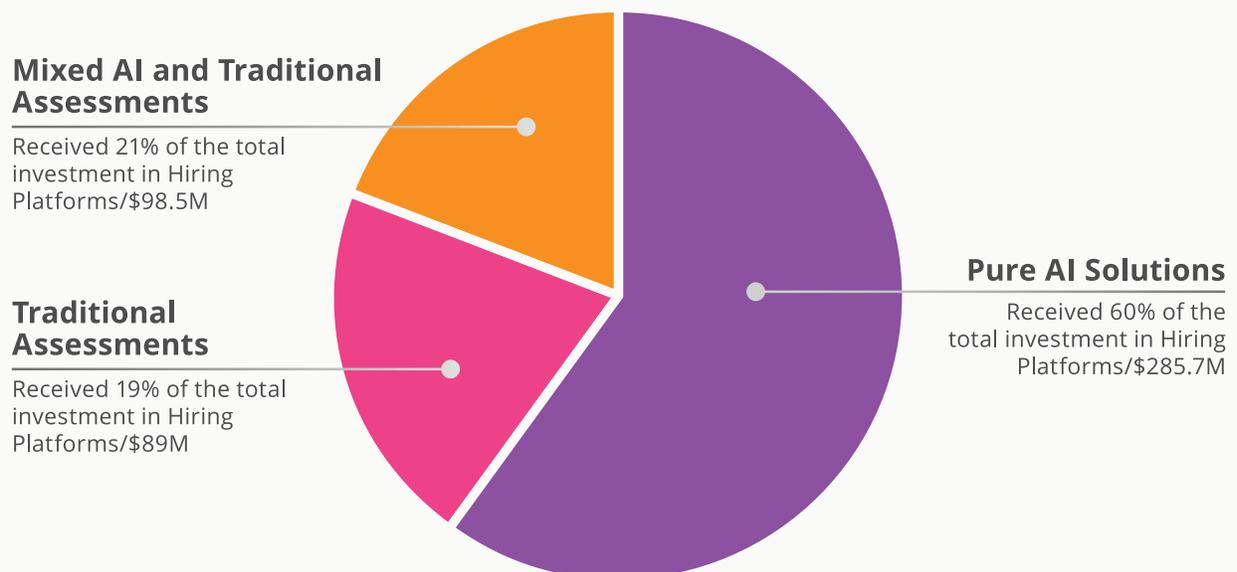
Despite a small dip due to COVID-19, large numbers of new firms will continue to enter the market; and a high percentage of them will do so with the benefit of outside investment. With new firms entering the market at an unprecedented pace, many of whom are focused on new and innovative technology, it is almost certain that investment in predictive hiring firms will continue to grow and have an increasingly large impact on market size.

Our data clearly indicate a high level of investment in advanced predictive hiring technologies:

- ✔ Sixty-three percent 63% of firms using AI, and 73% of firms offering RPA tools received investment.
- ✔ Of the \$1.7 billion of total investment tracked in our database, 77% of these dollars (\$1.31 billion) went to firms that use some form of AI, while 17% (\$297 million) went to firms with RPA functionalities.

The focus on investment in advanced technologies is further supported when one looks at the breakdown of investment in Hiring Platforms (the classification with the strongest use of AI technology).

Figure 6.3: **Breakdown of Investments Made in Hiring Platforms**



Newer Hiring Platform providers account for the lion's share of investment in the past five years with 73% of investment in firms founded less than five years ago going to Hiring Platforms, and 93% of these investments going to Hiring Platforms that offer pure AI solutions. In comparison, only one Solution Provider and none of the Test Publishers founded in the past five years have received funding.

While predictive hiring tools (especially those that bring automation and increased levels of engagement) are hot, change in this market is slow due to risk aversion to unproven technologies and the long cycles required to find and integrate new assessments.

In the coming five years, we believe that investment will contribute to a rise in overall market size by funding innovation and providing resources needed to support go-to market strategies designed to fuel growth. Despite this, we predict it will take longer than five years for investments to mature to the point where they cause a significant increase in market size.

GROWTH TREND #2: GLOBALIZATION

With most of the action in the talent assessment industry based in the US market, it is easy to lose track of the fact that it is truly a global industry.

IN 2015:

We predicted that global expansion will be a significant driver of market growth, writing:

While the most profitable talent assessment firms are based in the US or UK, talent assessment is used worldwide. There remains tremendous opportunity for increased use of talent assessments in emerging markets. While US-based firms have had trouble charging Western prices for assessments in developing nations, the opportunity for scale is greater than in the West.

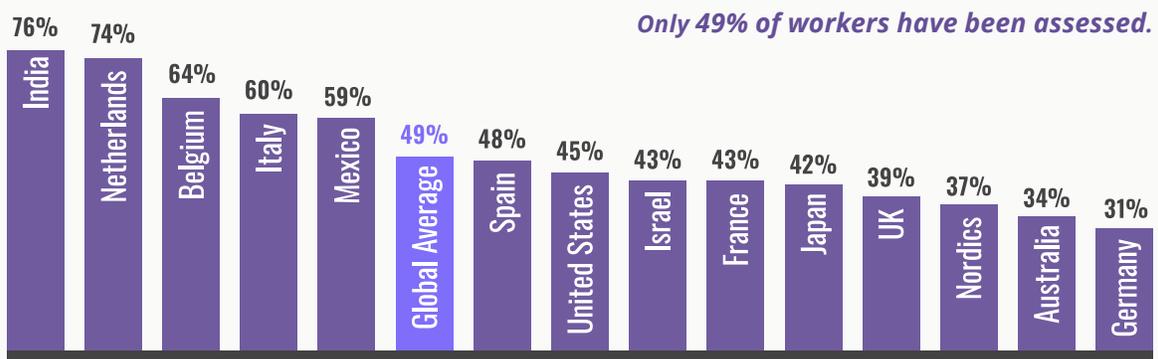
GLOBALIZATION – STATUS IN 2020/2021:

Talent assessment's international footprint is growing, making a strong contribution to market growth.

It is important to remember that the fundamental principles that make talent assessment effective apply to all humans and businesses — regardless of where they are located — so the value proposition for assessment transcends geographical boundaries and creates a very large addressable market. While the US market presents opportunities for foreign vendors, perhaps one of the largest overall market opportunities lies in tapping into the addressable market in geographies where talent assessment is not common.

As shown in *Figure 6.4*, the results of a 2018 study by Manpower Group indicate that, on average, only about 50% of job seekers across the globe are assessed as part of the hiring process.^[1] It is worth noting that Manpower's results do not include China or Southeast Asia, two markets that are sure to add even greater opportunity. These results clearly demonstrate the presence of a large addressable market that spans across almost every geographic region on the planet.

Figure 6.4: Only half of employers are using assessment data versus gut instinct to predict performance and potential



We used our database to track the extent to which vendors are tapping into the global market opportunity for assessments by looking at globalization of the talent assessment industry in two ways — by the country in which a vendor’s headquarters is located and by the sale of products internationally.

VENDOR HEADQUARTERS

Looking at the countries in which vendors have established their global HQs clearly shows that talent assessment is a global industry. As depicted in *Figure 6.5*, our sample includes vendors with headquarters in 22 different countries.

Figure 6.5: Vendor Headquarters

Australia	7
Belgium	1
Canada	10
Denmark	1
Dubai	1
Estonia	1
France	4
Germany	2
Greece	3
India	11
Israel	3
Netherlands	3
New Zealand	1
Poland	1
Russia	1
Singapore	5
South Africa	2
Sweden	2
Thailand	1
Turkey	1
UK	32
USA	152

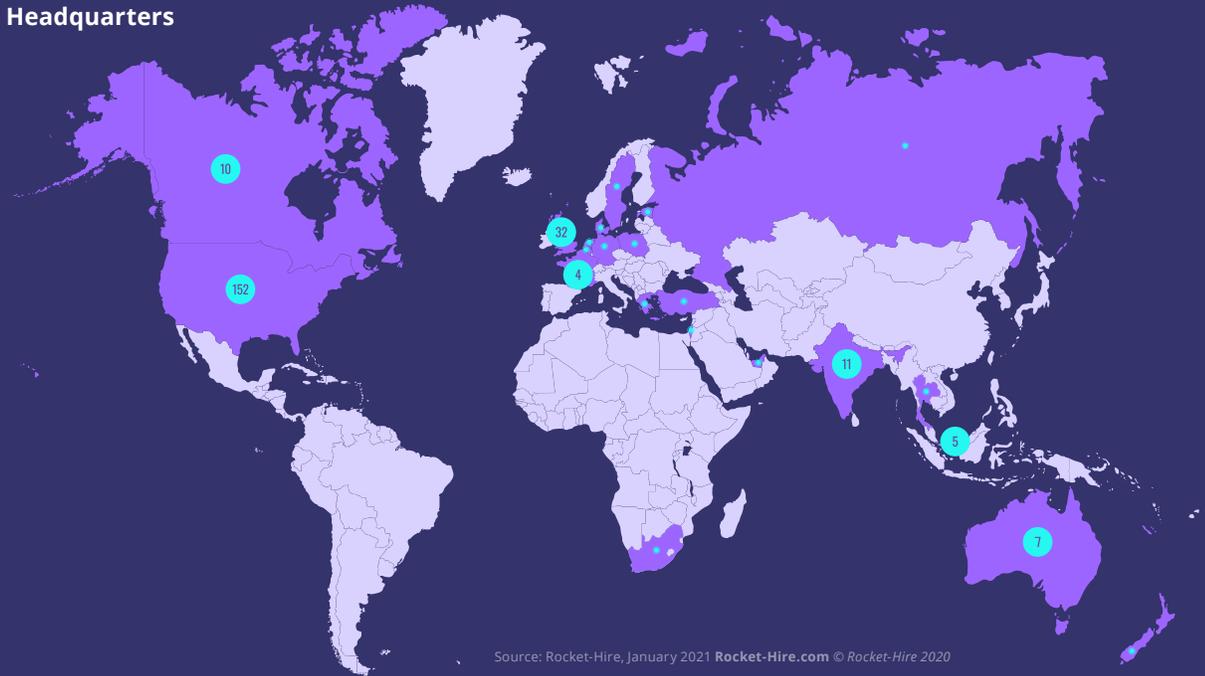
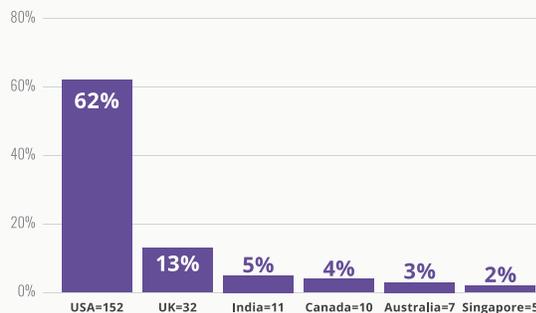


Figure 6.6: COUNTRIES WITH THE MOST ASSESSMENT VENDOR HEADQUARTERS

While 22 countries are home to at least one assessment vendor, the bulk of the market is concentrated in the six countries identified below.

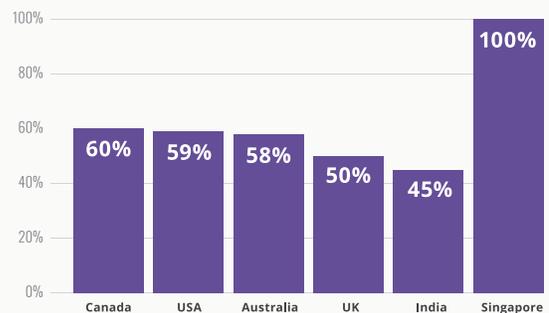


© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.7: PERCENTAGE OF VENDORS 10 YEARS OLD OR YOUNGER BY HEADQUARTER COUNTRY

The number of new entrants into the market from outside of the US closely parallels the numbers from within the US market.



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Despite an encouraging pattern of new companies opening shop across the globe, the epicenter of the industry still lies in the US. According to our data, **the average revenue for US-based companies is over two times the average revenue from vendors in all other countries (\$14 million per year versus \$6 million per year)**. This is understandable because the US is a mature market that has decades of experience with assessments. The US is also home to global corporations, allowing US-based vendors to derive revenue from foreign markets without a presence in-country. Many US-based providers have also set up global distribution networks of value-added resellers and channel partners. These relationships can be extremely profitable because they do not require any overhead.

Breaking into the US market is not an easy feat. Foreign vendors are behind the eight ball when it comes to credibility, relationships, and perception of risk due to lack of experience with US regulations. While at least 10 of the vendors in our sample moved their main headquarters to the US on their own (versus moving due to acquisition), by far the fastest path to success in the US market is by acquisition. The majority of the acquisition of foreign firms (87%) has been by US-based entities.

INTERNATIONAL SALES

We found it extremely difficult to track which vendors sell products in specific geographies. Vendors often provide only general references to countries served in their marketing materials, and in other cases, the manner in which geographic regions are demarcated differs across vendors. Thus, our approach to tracking international sales was to simply code each vendor based on those who sell products internationally and those who do not.

Our data indicates that 67% of the vendors in our sample sell products internationally. Interestingly, our data indicate that US vendors are less likely to have global distribution than vendors with HQs located outside of the US (58% for US vendors versus 81% for other countries).

GLOBALIZATION – PREDICTION FOR 2025: Assessment’s global footprint will continue to grow, making an increasingly significant contribution to market size.

While the short-term drop in sales due to COVID-19 is likely to be a global phenomenon, once things stabilize, the trend towards global proliferation of assessments will not slow down. We expect to see new companies emerge across almost every geographic region and compete for global market share. The large amount of investment that has been made in assessment providers will also provide unprecedented levels of resources into the go-to market strategies that will fuel global expansion.

GROWTH TREND #3: PRODUCTIZATION

The opportunity to tap into underserved markets by developing accessible products that offer higher levels of accuracy is becoming a significant factor in market growth. This opportunity has driven a shift in the product strategy of traditional I/O psychology-based vendors, while also creating a great deal of interest from entrepreneurs from outside the realm of I/O psychology who are pushing the envelope with new ideas. In both cases, the goal is the creation of transactional products that leverage data and technology to make more accurate and easy-to-use assessments available downmarket (with a focus on SMBs), commonly through the development of dynamic platforms that are slowly replacing static, off-the-shelf tests.

This section summarizes our predictions and uses our data to evaluate three key interrelated trends that play an important role in market growth via their influence on productization:

3A: The creation of products aimed at the SMB market

3B: The development of transactional platforms to better serve this market

3C: The rise of entrepreneurs from outside of the realm of I/O psychology creating new, and often riskier, products designed to scale

3A: SMBs (INCLUDING THE MID-MARKET) PRESENT A SIGNIFICANT MARKET OPPORTUNITY

IN 2015:

We predicted that technology will support market growth by making it easy for the SMBs to access more accurate assessment products, writing:

Expansion into areas that remain underserved by talent assessment tools has the potential to drive significant profits by opening up the SMB market which has suffered from a lack of innovative tools and methodologies and instead relying on off-the-shelf tests that are not dialed in to specific, localized job requirements. Technology is allowing providers the ability to create more targeted tests that can be delivered transactionally, filling a huge need when one considers the massive number of persons employed by SMBs.

SMBs – STATUS IN 2020/2021:

Providers are using historical data and technology to create more effective products designed specifically to take advantage of downmarket opportunities, especially in the SMB space (which includes mid-market by our definition).

Over the past decade, established players in the industry have used technology and volumes of historical data to build easy-to-access products that fill a middle ground between expensive custom solutions and generic off-the-shelf tests. These products make higher levels of predictive accuracy available for a relatively low price point, opening the door for a great deal of market opportunity, especially in the SMB market.

When one looks at the size of the addressable market among SMBs, it is easy to see the impetus for this trend.

Consider that, in the US alone, *SMBs employ about half of the workforce. While, 50 million hires are made yearly*, only about half of the workers applying for jobs are asked to complete an assessment, indicating that SMBs clearly present a massive market opportunity.

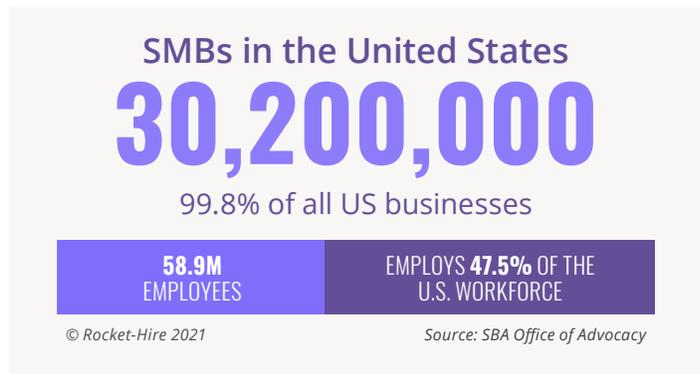
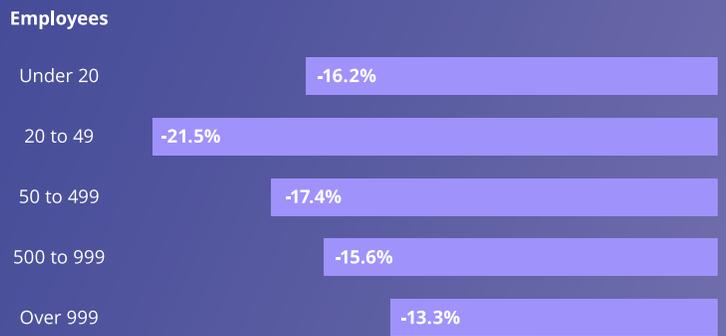


Figure 6.8:
CHANGE IN EMPLOYMENT AND EMPLOYER SIZE DUE TO COVID-19

In the short run, COVID-19 has definitely reduced opportunity in the SMB market. Data from the US Department of Small Business Advocacy’s May 2020 report summarizing the reduction in the workforce due to the pandemic clearly indicates that COVID-19 has hit SMBs harder than other size businesses.^[2]



Size groups indicate employees per Employer Identification Number | Source: ADP Research Institute

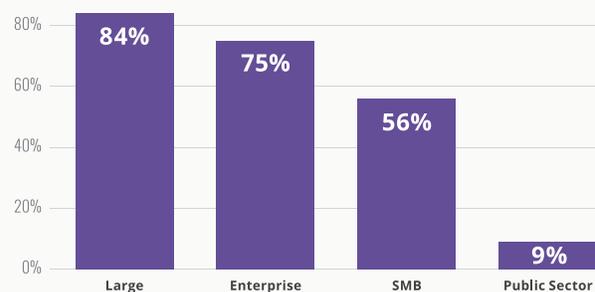
While the short-range outlook for SMBs is somewhat bleak, they have long been the bedrock of the global economy, and as such there is no reason to believe that COVID-19 will cause a significant long-term reduction in their numbers. In fact, the opposite may be true, as displaced workers are finding the opportunity to start their own small businesses. According to Steven Hamilton, an economist at George Washington University:

“As horrible as [the pandemic] is, and as badly as it has affected so many people, it has pushed people to come up with new ideas and products and services.”^[3]

Figure 6.9:
PERCENTAGE OF VENDORS SERVING EACH MARKET SIZE

And when the inevitable resurgence happens, the assessment industry will be ready. Over the past five years, assessment vendors have been busy creating products to meet the addressable market presented by SMBs.

Our data indicate that over half of the vendors in our database (56%) serve the SMB sector (among others).



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

SMBs – PREDICTION FOR 2025:

The SMB market will remain an attractive opportunity for vendors of all types, with the continued development of products designed for downmarket customers making a significant contribution to market growth.

We expect the industry to successfully continue to chase the scale that comes with the SMB market. With existing vendors and new entrants investing in the creation of tools designed for easy deployment at scale, the number of products available to previously underserved markets will continue to grow.

Creating massive scale requires a significant investment in marketing and advertising, giving providers with deep pockets and global brand names (e.g., Indeed, LinkedIn, Salesforce) a competitive advantage in the SMB market. While it remains to be seen if industry titans choose to chase downmarket opportunities, the rest of the market is definitely seeking to drive growth via new, downmarket revenue streams.

3B: PLATFORMS SUPPORT THE TRANSACTIONAL SALE OF MORE ACCURATE ASSESSMENTS

IN 2015:

We predicted that an increasing number of vendors will create platforms that will make assessment more accessible, especially to SBMs, writing:

Technology is allowing providers the ability to create more targeted tests that can be delivered transactionally, filling a huge need when one considers the massive number of persons employed by SMBs

In 2015, the movement of enterprise technology downmarket was clearly noted by industry analysts such as the Starr Conspiracy, who wrote:

Software as a Service (SaaS) technology, enabled by wide availability of high-speed Internet connections and mobile devices, now allows small and midsize businesses (SMBs) the ability to automate, outsource, manage, and accelerate business processes in a way that was formerly the exclusive domain of large enterprises, especially when it comes to people processes."^[4]

This trend has had a definite influence on the market in 2020.

PLATFORMS – STATUS IN 2020/2021:

Transactional sales are creating additional revenue streams as providers, old and new, create platforms that move enterprise-level functionalities downmarket.

In the past five years, the development of self-service platforms has continued as predicted. Platforms that make enterprise-grade features accessible downmarket have quickly become a pillar of the HR tech market. According to a recent blog post by Sage Intacct: When one looks at the size of the addressable market among SMBs, it is easy to see the impetus for this trend.

"...a revolution in cloud computing changed the dependency for on-premise ERPs by giving birth to a less expensive and more effective solution called Cloud ERP. As Software as a Service (SaaS) providers digitally transformed the functionality of ERPs and began offering accessible solutions, they also opened a door of opportunity for mid-market organizations looking for a cost-effective solution to their on-premise ERP or lack thereof."^[5]

So how is this trend reflected in the assessment market in 2020 and 2021?

While we have no historical data in our database to verify the year-over-year increase in the number and type of vendors serving SMBs, our data on what vendors are doing here in 2020/2021, along with our experience working in this market, support this trend.

Figure 6.10:
PERCENTAGE OF VENDORS SERVING SMB BY PRIMARY CLASSIFICATION

Our data clearly show that a high percentage of vendors in newly emerging categories (Specialty Providers, 60%; Hiring Platforms, 57%) are serving SMBs, and are likely to continue to chip away at the market share of the Test Publishers who have traditionally dominated this market.

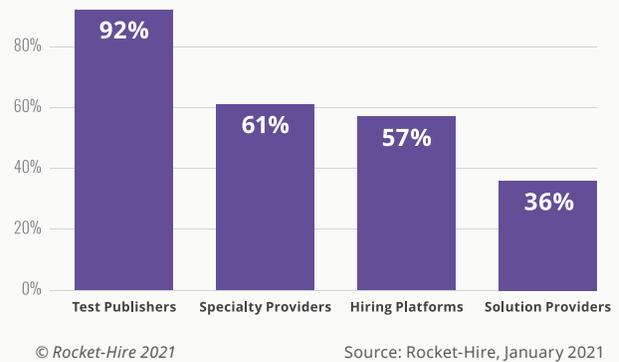


Figure 6.11:
PERCENTAGE OF VENDORS OFFERING TRANSACTIONAL SALES BY PRIMARY CLASSIFICATION

Movement of product downmarket requires the ability to sell tests transactionally in an automated fashion. Our data shows 30% of the overall sample offers transactional sales. This graph shows the breakdown of percentage of vendors in each primary classification offering transactional assessment products, indicating that Test Publishers lead all other vendor categories when it comes to transactional sales.

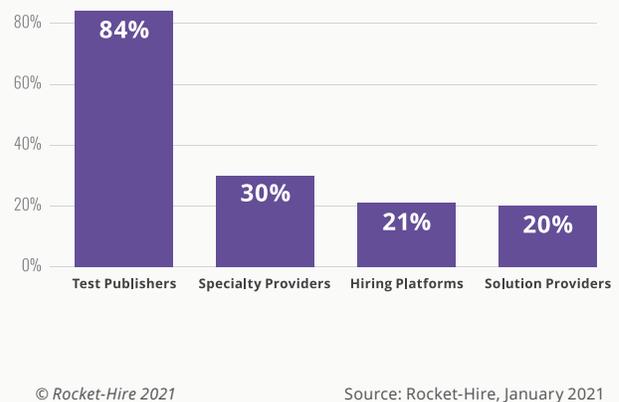
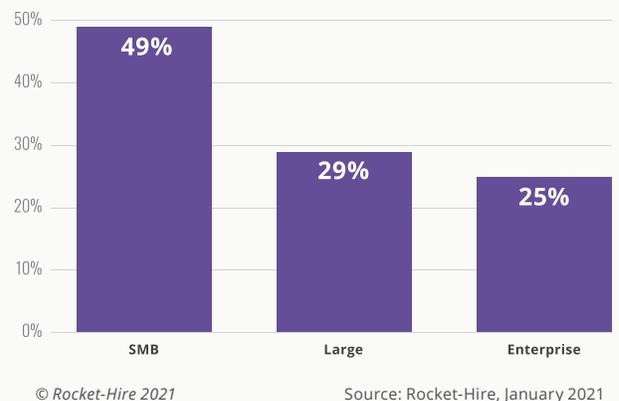


Figure 6.12:
PERCENTAGE OF VENDORS OFFERING TRANSACTIONAL SALES BY SIZE OF MARKET SERVED

When looked at in combination, the trend of vendors moving downmarket with transactional products is supported by our data which indicates that, as of 2020, almost half (49%) of vendors offering transactional sales serve SMBs.



We expect these percentages to rise over the coming years, as new and existing vendors continue to develop products designed for SMBs.

PLATFORMS – PREDICTION FOR 2025:

The development of platforms designed to make higher quality assessments available downmarket will continue to contribute to market growth.

At the time of this writing (January 2021), we are still firmly in the grip of a global pandemic that has disproportionately harmed small businesses causing mass layoffs and closures. As the spread of COVID-19 eases up, SMBs will see a trend of rebirth and rehiring and will find themselves in the same talent buyer's market as larger companies. Because the cost of a bad hire is disproportionately bad for smaller businesses, the stakes riding on each employment decision made by an SMB accentuates the need for quality assessment tools.

Another factor that we feel will lead to increased development of transactional products aimed at SMBs is the lower barriers to entry for these products. Typically, developing a more automated and transactional product suite is not extremely costly for vendors who already have a library of IP, data to support its usage, and technology to deploy it. These ingredients make it easy for existing vendors to repackage and rebrand, while lowering barriers and reducing risks.

Despite lower barriers to entry, there are challenges to be faced when seeking scale. First and foremost, transactional products designed for scale require a completely different sales strategy that is foreign to many traditional assessment vendors. With transaction sizes too small to support direct manual sales, the burden falls on heavy investment in automated marketing and SEO which finds the target persona with a differentiated message before the competition can. Finding significant scale requires a massive marketing budget and excellence in digital marketing, both things that may present challenges to many vendors, new or old.

Despite the dip caused by COVID-19, and for the reasons summarized in this section, we predict an increase in the development of transactional products leading to increased penetration into the SMB market over the coming five years. This trend will be significantly influenced by movement into the market by entrepreneurs from outside of I/O psychology.

3C: ENTREPRENEURS FROM OUTSIDE OF I/O PSYCHOLOGY COME SEEKING OPPORTUNITY (WHILE ALSO BRINGING RISK)

IN 2015:

We predicted that assessment would expand beyond the traditional realm of I/O psychologists, with assessment companies founded by non-I/O psychologists offering a more technologically advanced and diverse set of products and solutions to a broader market, writing:

By 2020, we will see an increasing number of non-traditional predictive tools compete with psychology-based talent assessments. Predicting success in hiring is no longer the sole domain of I/O psychologists. There are a growing number of non-psychological tools that are being touted as scientifically sound ways to model hiring success. These are mostly AI-based predictive tools, but also include neuroscience-based assessments. We can expect to see growing tension between the traditional ways and advanced technologies that threaten to marginalize them.

ENTREPRENEURS – STATUS IN 2020/2021:

While the traditional assessment providers are being extremely cautious about new technologies, companies from outside the realm of I/O psychology have become a driving force in creating market value via new predictive hiring products that are built for scale. While these companies often create risk, the market does not seem to care.

While the assessment market was primarily created and grown by I/O psychologists, the bulk of new entrants into the market are technology-first companies that have created products to solve a specific problem related to hiring or career mobility (i.e., automating processes, sourcing for diversity, managing one's career). Many of these products replace traditional assessments with AI-based tools. While some of these companies were founded by or employ I/O psychologists, most are assembled and driven by tech-first founders and seasoned businesspersons and rely on a diverse mix of skill sets. As noted in a 2018 research report by Ithaka:

“Joining the ranks of I/O psychologists and human resources professionals, user experience designers, data scientists, software engineers, media producers, web developers, and online learning specialists have entered the technology-facilitated assessment ecosystem to deploy innovative, media-rich solutions.”^[6]

Figure 6.13:

PERCENT OF COMPANIES OFFERING AI-BASED TOOLS BY AGE

Our data indicates that younger providers are almost four times as likely to offer AI-based tools.



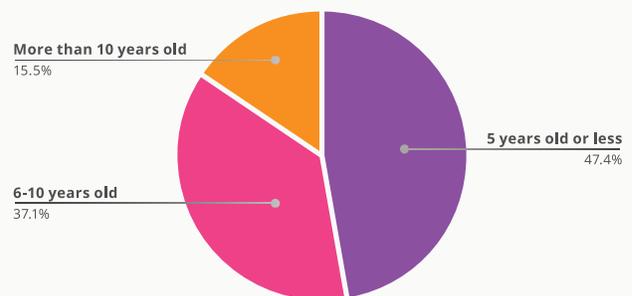
© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.14:

AGE OF PROVIDERS WHO OFFER DIGITAL ASSESSMENT TOOLS

Additionally, companies less than five years old are almost three times more likely to offer what we refer to as “digital tools” (defined as “assessments based on AI or other advanced technologies [such as virtual reality], including tools that perform various functions within Recruitment Process Automation, such as job matching and screening”).

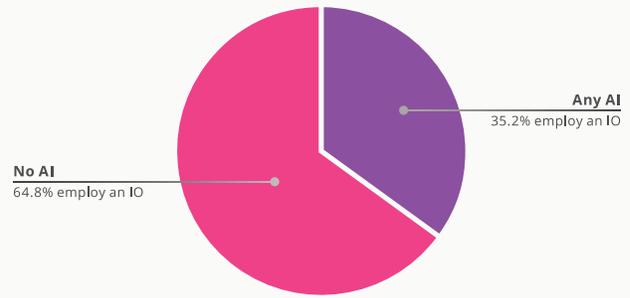


© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.15:
PERCENTAGE OF FIRMS OFFERING AI THAT EMPLOY I/O PSYCHOLOGISTS

Our data also indicate that companies going to market with advanced technologies are doing so without an I/O psychologist.



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.16:
PERCENT OF COMPANIES WITH AN I/O PSYCHOLOGIST BY COMPANY AGE

When looking at the employment of I/Os among newer companies using AI, it is clear that the newest tech first firms are not involving I/Os in their business. Only about one third of the companies less than five years old that use AI employ an I/O psychologist (versus over 75% of firms over 10 years old).



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Assessment has traditionally been the domain of an often iconoclastic and conservative cadre of experts who are historically slow to react and change. Among this clan, an understandable and laudable focus on the publication of thorough research has been a prerequisite for acceptance of changes to the status quo. Unfortunately, the world of technology moves at a rapid pace that greatly outpaces research. When the force driving the market is organizations who will pay handsomely for tools that create value, it is easy to see how speed to market of technology that provides a competitive advantage will outweigh sound science every time.

Unproctored Internet Testing (UIT) offers an excellent historical example of the tension between a rigorous scientific approach and the need to quickly meet market demand for technologies that can add instant ROI. At the turn of the millennium, as the first wave of internet-based testing began, there was quite a bit of concern within I/O psychology circles about the potential

for UIT to undermine the integrity of employment testing. While I/O (and other) psychologists spent years debating the appropriateness of unproctored testing, the opportunity to make testing faster, more efficient, and more accessible was quickly recognized by the market. While pundits hotly debated the acceptability of UIT, the train left the station, refusing to wait for any blessings to be conferred. Now unproctored testing is the norm, with proctoring being reserved almost exclusively for high stakes assessments.

Acceptance of the appropriateness and legitimacy of AI-based predictive hiring tools is historically similar to the UIT controversy of 20 years ago, albeit much more complex due to an increased risk of systemic bias and an exponential increase in the complexity of research to verify its effectiveness. One can only hope that, as with UIT, research and practice will eventually converge on a set of viable solutions that can equally satisfy both domain experts and business interests.

So how do advanced predictive hiring tools measure up when it comes to the compliance risks associated with their usage?

When we look at the “risk rating” we assigned to the firms in our database (i.e., the extent to which a company's product is based on interpretable science that is founded on known theories of workplace psychology and created and implemented using best practices for EEOC and OFCCP compliance), it is clear that younger firms are much more likely to be rated as presenting a higher degree of risk.

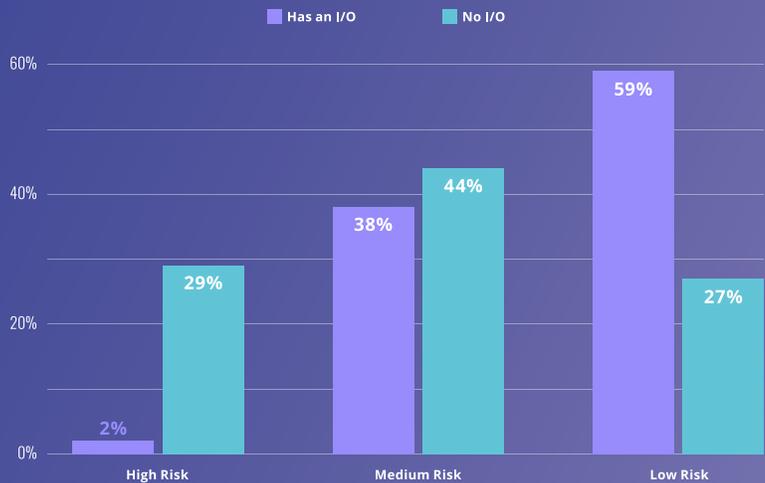
Figure 6.17:
RISK LEVEL RATINGS BY COMPANY AGE

The use of AI technology also brings with it an increased level of risk. As shown in this figure, our data indicate that 34% of firms using AI were rated as high risk, while only 3% of firms who do not use AI were given this rating.



Figure 6.18:
RISK LEVEL RATINGS FOR COMPANIES EMPLOYING I/O PSYCHOLOGISTS

This clearly indicates that firms with an I/O psychologist are much less likely to be rated as high risk, and are about two times more likely to be rated as low risk.



While adding an I/O psychologist to the mix is certainly not guaranteed to reduce the risk level of a provider, it does show a dedication to the integration of psychometrics and a knowledge of compliance and represents an important step in the right direction. However, the market has shown that the perceived value of the efficiencies of the AI-based predictive hiring tools most often brought to market by those outside of the realm of I/O psychology is winning out over any concerns about the risks carried by these tools.

ENTREPRENEURS – PREDICTION FOR 2025:

While traditional assessment methods will evolve slowly, newer firms from outside the industry will continue to push the envelope while driving market growth and, hopefully, bring an increasing number of I/O psychologists with them.

There is little doubt that outside entrepreneurs have already had a significant impact on the assessment industry that will continue in the years to come. The role I/O psychology will play as these companies shape the future of the predictive hiring space is a topic of much discussion and debate within the field.

As Dr. Richard Landers, a known voice for interdisciplinary collaboration among I/O psychologists and computer scientists, so eloquently noted in 2020:

"I/O psychology is at a crossroads. Down one path, we turn toward business school values, building ever-more-complex theories to better understand and explore every minute detail of organizational functioning, a rigorous but not particularly useful science to people trying to enact change within those organizations, staking a claim to exhaustive understanding of psychological constructs as what defines us. In the other direction, we embrace our own foundations as an interdisciplinary and applied psychology, integrating our field with the disciplines surrounding it, contributing to those fields while being augmented by them, forging our own unique identity, building a practical science, working shoulder to shoulder with all those working to understand employee behavior in the modern workplace, regardless of their discipline of origin."^[7]

THE FUTURE OF TALENT ASSESSMENT REQUIRES A MULTIDISCIPLINARY APPROACH



© Rocket-Hire 2021

Source: [talent.com](https://www.talent.com)

In the coming five years, it is inevitable that more new companies (and old ones who are growing into the modern era) will be started by I/O psychology outsiders. In many cases, we feel that an increasing number of these interdisciplinary efforts that include I/O psychologists as a competitive advantage will emerge. However, there seems to be little pressure among consumers towards this end, virtually ensuring that there will be plenty of firms who push forward without the added benefit of a psychological perspective.

When it comes to the long-term impact of the pandemic, we do not foresee a reversal in the strong trends discussed in this section and, in fact, the changes it has created will likely serve to accelerate them.

GROWTH TREND #4: AUTOMATION

IN 2015:

We predicted that automated sourcing and screening tools, many of which include assessment, would make a strong contribution to market growth, writing:

Sourcing and recruiting will be the highest growth area within HCM over the coming years. There is tremendous friction in the sourcing space due to the imprecision of current methods for matching people with job opportunities to which they are best suited. The targeted delivery of qualified candidates reduces the friction in the entire hiring process by increasing the probability of successful hires.

The combination of psychometrics and AI within SoLoMo[®] (social, local, mobile) technologies is set to fundamentally change talent acquisition by pushing the value of Talent Assessments further up the funnel where their cost is folded into sourcing budgets.

AUTOMATION – STATUS IN 2020/2021:

Recruitment Process Automation (RPA) tools continue to gain momentum and are becoming an important factor in market growth.

While the concept of SoLoMo in recruitment has not fully materialized, our 2015 prediction that AI will change the face of recruitment is accurate and stronger than anticipated. Predictive hiring tools that use AI-based automation to reduce friction and add efficiency to the hiring process (i.e., RPA) are becoming increasingly more common.

RPA tools create efficiency by making jobs and passive candidates easier to find, engaging candidates at scale via automation, conducting automated screening and matching of candidates, coordinating the touchpoints in the hiring process, automating employment interviews, and topgrading applicants based on a match index.

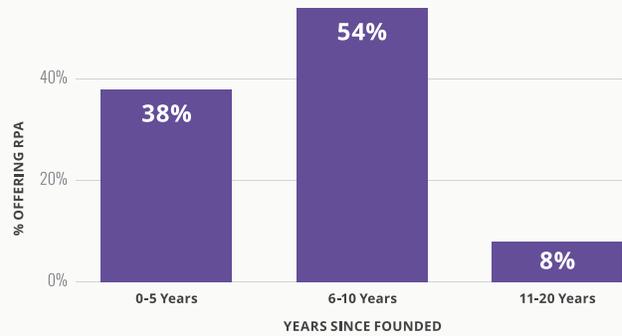
Providers offering RPA are a different breed from traditional assessment providers. Our data provides insights that are useful for better understanding RPA providers and their potential impact on market size and growth.

According to our data:

- ☑ RPA is still not extremely common. Only 12% of the vendors in our database were coded as providing RPA.
- ☑ Seventy-three percent (73%) of firms offering RPA received funding, while only 31% of those who do not offer RPA received funding.
- ☑ RPA providers are typically younger companies. When compared to the rest of the vendors in our database, those offering RPA are on average nine years old, while the average age of all other vendors is about 20 years old.

Figure 6.19:
AGE OF FIRMS OFFERING RPA

More specifically, as shown in this figure, 92% of vendors providing RPA have been in business no more than 10 years, and nearly 40% of these firms are less than five years old.

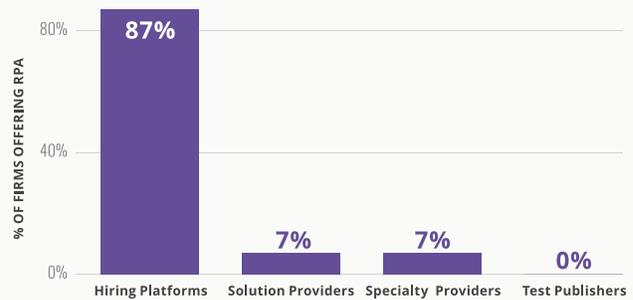


© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.20:
PRIMARY CLASSIFICATION FOR FIRMS OFFERING RPA

87% of RPA tools are offered through vendors classified as Hiring Platform Providers.



© Rocket-Hire 2021

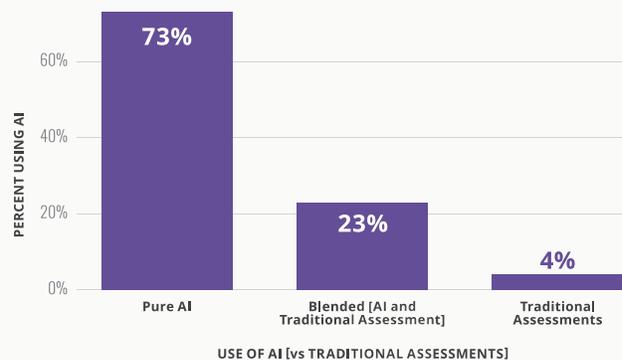
Source: Rocket-Hire, January 2021

Our data also indicate that thirty-six percent (36%) of all Hiring Platform Providers offer RPA, while no more than 3% of vendors in any other primary classifications offer it.

Our 2015 prediction that the combination of psychometric tools and AI would be a growth engine for the assessment market has only partially come true. When it comes to RPA tools, there are two distinct approaches — tools that use pure AI to support predictive hiring decision-making, and those that blend their AI with a well-researched and responsible combination of psychological/psychometric science.

Figure 6.21:
USE OF AI VERSUS TRADITIONAL ASSESSMENT METHODS AMONG VENDORS OFFERING RPA

Most RPA firms are not utilizing psychometrics as part of the predictive decision-making process; instead, they are using AI and data science to do what psychometrics has traditionally done. While a smaller percentage of vendors offering RPA do blend psychometrics with automation, almost none of the vendors offering RPA utilize traditional assessments.



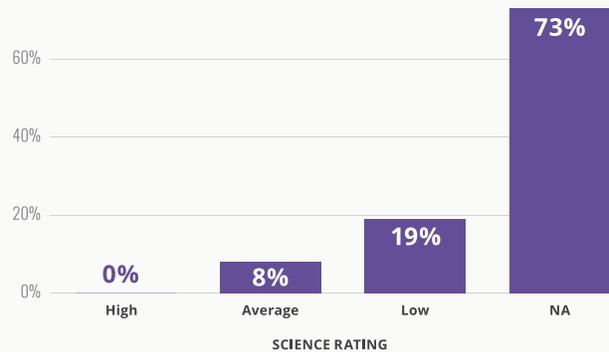
© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

While we assigned ratings of science quality to vendors as part of our analysis, rating the science quality of RPA tools proved difficult. Because most firms offering RPA make heavy use of data science (versus psychometric science), we did not feel it was appropriate to mix ratings of data science quality with our ratings of psychometric quality.

Figure 6.22:
SCIENCE RATING FOR PROVIDERS OFFERING RPA

Seventy-three percent (73%) of the firms offering RPA do not use traditional psychometric science making it impossible to assign them a rating. None of the remaining firms offering RPA were given a high rating on science quality, and only 8% were rated as average.

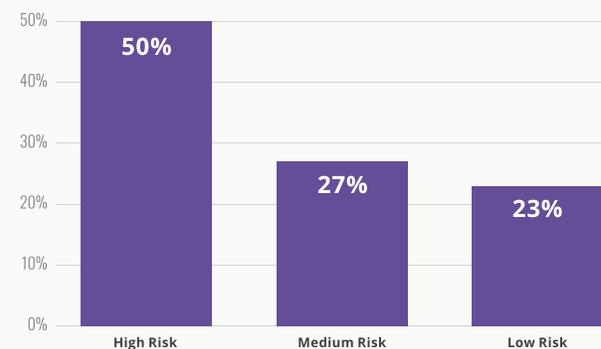


© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.23:
RISK LEVEL OF VENDORS OFFERING RPA

When looking specifically at risk levels among RPA providers, half of RPA providers are seen as high risk, while only about 25% are seen as low risk.



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

While having an I/O psychologist on staff does not automatically reduce risk, we do feel that it is a differentiator that is indicative of a commitment to psychometrics and compliance. **Our data indicates that only a small percentage (10%) of providers offering RPA have an I/O psychologist on staff, comparatively, to 60% of all other vendors have an I/O on staff.**

While the efficiency gained from AI-based RPA tools is without question, what is really going on in the black box can often be murky and definitely presents risk when it comes to introducing bias. At the same time, RPA vendors often have not demonstrated a noticeable difference in candidate quality, creating a potential offset to efficiency gains in the form of increased risk and a diminished ability to filter on trustworthy measures of candidate quality.

Despite some of the limitations RPA tools present, we still feel that the rise of AI-based recruitment solutions is gathering momentum and will eventually become the strongest trend in the predictive hiring space. The ROI of increasing the efficiency of the hiring process is extremely clear. And with COVID-19 swelling the pool

of available candidates, the need to quickly add tech to grease the skids of the hiring process has become even greater.

Despite increased levels of due diligence among consumers of AI hiring tools, the market generally does not care about how these tools work. As long as they can introduce efficiency into their processes while selling the dream of increased candidate quality, the demand for RPA tools will continue to grow.

The future is bright for RPA tools. But without valid and reliable measures of candidate quality, users of RPA who step over dollars to pick up pennies will, at the same time, be opening the door to bias and risk. Hopefully, the importance of reliable, accurate, and fair solutions will become increasingly clear in the years to come.

AUTOMATION – PREDICTION FOR 2025:

AI-based recruitment tools will continue to swallow up the real estate owned by traditional assessments, increasing both market growth and the divide between tools that include proper psychometrics and those that do not.

While the pandemic has definitely led to a temporary reduction in the acquisition of HR technology, hiring will eventually resume full force. Along with it will come a strong interest in new technologies that are designed to support hiring in the new normal, creating a significant increase in the adoption of newer AI-driven HR technologies.

According to a global study of 12,000 staffers by *Oracle and Workplace Intelligence*, **66% of respondents strongly agree that the COVID-19 pandemic has accelerated their companies' willingness to invest in artificial intelligence tools.**^[9]

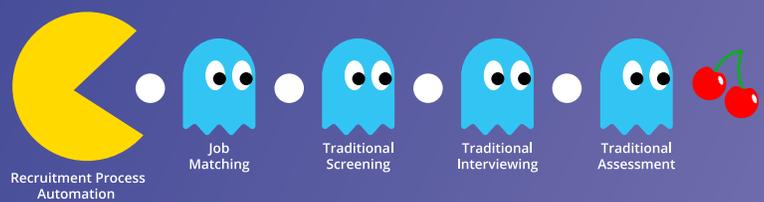
While the pure data science approach to algorithmic hiring presents a whole raft of issues around bias, overhyped claims of accuracy and invasion of privacy, the sheer efficiency these solutions offer — and the fact that they are deeply embedded in larger solution sets — will drive widespread adoption.

The continued encroachment of AI-based hiring tools — specifically those providing various components of RPA — into the realm of traditional assessments will be a significant story over the coming five years (and beyond). Predictive hiring will no longer be the exclusive domain of assessment proper, and we will see RPA continue to absorb assessment while also continuing to evolve technology that creates new paradigms for predictive hiring. We can expect to see RPA gaining market share from traditional assessment providers as they slowly replace the traditional assessments used for matching, screening, and evaluating candidates.

Figure 6.24:

RECRUITMENT PROCESS AUTOMATION WILL SWALLOW TALENT ASSESSMENT

COVID-19 will not slow down this trend. The lure of increased efficiency to manage a high volume of applicants and provide less friction for both applicants and employers will continue to build momentum for RPA-based predictive hiring tools.



Source: Rocket-Hire, January 2021 © Rocket-Hire 2021 © Namco

GROWTH TREND #5: SPECIALIZATION

This section explores the influence of vendors who provide one primary type of assessment (aka *Specialty Providers*) on market growth through an exploration of two interrelated trends:

5A: Assessment is still a cottage industry, with many smaller, specialty firms making a significant contribution to market size. While big money is being invested into the larger players in the assessment space, assessment has always been a cottage industry made up of a great number of smaller firms who specialize in serving companies of every size across the globe.

5B: Smaller providers are entering the market through the ecosystems of larger ERPs. With the assessment strategies of many of the larger ERP and platform providers in the space focusing on integrating vendors to their ecosystem (versus acquiring them or growing capabilities in-house), the big players in the HR tech space are playing an increasingly central role in supporting specialized vendors.

The remainder of this section provides a summary of specialization trends that have unfolded since our 2015 report, and provides predictions about how this trend will unfold in the coming five years.

5A: SPECIALTY PROVIDERS ARE THRIVING

IN 2015:

We suggested that niche specialists will make an increasingly significant contribution to the market, writing:

Talent assessment remains a cottage industry populated by many smaller shops that have distinct specializations. Many vendors in the space serve well-developed niche markets, either by vertical (i.e., healthcare) or by technology (i.e., simulations). These companies will experience upticks over the course of 2015.

SPECIALIZATION – STATUS IN 2020/2021:

Specialty Providers are a smaller, but thriving, part of the assessment market.

Despite the continued domination of larger providers with large product portfolios who are focused on the enterprise market, assessment continues to be true to its roots as a cottage industry in which a larger number of smaller vendors define themselves through more narrowly specialized products.

Our data clearly indicate that Specialty Providers make up a significant portion (31%) of the overall market.

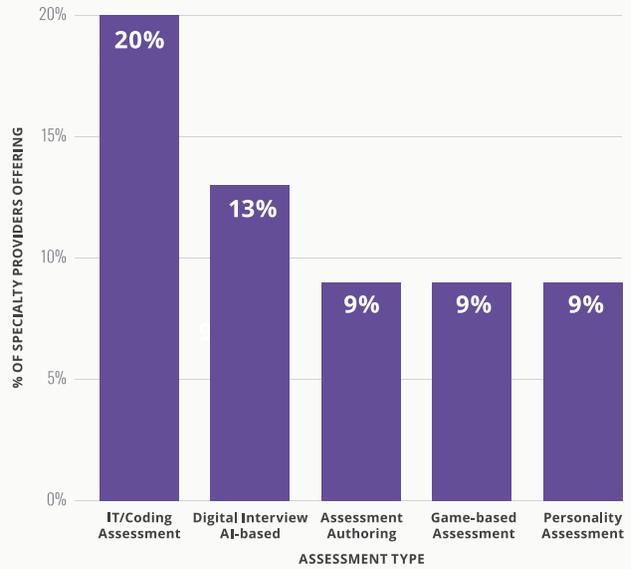
Our data also clearly indicate that many of the newer entrants into the market are Specialty Providers. The average age of the Specialty Providers in our database is about a third lower than the overall average age of the vendors in our database (13 years versus 19 years). Furthermore, 69% of all Specialty Providers were founded in the past decade, with over a third of these being founded in the past five years.

Specialty Providers are also smaller in size — 60% of Specialty Providers have fewer than 25 employees.

Figure 6.25:
TOP 5 ASSESSMENT TYPES OFFERED BY SPECIALTY PROVIDERS

While there are 22 different assessment types offered by the Specialty Providers in our database, the majority of these vendors (60%) focus on one of five assessment types.

Note that the top two specialties — IT/Coding assessments and AI-based interviews — tap directly into strong trends in the current market: the importance of hiring skilled developers and IT professionals, and the need for remote hiring tools that reduce friction in the hiring process and support remote hiring driven by the pandemic.

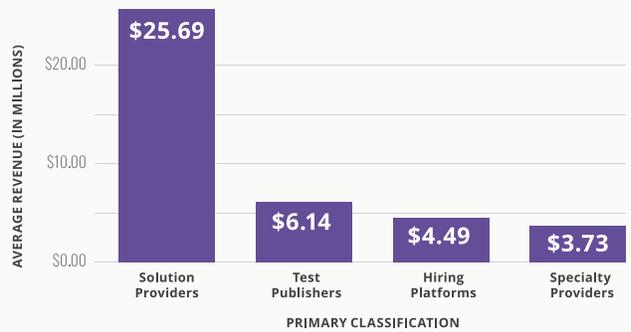


© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.26:
AVERAGE REVENUE (IN MILLIONS) BY PRIMARY CLASSIFICATION

Specialty Providers also generate the lowest revenue by far of all primary classifications — their average revenue of just under \$4 million per year is about a third of the overall average of vendors in our database (\$11 million per year).

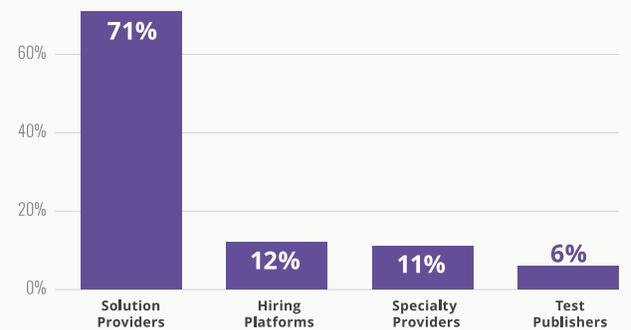


© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Figure 6.27:
PERCENT OF OVERALL MARKET REVENUE CONTRIBUTED BY EACH PRIMARY VENDOR CLASSIFICATION

Despite having the lowest average revenue of any type of provider, Specialty Providers account for as much or more of the overall revenue generated by the entire marketplace as do Hiring Platforms and Test Publishers — but still pale in comparison to the revenue contributed by the Solution Providers that dominate the market.



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

Overall, our data paint a picture that clearly shows Specialty Providers, while making up a third of the market, are generally younger, smaller, and generate less average revenue than other types of providers. Still, Specialty Providers are making a significant contribution to overall market value, a trend which we feel will continue in the years to come.

SPECIALIZATION – PREDICTION FOR 2025:

Due to lower barriers to entry for smaller companies, specialty vendors will continue to thrive and contribute positively to market growth.

Assessment has always been a cottage industry in which smaller firms enter the market with more specialized solutions. In keeping with tradition, we expect to see the trend of specialization continue in the years to come. Among the primary reasons for this trend is the fact that barriers to entry in the market are much lower for Specialty Providers. Focusing on just one core area generally reduces the expense of going to market. Specialization also makes it much easier for just a few people to start a company, often with little or no outside funding. Companies focusing on one specialty are also very likely to be invested in a personal mission to solve a real and specific problem which they are likely to have encountered first-hand.

While specialty vendors may not account for the lion's share of market revenues, they will definitely help drive market growth in the years to come by

increasing the diversity of assessments available via an inevitable flow of new companies taking advantage of the low barriers to entry. Many of these companies will eventually evolve to become large and highly profitable companies, while those who remain small will still be able to generate significant revenues and remain profitable in their niche or geographic market.

Because Specialty Providers offer products to address specific needs created by the pandemic (i.e., remote assessment security, assessment for remote workers, increased focus on employee development), COVID-19 provides a great deal of opportunity for this market segment.

Specialty Providers will also contribute to market growth in a relatively new way — by integration into app-like ecosystems created by large ERP and HCM platform providers.

5B: HCM AND ERP VENDORS SUPPORT SPECIALTY PROVIDERS VIA THEIR VENDOR ECOSYSTEMS

IN 2015:

We predicted that large platform providers would play a role in the continued growth of the space, writing:

The maturation of HCM products is providing a significant platform for the continued uptake of talent assessments. An increasing number of HCM suite providers are finally turning their attention to the value-add that a unified assessment process has across the entire talent lifecycle. Expect to see HCM providers begin to solidify their assessment strategies over the course of 2015.

Our 2015 predictions suggested that providers of enterprise HCM platforms would turn their attention to assessments in the coming five years, using acquisitions and/or in-house development to create integrated pre-hire assessment modules that can be connected to other areas of the post-hire talent lifecycle such as learning and development.

We also felt the capability of linking pre- and post-hire data would provide end users with a golden opportunity to evolve their HCM programs which would strengthen the value proposition for pre-hire assessment and lead to increases in their usage.

It is clear that we missed the mark with this prediction. Instead of bringing assessment in-house or acquiring assessment companies, large platform providers have pursued a strategy that focuses on the integration and support of third party providers through the cultivation of vendor ecosystems. While these ecosystems have not moved the ball forward significantly when it comes to linking pre- and post-hire assessments, they have provided smaller and less mature Specialty Providers with access to new opportunities.

SPECIALIZATION – STATUS IN 2020/2021:

HCM providers have taken a different strategy than predicted, creating vendor ecosystems that support pre-integrated specialty solutions instead of buying or building internal assessment capabilities.

At present, no large-scale platform providers own their own assessment capabilities. Oracle/Taleo, one of the only ATS/HCM vendors offering their own integrated assessment solutions, sunset this business in 2019. Of the 38 recent acquisitions of assessment companies tracked in our database, none of them have been by major ERP or HCM platform providers.

Instead of building or buying their own assessments as was predicted, enterprise platform providers offer their clients assessments by creating ecosystems of integrated third party point providers whose offerings function more like apps than native modules. The trend of offering functionalities via plug-and-play ecosystems is not unique to assessments, and has been noted by many analysts as a trend that is growing in significance. For instance, according to Forrester Research:

“Digital operations platforms (DOP), which combine back-office business tools into a single product, were hot in 2020, and they will continue to grow as a replacement for legacy enterprise resource planning (ERP) software. Greater DOP adoption will push vendors to differentiate their products, which is a good thing for their clients.

“New DOP offerings will become AI-based and ecosystem-oriented, tailored to industry and even micro-vertical use cases and requirements. The payoff is digital bedrock for operations and insights—and surfacing the competitive core of your business to new products and experiences.”^[10]

This trend definitely extends to the HR tech industry, as noted by industry analyst Josh Bersin, who suggests:

“... these new HCM platforms are not just ‘applications,’ but rather micro-services platforms where applications run. Some of the most innovative apps in HR now come from third parties. HCM vendors simply cannot build everything themselves. I now think of core HCM as “application ecosystems,” more like the iPhone than like Quickbooks.”^[11]

Vendors of all types and sizes benefit from an ecosystem-driven strategy because it allows end users the flexibility to tailor their systems to precisely the combination of functionality needed, an option that is often more appealing to clients than forcing them to abandon existing programs into which they are heavily invested. This strategy also happens to be extremely beneficial to smaller specialty vendors because it allows them more visibility and continues to lower barriers to adoption.

Our 2015 predictions also suggested that the further integration of pre-hire assessment modules to post-hire HCM modules would be a force driving increased use of pre-hire assessments. We felt that with vendors pushing the integration of pre-hire assessments into post-hire HCM functionality, organizations would finally begin to realize the value of integrating pre-hire assessment data across the entire employee lifecycle.

Unfortunately, while platform technology can accommodate the integration of pre-hire assessment data with post-hire functions, end users are still not taking advantage of this capability. The adoption cycle for HCM and ERP platforms is slow, and integrating new functionalities such as pre- and post-hire assessment into legacy systems is still an uphill battle.

SPECIALIZATION – PREDICTION FOR 2025:

The creation of app-like vendor ecosystems that simplify integrations will continue to drive market growth by making specialized assessments more accessible to customers of ERP/HCM platforms.

Success in HR tech in 2021 is, and will continue to be, all about flexibility and choice. HCM platform providers will continue on the current trend of cultivating the ability to plug in assessments from a growing ecosystem of vendors and this will continue to make integrations easier, lowering the barrier for adoption of assessments and supporting increased market growth.

COVID-19 is likely to have a positive impact on the contribution of Specialty Providers. It is likely that new Specialty Providers will enter the market to provide assessment types that support hiring in the new normal (i.e., digital interviews, culture fit). In the coming years it is also likely that more Specialty Providers will become plugged into HCM/ERP ecosystems where they can help link pre- and post-hire data. As companies invest more in cultivating long-term relationships with their employees and provide them with increased opportunities for career development and “self-skilling,” Specialty Providers will have the opportunity to play a larger role in integrated talent management strategies.

GROWTH TREND #6: HUMANIZATION

The value of assessments in supporting the human experience movement will become an increasingly important factor in market growth. This movement is being driven in large part by four interrelated trends that center around promoting equity and inclusivity while creating value by strengthening the bond between employers and their employees.

These trends include:

- 6A: Equal access.** Assessment plays a role in creating a level playing field for job seekers belonging to historically underrepresented populations.
- 6B: Reducing bias.** Assessment provides a mechanism for reducing bias and vetting applicants through inclusive and fair processes.
- 6C: Culture fit.** Assessment provides an objective way to measure how well applicants fit with a dynamic and inclusionary definition of culture, creating value through the psychological bond that comes with shared values.
- 6D: Career empowerment through skills assessments.** Assessment plays a central role in closing the *opportunity gap* by supporting hiring for and developing long-term potential through upskilling, reskilling, and self-skilling.

This section provides an overview of the impact of these trends on market growth.

6A: EQUAL ACCESS TO EMPLOYMENT OPPORTUNITIES

IN 2015:

We focused on credentialing as the main vehicle for increasing employment opportunity among underserved populations, writing:

There is no doubt that credentialing will be a major force in the future of hiring and that credentials will be at least partially based on assessments. The coming changes in learning and the higher education system will demand it. Once LinkedIn and Facebook field trusted badging systems, everything will change. The ability to use digital merit badges to verify important information will be the death blow to traditional methods such as resumes.

While credentialing is important, it is far from the only role that assessment is playing in leveling the playing field for job seekers.

EQUAL ACCESS – STATUS IN 2020/2021:

Assessment is an important ingredient in new products that provide job seekers who lack formal education with alternative pathways to employment.

Because resumés and academic credentials are firmly entrenched as the accepted pathway for movement into the workforce, they have become a signal of occupational prestige.

But what about those who don't have the opportunity for a traditional education?

According to a recent blog post by Mary Daly,

“The inequity in access to education is persistent across generations. Pfeffer (2018) found that, over the past two decades, around 50% of high school graduates from low-income households have consistently enrolled in college, compared to 80% from high-income households. Additionally, college costs and student loans have risen, which makes attending college a heavier burden for those who start out with less income, often those in minority groups.”^[12]

Given the disparity in academic opportunity, reliance on academic credentials as a signal of employability is exclusionary because it denies those who are unable to obtain a traditional education with access to employment opportunities for which they are qualified.

Assessment has the potential to become a great equalizer because it plays a central role in replacing academic credentials with objective, reliable, and job-relevant signals that better represent an individual's capabilities and capacities. According to a recent report by Ithaka:

“Employers are able to assess a global talent pool's competencies directly and automatically with technology-facilitated assessments. Through new technologies and providers, candidates have the ability to validate their level of fluency in a desired skill set quickly and easily, which enables them to apply for roles for which they might not previously have been considered due to geographical, biographical, or educational constraints — constraints that technology-based assessments eliminate. The elimination of personal interview bias and degree bias is a huge leap forward in opening career pathways to a wide array of candidates, especially those with underrepresented backgrounds.”^[13]

In the traditional model followed by assessment vendors (known as the “pull” model), assessments are served to a candidate on behalf of the employer — but only after the candidate has opted into the hiring process. While the objective data provided to employers through the pull model definitely has a significant role in replacing academic credentials, it still limits equity because the pool of job seekers given the opportunity to complete these assessments has already been filtered by potentially biased sourcing and screening methods that rely heavily on academic attainment.

As the assessment market evolves, a new breed of providers that put job seekers in charge of providing signals of employability (i.e., “push-based” providers) are opening up alternate pathways to job attainment.

According to Ithaka,

“The growth in employer adoption of technology-facilitated assessments has spurred another set of players in the ecosystem: candidate-targeted assessment providers. These vendors allow communities of candidates to “own” their assessment process: Instead of being directed to online assessments as part of the application process or being assessed as part of earning a digital credential, third party providers are giving candidates access to assessments that will directly evaluate their skills in order to signal desirable competencies to employees.”^[14]

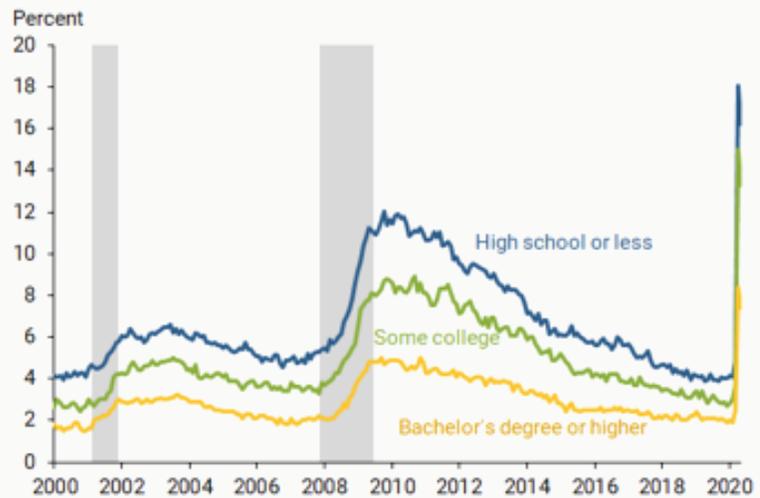
Assessment plays a central role in the push model because it provides job seekers of all types with equal opportunity to find jobs for which they are suited and demonstrate their capabilities to employers. Given the increasing world wide focus on creating equity in the jobs market, the push provider model shows great potential as a growth engine for the assessment market.

COVID-19 is creating increased opportunity for push providers to level the playing field in the jobs market. While COVID-19 has resulted in job losses for workers of every type, it has had a disproportionate impact on workers without a college degree. According to a recent study by the Bureau of Labor Statistics:

“The coronavirus disease 2019 (COVID-19) has disrupted the US labor market in many ways. Early data indicate that American workers without a college degree have experienced the most severe impact.”^[15]

Figure 6.28:
**UNEMPLOYMENT BY
EDUCATION LEVEL**

The authors' data clearly demonstrates a disparity in job loss such that those without degrees are much more likely to be unemployed as a result of COVID-19.^[16]



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

With more job seekers without degrees in the labor pool, existing barriers to equity are growing taller, creating an even stronger value proposition for push providers who use reliable assessment tools as the heart of solutions designed to disrupt the status quo.

It is worth noting that several providers in our database have created innovative push-based solutions aimed squarely at leveling the playing field in the jobs market.

- ☑ **InfinityGlobal.io** has created a unique platform that focuses on allowing those with a passion for work in the digital realm but who lack academic credentials (i.e., “undiscoverables”) to complete a series of assessments, the results of which comprise an “employment passport” of documented skills and abilities that can be shared with employers through Infinity’s own talent marketplace.
- ☑ With a mission to eventually take on standardized testing and help level the playing field for those without educational credentials, **Imbellus, a start-up recently acquired by global gaming giant Roblox**, has created an impressive game-based assessment that measures traits that comprise a holistic model of thinking styles that is much more applied than that found on traditional standardized tests. Beyond its innovative and industry-leading approach to the use of AI to score complex gameplay, Imbellus is sowing the seeds of change by providing those from underserved populations with greater access to white collar, professional jobs.

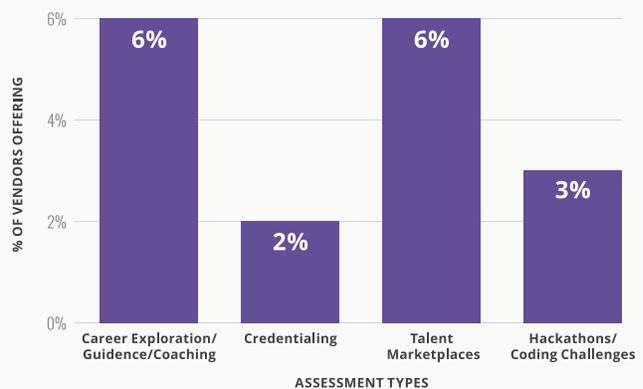
The focus on push solutions is not limited to start-ups. Major players in the industry are also creating quality push-based assessment solutions.

- ☑ Blue chip global provider **AON Assessment Solutions** and global communications provider Vodafone have jointly developed the "Vodafone Future Jobs Finder Platform." This global platform uses assessment to help young people identify the digital jobs for which they are best suited while also providing targeted career guidance and direct access to learning and employment opportunities.
- ☑ Hackathons and coding challenges offer an excellent way for job seekers to show their abilities to employers. A large number of IT/Coding assessment providers in our database put on these contests which provide engaged communities of job seekers lacking formal credentials with new pathways to show their skills to employers.

Figure 6.29:

PERCENT OF VENDORS OFFERING PUSH-BASED ASSESSMENT TYPES

Despite increased momentum for push-based assessments, our database shows assessments aimed at creating equity are still a very small part of the market. As indicated in this figure, no more than 6% of providers in our database offer any of the assessment types that are most often associated with a push methodology.



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

EQUAL ACCESS – PREDICTION FOR 2025:

The scale and importance of the movement to create equity in the jobs market will slowly open up a massive new market opportunity for assessment.

As the movement demanding equity in the jobs market continues to grow, increasing pressure on the status quo will no doubt bring about the structural change needed to move the needle. While the market opportunity for tools that promote equality will be huge, progress in their adoption over the coming five years will be slow because:

- ☑ The romance with academic credentials has been firmly entrenched for hundreds of years, and is unlikely to be completely replaced within five years. Assessment will be a big part of this movement, but it is possible that change comes from outside the industry.
- ☑ While credentialing is an excellent idea, for it to be successful employers must buy into a standardized and universally accepted format for credentials. With so many providers looking to get into the game, this will be a tall order.
- ☑ Movement to a push mentality alone will not eliminate all the sources of systematic biases that exist in the hiring process.

Clearly, bias is a major factor to be considered in the use of all hiring tools. The following section provides a deeper look at the impact of bias on the assessment market.

6B: REDUCING BIAS

REDUCING BIAS – STATUS IN 2020/2021:

Despite feelings to the contrary, assessment can actually play a significant role in reducing bias and supporting diversity and inclusion efforts. The extent to which this potential is widely recognized enough to contribute to market growth is still unclear.

Our 2015 report did not specifically address the issue of bias and its potential impact on market growth. While bias in hiring decisions, and the tests that support them, has long been an issue of great importance, in 2020/2021 it has become a source of great attention and controversy, so much so, that this topic could easily fill several reports on its own. In this report, our intent is to focus on the impact that the topic will have on the market for talent assessment tools, using our data to support our conclusions whenever possible.

Bias in hiring is an issue that is both polarizing and galvanizing. There is broad and far-reaching agreement that inequity in hiring is a real issue that must be addressed and eliminated. At the same time, the assessment industry — while being blamed for perpetuating these problems — is also positioning itself as a critical part of the solution to them.

While employment tests of any format (AI or otherwise) have historically been blamed for introducing bias, the truth is that the testing industry has been working tirelessly to reduce it.

The genesis of the testing industry's focus on reducing bias was established by the US Supreme Court more than four decades ago. A blog post by the The empLAWyerologist offers an excellent recount of the landmark case that has set important precedent that is still relevant today.

"...a pre-employment testing procedure or requirement, while itself neutral, might still be ruled discriminatory if it disproportionately excludes from employment or promotions, certain classes of people protected by Title VII of the Civil Rights Act of 1964.

The US Supreme Court first weighed in on this subject in 1971 in Griggs v. Duke Power Co. 401 US 424. Before July 2, 1965, the effective date of the Civil Rights Act of 1964, Dukes openly engaged in discriminatory employment practices. The company first had a policy of requiring a high school diploma for positions in all but one department, and later added a requirement that candidates pass an intelligence test. While applying equally to all races, both requirements essentially disqualified African-Americans at a significantly higher rate than Caucasian applicants. This case established the principle that an otherwise neutral practice can still be violative of Title VII if it has a discriminatory impact on one or more groups protected under Title VII (or other EEO laws) and is not job-related and/or cannot be justified as a business necessity. Twenty years later, Congress passed The Civil Rights Act of 1991 to expressly prohibit practices having a disparate impact on classes it was intended to protect."⁽¹⁷⁾

In reaction to landmark case decisions, in 1978 the EEOC created the canon for fairness in employment testing in the form of their Uniform Guidelines on Employee Selection Procedures (UGESP). For the past 40 years, these guidelines, in conjunction with the precedents set by case law, serve as the main regulatory mechanism for bias in employment testing.

But are the EEOC's Guidelines (now over four decades old) enough to regulate the wave of advanced predictive hiring technologies?

The current groundswell of support for fair and inclusive hiring practices has placed the entire testing industry under the microscope and has inexorably bound it to a new breed of AI-based predictive hiring tools that seek the same outcomes as assessments, often by radically different means. The upshot is that the state of the predictive hiring industry, when it comes to compliance and regulation of bias in 2021, is a mixed bag that offers cause for both encouragement and grave concern.

THE GOOD NEWS

While the UGESP places the burden of proof for fairness in hiring practices on the employer, the testing industry is obligated to provide their clients with products and services that support compliance. For almost 50 years, the bedrock of the employment testing industry has been fixated on reducing adverse impact and other forms of test bias.

The idea that testing brings increased risk of compliance failures is somewhat of a myth. In reality, as long as a testing program follows the best practices outlined in the UGESP, it is much more likely to reduce risk than to create it. In the absence of testing, the subjectivity of employment decisions is greatly increased, leaving the door to bias wide open.

As the body of evidence for the bottom-line value of testing continues to grow, and the importance of compliance becoming increasingly critical, the testing industry continues to answer the bell, tirelessly seeking ways to eliminate bias and level the playing field while desrisking assessment for their clients. Firms with roots in the testing industry have generally approached the use of AI with extreme caution, preferring thorough research and explainability guided by a psychological framework.

THE BAD NEWS

While providers of traditional assessments are far from getting a hall pass, the expansion of predictive hiring tools beyond the traditional testing paradigm to include new technologies, functionalities and products has led to an exponential increase in the complexity of the understanding and management of hiring bias.

Traditionally, the quest to reduce bias has focused on tests as the cause for biased decision-making. But decision-making is prone to bias for both people and machines. The management of bias is fundamentally tied to the data used to create the algorithms used to build and grow decision-making models. With traditional testing, sources of bias are generally understood and managed, but AI-based tools outside of the realm of work psychology rely on approaches that can be fraught with “phantom bias” that can cause a great deal of collateral damage to diversity and inclusion.

Some notable examples of unintentional bias based on flawed training data include:

LinkedIn’s search. LinkedIn had an issue with gender-related bias.^[18] The first users searching for high-paying jobs on this platform were males, so LinkedIn’s algorithms ended up showing offers for high-paying jobs to men more frequently than women.

Amazon’s hiring algorithms. Amazon developed its own hiring tool, but later they abandoned it because of gender-related bias.^[19] Amazon’s algorithms were trained on resumes submitted to the company over the last decade. The number of female applicants was much lower than the number of male applicants, so the algorithm determined the male gender as one of the factors for approving a candidate.

Facial recognition software. Law enforcement has ramped up the use of facial recognition software, another potential source of both race and gender bias.^[20] In February 2018, Joy Buolamwini at the Massachusetts Institute of Technology found that three of the latest gender-recognition AIs — from IBM, Microsoft, and Chinese company Megvii — could correctly identify a person’s gender from a photograph 99% of the time, but only for white men. For dark-skinned women, accuracy dropped to just 35%.^[21]

A recent report by Upturn.org provides an excellent overview of how AI-driven predictive hiring tools can introduce bias at three of the earliest notes of the hiring process — automated job ad placement, candidate matching, and automated sourcing — well before assessment proper enters the picture.^[22]

According to this report:

BIAS IN AUTOMATED JOB ADVERTISING

Platforms like Facebook and Google decide which ads are ultimately shown to whom, not only based on advertisers' willingness to pay, but on the platforms' own prediction of how likely a user is to engage with the ad (e.g., clicking on it) or to take another desired action (e.g., applying to the employer's job on the company's career website).

As legal scholar Pauline Kim has argued, "not informing people of a job opportunity is a highly effective barrier" to applying for that position. How employers advertise can sharply limit, or greatly expand, the types of people who even learn a job opportunity exists. The targeting and delivery techniques described above are powerful, commonplace tools of the recruitment trade. However, we worry that employers, ad platforms, and regulators do not yet fully appreciate their impact.

In particular, sourcing platforms that deliver ads based on optimizations derived from user behavior, such as the number of clicks or job applications, risk directing ads and notices away from demographics that are historically less likely to take those actions. This could narrow the universe of underrepresented groups who are even presented with opportunities.

BIAS IN MATCHING

Job matching platforms like ZipRecruiter, and recommender systems more generally, present unique equity challenges. For one, tools that rely on attenuated proxies for "relevance" and "interest" could end up replicating the very cognitive biases they claim to remove.

Content-based filtering can reinforce users' own priors and cognitive biases. For example, if a woman with several years of experience tends to click on lower-level jobs because she doubts she is qualified for more senior positions, over time she may be shown fewer higher paying jobs than she would otherwise be qualified for. Collaborative filtering, on the other hand, risks stereotyping users because of the actions of others like them. For example, even if a woman frequently clicks on management positions herself, the system might learn that other, similar women tend to click on more junior positions, and might show her fewer management jobs than a similarly situated man — not due to her own preference, but because of the behavior of people the system deems to resemble her. Technical researchers are still trying to conceive of the right ways to benchmark and measure these systems, even outside of the hiring context.

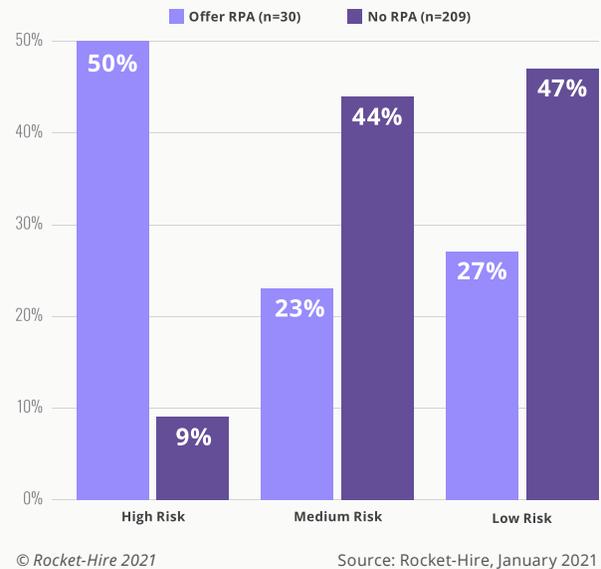
BIAS IN SOURCING (AKA HEADHUNTING)

Headhunting tools present some of the same fundamental concerns as matching tools. Rather than predicting more direct signals of "job success," they often end up predicting recruiter or jobseeker actions, which can amplify biased social behaviors. This can happen especially quickly when predictive models are updated dynamically, as in recommender systems. For example, if an employer tends to click on the profiles of male software engineers, not only might she be shown more male software engineers, but other recruiters seeking candidates for similar roles may also see more male software engineers.

Figure 6.30:

RISK RATINGS FOR PROVIDERS OFFERING RPA VERSUS THOSE WHO DO NOT

Our database includes providers who offer various tools that support automated job posting, automated candidate matching tools, and algorithmic-driven candidate sourcing (we refer to these as providers of Recruitment Process Automation or RPA tools). While many RPA providers position their tools as a means to reduce bias, given what we know about unintentional bias and its sources, we remain skeptical that they are part of the solution, resulting in our assignment of high risk ratings for many vendors of RPA tools.



While the business value of automated hiring tools is clear, the biases they can present are hard to track, creating a lack of accountability on the part of providers to back up their claims that their systems eliminate bias. Despite their potential dark side, the efficiency offered by purely AI-driven hiring systems means they will continue to open the door to bias while at the same time generating revenues that contribute to the ever-increasing value of the talent assessment market.

THERE IS HOPE

As previously mentioned, when it comes to traditional assessments, the industry has continued to seek out new assessment modalities that can reduce bias. For instance, in the past five years almost every major provider has developed non-verbal cognitive games to replace traditional cognitive tests that consistently show bias that is at least partially based on differences in reading comprehension. Additionally, providers have continued to evolve assessment formats that are highly job related such as simulations and work samples.

When it comes to the approach of most pure AI-based providers, there is a general consensus that AI can be used to eliminate bias because, if bias can be trained in, it can also be trained out. While definitely possible, the idea that AI can remove biases in hiring is hard to fully accept, especially when it comes to deep learning and other complex black boxes that lack explainability and the unintentional biases that can be created via biased training data.

Clearly seeking to eliminate adverse impact associated with selection measures is an important and valuable undertaking, but what we know about the bigger picture when it comes to hiring bias suggests that it is no longer enough to gauge the fairness of a selection system based on a lack of adverse impact alone. This expanded view of bias requires vendors of all types (and thus the clients who use their tools) be held accountable to a set of higher standards and suggests the path forward must be forged in the fires created by two broader forces — public policy and a desire to do the right thing.

THE ROLE OF POLICY

The backlash against inequality in hiring and the demand for higher levels of personal privacy has created a great deal of momentum among policy makers at every level of government worldwide. Examples include privacy standards such as General Data Protection Regulation (GDPR) and efforts by local governments such as the laws enacted by the State of Illinois and the “Algorithmic Bias Accountability Bill” passed by the municipality of New York City, both of which hold employers to higher standards such as requiring them to notify applicants that they are being screened using AI.

While the standards of the UGESP technically apply to all tools used to make hiring decisions, AI-based or not, there seems to be a reluctance among regulatory bodies such as the EEOC and Department of Justice (DOJ) to fire the shot that opens Pandora's box. A recent blog posting by Bloomberg Law offers hope by suggesting that:

"The EEOC is investigating at least two cases involving claims that algorithms used to help make hiring, promotion, and other job decisions unlawfully discriminate against certain groups of workers..., (sic) giving the EEOC the opportunity to weigh in on artificial intelligence that is increasingly being used by human resources shops and drawing concerns about baked-in bias related to race and sex."^[23]

Talk is cheap, and it is important not to confuse investigation with action. At the time of this writing (January 2021), enforcement is yet to make an example of anyone — a step that seems critical to setting precedent and creating policy to enforce it. Perhaps phantom bias living in the digital shadows of the hiring process is simply too elusive and complicated to instill regulators with the confidence needed to take action.

DOING THE RIGHT THING

Awareness of equity issues such as hiring bias is an important outcome of the humanistic movement that is driving change worldwide. The momentum among employers themselves is forcing them to take a look in the mirror and own their part in solving the problem of hiring bias.

A recent blog post by Jenny Yang, former commissioner of the EEOC who is currently a fellow at the Urban Institute, a Washington DC-based think tank that carries out economic and social policy research, suggests:

"As businesses make statements of solidarity in support of Black Lives Matter and racial justice, they have an important opportunity to invest in substantive changes to tackle the bias in their employment practices."^[24]

Recall that employers bear the burden of tools that create bias, not the vendors who sell them. Employers have a responsibility to create internal ethics policies and demand that vendors be fully transparent and provide evidence for the fairness of their tools.

As suggested by John Sumser, Principal Analyst at HRExaminer and long time thought leader in the world of electronic recruiting:

"Employment-related decisions are among the most important things that happen in the lives of candidates and employees. As we move further into the era of machine-assisted hiring, vendors and employers alike will be working to establish clear public statements of their approach to the ethical use of intelligent tools."^[25]

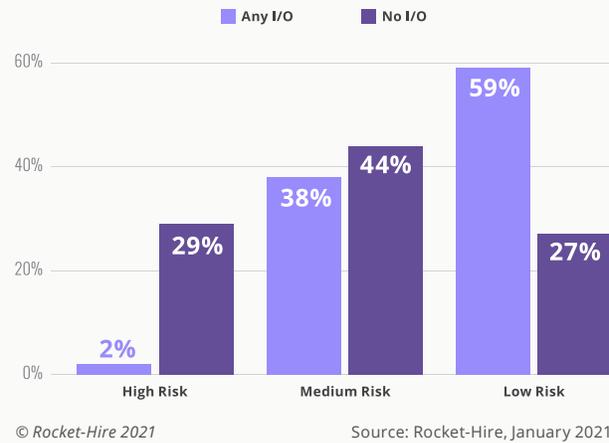
While far from a panacea, one way both users and providers of predictive hiring tools can show a dedication to doing the right thing is via research aimed at backing up their claims regarding the accuracy and fairness of their tools. Unfortunately, this type of research is uncommon among vendors of advanced hiring tools. **For instance, in a recent research study evaluating claims made by providers of game-based assessments and digital interviews using AI technology, Mulfinger and his colleagues^[26] found that only 21 of the 72 (or 29%) claims made by vendors regarding the efficacy and fairness of their tools were actually substantiated by publicly available research.**

One way vendors can help build a credible case for the accuracy and fairness of their tools is to ensure their teams include I/O psychologists with experience in these areas. Our research shows the presence of an I/O psychologist has a definite impact on a provider's perceived level of risk.

Figure 6.31:

RISK RATINGS FOR PROVIDERS OFFERING I/O SUPPORT VERSUS THOSE WHO DO NOT

As already presented previously, this figure clearly indicates that firms with an I/O psychologist on staff are much less likely to be rated as high risk, and are about two times more likely to be rated as low risk.

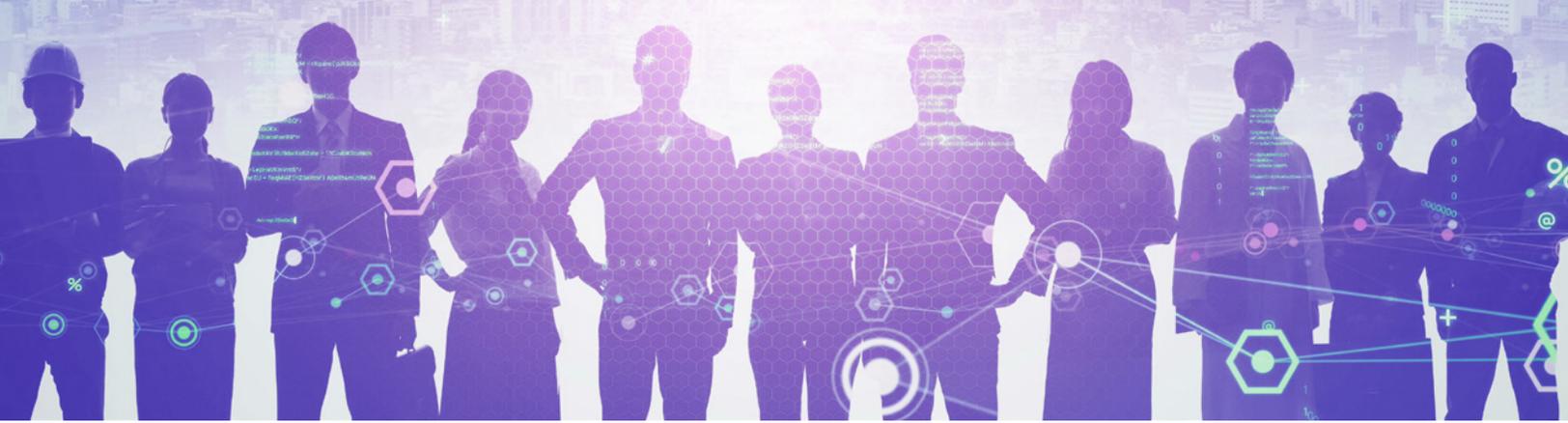


I/O psychologists can bring to the table a research-based mindset that helps provide technical guidance when it comes to evaluating the potential for bias and risk. For example, as a result of their research study evaluating AI-based providers' claims of how their products reduce bias, Raghavan et al.^[27] provide a refreshed set of guidelines for evaluating the potential for bias in predictive hiring tools of all types. They suggest that:

- ☑ Transparency is crucial to further our understanding of these systems. While there are some exceptions, vendors in general are not particularly forthcoming about their practices. Additional transparency is necessary to craft effective policy and enable meaningful oversight.
- ☑ Disparate impact is not the only indicator of bias. Vendors should also monitor other metrics like differential validity.
- ☑ Outcome-based measures of bias (including tests for disparate impact and differential validity) are limited in their power. They require representative datasets for particular applicant pools and fail to critically examine the appropriateness of individual predictors. Moreover, they depend on access to protected attributes that are not always available.
- ☑ We may need to reconsider legal standards of validity under the Uniform Guidelines in light of machine learning. Because machine learning may discover relationships that we do not understand, a statistically valid assessment may inadvertently leverage ethically problematic correlations.
- ☑ Algorithmic de-biasing techniques have significant implications for "alternative business practices," since they automate the search for less discriminatory alternatives. Vendors should explore these techniques to reduce disparate impact, and the EEOC should offer clarity about how the law applies.

Bias is a big deal and the complexities of advanced technologies can make identifying and controlling it seem almost unsurmountable. However, the level of attention the problem is receiving has created much needed pressure and momentum toward helping predictive hiring tools become part of the solution.

Given the present uncertainty around new hiring regulations and the impact of COVID-19, the extent to which regulation and social change has impacted the size of the talent assessment market in 2020 is still unclear, and is likely to remain so in the near future.



REDUCING BIAS – PREDICTION FOR 2025:

The quest to identify, remove, and control bias in the hiring process will continue to gain momentum and will be supported by new public policies that hold employers (and by extension the vendors who supply them) accountable. With so many unknowns, the extent to which this progress will impact the growth of the assessment market is hard to predict, but we remain hopeful that the value of assessments in eliminating bias will become clear enough to have a positive impact on market growth.

Despite a great deal of attention from regulators, vendors, and employers — plus the complexities of AI technology and the tension of balancing business interests with those of the greater good — the elimination of bias in hiring decisions will remain an uphill battle in the not-too-distant future.

First and foremost, future success requires a wide and far-reaching effort toward definitive action. According to Jenny Yang:

“An important next step will be to operationalize these principles by applying existing legal standards alongside the development of new technical and legal frameworks to address novel issues raised by hiring technology. This effort will require a robust interdisciplinary collaboration including computer and data scientists, tech developers, civil rights lawyers, employers, industrial and organizational psychologists, and other social scientists to translate principles of nondiscrimination into concrete actions so we build a future that aims not to merely minimize discrimination but to maximize equity.”^[28]

While COVID-19 is serving as a catalyst in the battle for equity, the disproportionate impact of the pandemic on certain socioeconomic groups and protected classes has created a swollen and imbalanced labor pool. Biases will no doubt be perpetuated and accentuated as companies adopt automated tools to help them efficiently handle high applicant volume created by the pandemic. In spite of uncertainty around the impact of bias on the talent assessment market, we feel it is not likely to have a strong negative impact for two reasons.

- ✔ First of all, the traditional testing industry will continue to create products that are dedicated to eliminating bias and will provide credible and transparent evidence of their efforts.
- ✔ Secondly, bias or not, the demand for automated predictive hiring tools will remain strong. Although AI vendors may lack accountability, they offer businesses needed solutions for which commercial interest often outweighs ethical considerations, especially when bias is hard to see or prove.

There is tremendous hope that vendors and consumers of all types, driven by a foundational desire to do the right thing, will create products that support fairness in the hiring process, thus opening wider the door to market growth.

6C: CULTURE FIT

IN 2015:

We predicted that fit-based assessments using advanced technology would make a significant contribution to growth in the assessment market, writing:

The ability to determine the level of fit between the values of applicants and those of employers is a universally popular idea. At present, its execution has been limited. Increased mobile and social recruiting technologies using AI and crowdsourcing, combined with psychometrics, will provide a winning formula.

CULTURE FIT – STATUS IN 2020/2021:

“Fit” (aka “culture fit”) continues to have broad appeal. The concept of culture fit is extremely intuitive and, when done correctly, has a proven impact on valued outcomes and a central role in supporting a humanistic agenda.

Five years later, while our prediction that AI, psychometrics, and crowdsourcing would be the driving force for the adoption of fit assessments proved to be off the mark, the concept of fit has continued to grow in popularity. Evaluating fit is a mainstay in the hiring process, be it through more subjective methods such as unstructured interviews, through new technologies such as automated RPA tools, or via more standard psychometric assessments.

While definitions of culture fit vary, they all center around quantifying a match between the measure of the values of an individual and that of an organization. According to the Society for Human Resources Management (SHRM), cultural fit is defined as:

“...shared beliefs and values established by leaders and then communicated and reinforced through various methods, ultimately shaping employee perceptions, behaviors, and understanding. Organizational culture sets the context for everything an enterprise does.”^[29]

By this definition, it is easy to understand the value that cultural fit can bring to both organizations and their employees. Culture fit works at a deep level, serving as an essential ingredient in the formation of the psychological contract that underlies the work attitudes that bond humans and organizations to one another. Research supports culture fit’s value proposition. For instance, a recent study by Amy Kristof-Brown and her colleagues showed a clear link between cultural fit and valued outcomes such as job satisfaction, organizational commitment, job performance, and retention.^[30]

Culture fit is also linked directly to employee engagement, a hot topic in the HR tech space for the past decade which is gaining even more momentum as a foundational element in the human experience movement. Clearly, there is something to fit. In a whitepaper about the value of cultural fit, the Business Agility Institute provides some insight as to why fit can be so valuable, suggesting that:

“Good personal-cultural fit also creates an environment in which employees feel safe to give their best. People feel most comfortable and accepted in an atmosphere that matches their intrinsic characteristics, and they deliver their best results when they feel comfortable and accepted.”^[31]

But fit also has a dark side which, unless managed properly, can perpetuate bias creating a homogenous workplace that excludes diverse viewpoints and opinions.

The potential for bias in the use of cultural fit for hiring begins with the fact that fit is a concept with a great deal of pop appeal. When one considers that fit has traditionally been arbitrated at an individual level where those closest to hiring decisions are left to make their own judgments about who fits and who does not, the potential for perpetuating systematic biases is clear. As Lars Schmidt puts it:

“In some organizations “culture fit” has become a weaponized phrase that interviewers use as a blanket term to reject candidates that don’t match the hiring manager’s view of the ideal candidate, and as such, it has become the embodiment of unconscious bias. Most interviewers are more likely to hire people like themselves and discount those who are different. This type of thinking hinders diversity and leads to homogenous cultures.”^[32]

With fit’s potential to create value through a psychological mechanism based on shared values, it clearly has a great deal of potential for employers, employees, and assessment providers. So it is imperative that we manage the dark side of fit without throwing the baby out with the bathwater.

Eliminating bias from fit starts with the removal of subjectivity. This requires taking the definition of what cultural fit is out of the hands of individuals and creating an objective definition that is shared by the entire organization and creating standardized processes that hold everyone accountable to this definition.

According to Mel Hennigan, VP of People at Symplicity Corp:

“Companies that do a good job of leveraging culture fit in making high-quality hires do so by acknowledging and objectifying the culture and making it mappable to specific skills, abilities, values and motivators of candidates. This can be done on a scorecard, just as knowledge, skills, and abilities are measured.”^[33]

Of course, creating shared agreements on objective definitions is the foundation for removing bias (and increasing the accuracy) of all predictive hiring tools. So what else can be done to ensure culture fit and save it from perpetuating biases?

The answer lies in an expanded and evolved definition of fit. There is no mandate that hiring for culture fit means hiring people who are identical. The values that comprise an organization’s culture can be the foundation of a richly diverse workforce. But supporting diversity with tools that are predisposed to create homogeneity is not easy and requires a solid framework to guide the process.

Enter *culture add*, a concept that involves company culture as dynamic and inclusionary. According to a whitepaper by the Business Agility Institute:

“Hiring for culture add means hiring people who will bring a wider diversity of values to the company — stretching and enriching the culture. Leadership may identify values the company culture is lacking and try to shape the culture in positive directions by hiring for culture add.”^[34]

As quoted in an article by SHRM, Alex Moore, Director of Talent Acquisition at Credera, suggests that:

“Culture add seeds a resilient culture by challenging groupthink that can come from just hiring for fit... If you want your company to continue to grow and evolve, your culture must grow and evolve along with it.”^[35]

Changing and adapting the notion of culture fit requires not only a guiding philosophy, but a set of tools that can account for culture as a dynamic phenomenon requiring organizations to take ownership of personal definitions that are objectively defined and systematically applied.

Assessments to measure fit are relatively commonplace in today's market. About 25% of the providers in our database offer products specifically designed to measure fit or the congruence between the work values of an individual and their potential employer. By comparison, the two most common types of assessment as identified by our data — personality assessments and cognitive assessments — are offered by 47% and 35% of providers, respectively.

At present, the fit measures offered in the talent assessment marketplace have not fully accounted for a shift from culture fit to culture add. While there are a good number of quality tools available to help organizations apply a clearly defined definition to the hiring process, these tools typically bring to the table a static and predefined set of cultural values from which the organization can pick, often failing to accommodate the more dynamic concept of culture add.

Perhaps more concerning is the proliferation of tools that promise to automate the definition of culture based on an AI's interpretation of what is valued by individuals in the organization. Such tools have the potential for organizations to define their culture through bias, not against it.

While fit assessments definitely make a positive contribution to the assessment market, they are currently falling short of their potential. Few companies have come around to the importance of an evolved viewpoint on culture fit. Perhaps COVID-19's influence on the human experience, and equity, will lead more organizations to adopt a more structured and dynamic approach to culture fit such as that provided by the concept of culture add.

CULTURE FIT – PREDICTION FOR 2025:

More providers will offer culture fit tools, and the market will slowly adopt a dynamic, culture add approach that supports a more humanistic agenda.

Despite a great deal of attention from regulators, vendors, and employers — plus the complexities of AI technology and the tension of balancing business interests with those of the greater good — the elimination of bias in hiring decisions will remain an uphill battle in the not-too-distant future.

Overall, as the market — and the consumers who drive it — truly value fairness, diversity and inclusion are likely to see culture fit/add as a means to these ends. While the potential for bias in automated fit measures will likely remain, the intuitive appeal and efficiency of these tools will not slow demand for them-bias or not.



6D: CAREER EMPOWERMENT (THROUGH SKILLS ASSESSMENT)

IN 2015:

We saw assessment playing a much needed role in helping organizations hire and develop talent with the skills needed for the future, writing:

The ability to determine the level of fit between the values of applicants and those of employers is a universally popular idea. At present, its execution has been limited. Increased mobile and social recruiting technologies using AI and crowdsourcing, combined with psychometrics, will provide a winning formula.

Certainly CEOs realize the value of talent to achieving their mission. But the general consensus is that they are unprepared to meet the talent challenges that will define the success of their businesses. Recent surveys of business leaders by PWC and Deloitte both identify major gaps between the perceived value of talent and the readiness of organizations to manage it. Talent Assessment is an essential tool for closing these gaps and as such, it will continue to gain interest from business leaders over the coming years.^{[36][37]}

CAREER EMPOWERMENT – STATUS IN 2020/2021:

Assessment has a role helping organizations in the acquisition and development of mission critical skills while also helping close the “opportunity gap.”

The skills gap still exists in 2021. According to a recent survey by McKinsey, 87% of executives said they were experiencing skill gaps in the workforce or expected them within a few years, but less than half of respondents had a clear sense of how to address the problem.^[38]

And the pandemic is not helping, as suggested by the World Economic Forum:

“The COVID-19 economic shock has made the skills gap broader and the need to close it more urgent.”^[39]

Furthermore, the pandemic’s role as a catalyst for the diversity and inclusion movement has led some to point out the skills gap problem as an equity issue. As noted by the Brookings Institute:

“Instead of focusing on the skills gap, we argue that it’s time to focus on closing the opportunity gap — not only for the benefit of individuals who have been shut out of the labor market, but for society as a whole.”^[40]

Equipping the workforce with mission critical skills can serve as the cornerstone of opportunity for both employers and those who work for them. According to Accenture:

“Business leaders typically think in terms of jobs or roles, rather than underlying core skills. However, skills are the new currency and will be the key to rebuilding resilient workforces in the future. It is only by identifying individuals’ skills that you can map people to the high-demand jobs that need filling in healthcare, businesses, and governments. Some people may find limited opportunities in the short term. By working with employers and community organizations, CHROs can help individuals acquire the new skills and mindsets needed for future work. This shared workforce resilience can power the best path forward for an organization, its people, and the community.”^[41]

The assessment industry is well-equipped to support the conversion of skills gaps into opportunities in two ways: in a pre-hire capacity by helping organizations hire for future potential, and in a post-hire capacity by supporting employers' efforts to create internal pathways for the growth and development of existing employees.

Hiring for raw potential is far from a new idea; many organizations prefer to build their talent capabilities instead of buying them. When it comes to hiring for potential, assessment providers offer a range of tools that support the creation of new and equitable opportunities for external talent to demonstrate their raw skills and aptitudes, as well their drive and capability to learn. Personality and cognitive assessments, the types of assessment most commonly used to evaluate potential, are well represented in our database with 47% of our sample offering personality assessments and 35% offering cognitive assessments.

Assessment can also assist employers in creating pathways to opportunity for existing employees, a mindset that has been accelerated by COVID-19. According to McKinsey and company:

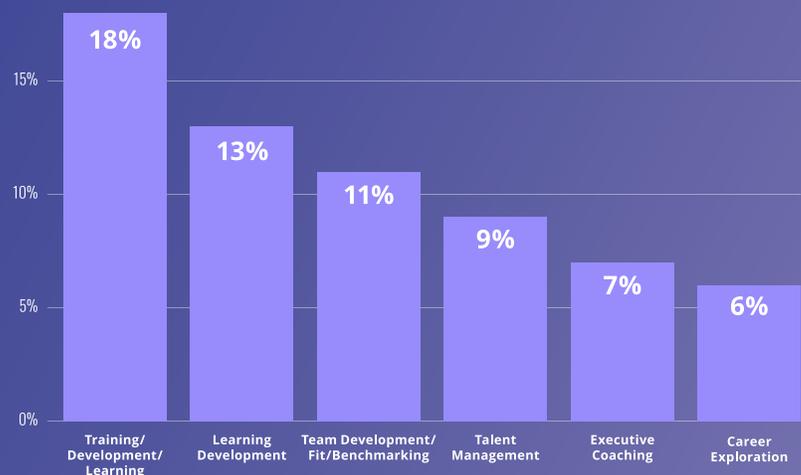
"It's about how leaders can reskill and upskill the workforce to deliver new business models in the post-pandemic era. To meet this challenge, companies should craft a talent strategy that develops employees' critical digital and cognitive capabilities, their social and emotional skills, and their adaptability and resilience. Now is the time for companies to double down on their learning budgets and commit to reskilling. Developing this muscle will also strengthen companies for future disruptions."^[42]

Assessment supports reskilling and upskilling initiatives by providing a standardized and objective way to document baseline skills levels and continually measure individual and group level progress in skill development and attainment.

Figure 6.32:

PERCENTAGE OF VENDORS OFFERING TOOLS THAT SUPPORT POST-HIRE SKILLS DEVELOPMENT

While the post-hire assessment industry offers a variety of products and services that support the creation of opportunities for existing workforces, the full potential of these tools still seems unrealized. As shown in this figure, relatively few vendors in our database offer products that support post-hire reskilling, indicating the industry is still behind in this important area.



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

It is worth noting that only about 50% of the providers in our database offer post-hire assessment tools. Our sample does not include vendors who offer *only* post-hire assessment tools, so it is likely that the number of vendors supporting the post-hire tools shown in *Figure 6.29* is higher.

While the use of assessments to hire for potential and close opportunity gaps is relevant in today's market, it has not been a driving force in market growth in 2020. We do expect this to change slightly in the coming five years.

CAREER EMPOWERMENT – PREDICTION FOR 2025:

COVID-19 will accelerate the need for tools to help develop potential and close talent gaps, the continued development of which will make a positive contribution to market growth.

COVID-19 will continue to disrupt and redefine the concept of a skills gap in several ways. As already mentioned, assessment is a perfect complement to the increased focus on workforce equity and diversity and inclusion, helping create opportunities based on objective measures of potential rather than more exclusionary measures centering around past work experience. Assessment will thus become an even more essential commodity in supporting companies with equitable decision-making tools for both external and internal talent.

Assessment is also in an excellent position to help support organizations' adaptations to the pandemic via the ability to provide objective signals on the KSAOs required for success in the new normal. In the years to come, we will see the assessment industry provide products that focus on the characteristics required for success in an increasingly fluid and changing world (i.e., resilience, flexibility, courage, ability to remotely, etc.). According to a recent report by Deloitte:

"Today, the qualities that workers — and organizations — need to survive and thrive are very different from those they needed in the past. One reason for this is that economies are shifting from an age of production to an age of imagination. In the past, business success relied mainly on deploying precisely calibrated skills to efficiently construct products or deliver services at scale. Today, success increasingly depends on innovation, entrepreneurship, and other forms of creativity that rely not just on skills, but also on less quantifiable capabilities such as critical thinking, emotional intelligence, and collaboration."^[43]

The emphasis on skills attainment and development as part of a humanistic and employee-centric mindset will lead to an increase in the number of related products and services. The industry is definitely stepping up to support this movement with new platforms that provide the infrastructure needed for closing the opportunity gap via reskilling. For instance:

- ☑ **Fuel50** offers a platform that allows individuals to manage their skill development and career pathing both externally and internally. The platform has a variety of modules to support this mission including an internal careers marketplace, mentoring programs, career path development, and support for future careers.
- ☑ **Patheer** offers a platform that supports the identification and development of high potential employees based on their strengths and career aspirations and provides a tool set for managing and measuring career journeys.

While neither of these platforms leans heavily on assessments, it is easy to see the value assessments could add via the inclusion of reliable and valid baseline measures of skills and abilities against which to benchmark progress. The continued addition of assessment tools into post-hire development tools like Fuel50 and Patheer, as well as the overall value of assessments for measuring important skills, will make a growing contribution to market growth in the coming years.

GROWTH TRENDS CONCLUSION:

As long as hiring is happening, assessments represent a tremendous opportunity to create value for employers and employees alike. The opportunity provided by assessments has not gone unnoticed as the market is growing larger and faster than anticipated five years ago. We can see no significant reasons why growth would slow down in the coming five years, and many reasons why we expect it to continue. Even COVID-19, despite causing a short-term dip in the market, represents a significant opportunity for long-term growth.

In summary, our data and experience suggest the following factors have been and will continue to be important drivers of market growth:

- ✔ Acquisitions and investment will continue to inject the capital needed for vendors to grow and mature.
- ✔ Assessment is more affordable and more available than ever, especially for SMB and mid-market.
- ✔ The industry is moving from selling tests to selling access to predictive decision-making data through semi-automated transactional platforms.
- ✔ Disruption is not coming from within the industry, which has been famously slow to evolve, but rather through start-ups and firms offering AI-based tools.
- ✔ While disruptive technologies can increase risk, the market does not care as long as these tools offer the promise of efficiency and better hires.
- ✔ Much of the industry is made up of smaller providers offering specialty products. Contrary to our prior predictions, ERP and HCM providers are not interested in creating their own assessment tools, instead choosing to create access through integration into integrated vendor ecosystems.
- ✔ Assessment is a perfect fit for the pandemic and the post-pandemic world because it can play a central role in aligning talent, removing bias, and supporting a humanistic agenda.

The following chapter provides an overview and examples of the information on additional market trends that are available exclusively through the Vendor Research Portal that accompanies this report.

ENDNOTES

- [1] [“The Talent Shortage,”](#) Manpower Group, last modified 2019.
- [2] Daniel Wilmoth, [“Small Business Employment Plummet,”](#) US Small Business Administration, Office of Advocacy, last modified May 2020.
- [3] Kim Macrae, [“In the COVID Economy, Laid-Off Employees Become New Entrepreneurs,”](#) The Wall Street Journal, last modified November 18, 2020.
- [4] [“The Future of HCM in the SMB,”](#) The Starr Conspiracy Intelligence Unit, last modified 2015.
- [5] Evan Vuckovic, [“3 Benefits of a SaaS Cloud ERP Platform for Mid-Market Organizations,”](#) Sage Intacct Blog, last modified March 4, 2019.
- [6] Meagan Wilson, Martin Kurzweil, Rayan Alamuddin, [“Mapping the Wild West of Pre-Hire Assessment: A Landscape View of the Uncharted Technology-Facilitated Ecosystem,”](#) ITHAKA S+R, last modified December 11, 2018.
- [7] Richard Landers, [“Chapter 1: The Existential Threats to I-O Psychology Highlighted by Rapid Technological Change,”](#) The Cambridge Handbook of Technology and Employee Behavior (Cambridge Press, 2019), 3-21.
- [8] [“SoLoMo \(social, local and mobile\),”](#) TechTarget: Search Mobile Computing, last modified April 2013.
- [9] [“Global Study: 82% of People Believe Robots Can Support Their Mental Health Better Than Humans,”](#) Oracle and Workplace Intelligence, last modified October 7, 2020.
- [10] Brandon Vigliarolo, [“5 Ways Digital Business Will Change in 2021,”](#) TechRepublic, last modified October 30, 2020.
- [11] Josh Bersin, [“Why ADP’s Next-Gen HCM Is a Disruptive Force in HR Technology,”](#) Insights on Corporate Talent, Learning, and HR Technology, last modified January 2, 2019.
- [12] Mary C. Daly, Shelby R. Buckman, and Lily M. Seitelman, [“The Unequal Impact of COVID-19: Why Education Matters,”](#) FRBSF Economic Letter, last modified June 29, 2020.
- [13] Wilson et al., [“Mapping the Wild West of Pre-Hire Assessment: A Landscape View of the Uncharted Technology-Facilitated Ecosystem.”](#)
- [14] Wilson et al., [“Mapping the Wild West of Pre-Hire Assessment: A Landscape View of the Uncharted Technology-Facilitated Ecosystem.”](#)
- [15] Cody Parkinson, [“COVID-19, Educational Attainment, and the Impact on American Workers,”](#) US Bureau of Labor Statistics: Monthly Labor Law Review, last modified September 2020.
- [16] Parkinson, [“COVID-19, Educational Attainment, and the Impact on American Workers.”](#)
- [17] Janette Levy Frisch, [“What Does the US Supreme Court Say About Pre-Employment Testing and Disparate Impact?”](#) The EmpLAWyerologist Law Firm, last modified April 11, 2013.
- [18] Hope Reese, [“Bias in Machine Learning, and How to Stop It,”](#) TechRepublic, last modified November 18, 2016.
- [19] Jeffrey Dastin, [“Amazon Scraps Secret AI Recruiting Tool That Showed Bias Against Women,”](#) Reuters, last modified October 10, 2018.
- [20] Hal Hodson, [“Police Mass Face Recognition in the US Will Net Innocent People,”](#) NewScientist, last modified October 20, 2016.
- [21] Timothy Revell, [“Face Recognition Software Is Perfect — If You’re a White Man,”](#) NewScientist, last modified February 13, 2018.
- [22] [“Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias,”](#) Upturn, last modified December 2018.

- [23] Chris Opfer, Ben Penn, Jaclyn Diaz, [“Punching In: Workplace Bias Police Looking at Hiring Algorithms,”](#) Bloomberg Law, last modified October 28, 2019.
- [24] Jenny Yang, [“New Civil Rights Principles Mark First Step to Make AI Hiring More Equitable,”](#) Urban Wire: Job Market and Labor Force, last modified July 23, 2020.
- [25] [“Modern Hire’s Statement Regarding AI in Hiring,”](#) ModernHire.com, last modified December 12, 2019.
- [26] Mulfinger, E., Wu, F., Alexander III, L., Behrend, T., Handler, C., & Oswald, F. L., [The Artificial Intelligence Disconnect Between Selection Researchers and Practitioners: A Case Example.](#) (in progress- publisher TBD) January 2021.
- [27] Manish Raghavan, Solon Barocas, Jon Kleinberg, Karen Levy, [“Mitigating Bias in Algorithmic Hiring: Evaluating Claims and Practices,”](#) arXivLabs, Cornell University, last modified December 6, 2019.
- [28] Yang, [“New Civil Rights Principles Mark First Step to Make AI Hiring More Equitable.”](#)
- [29] [“Understanding and Developing Organizational Culture,”](#) Society for Human Resources Management: Toolkits, accessed December 30, 2020.
- [30] Amy Kristof-Brown, Ryan Zimmerman, Erin Johnson, [“Consequences of Individuals’ Fit at Work: A Meta-Analysis of Person-Job, Person-Organization, Person-Group, and Person-Supervisor Fit,”](#) Personnel Psychology, 2005, 281-342.
- [31] [“Whitepaper: Hiring for Culture,”](#) Business Agility Institute, accessed December 30, 2020.
- [32] Lara Schmidt, [“The End of Culture Fit,”](#) Forbes, last modified March 21, 2017.
- [33] Mel Hennigan and Lindsay Evans, [“Does Hiring for ‘Culture Fit’ Perpetuate Bias?”](#) Society for Human Resources Management, last modified October 31, 2018.
- [34] [“Whitepaper: Hiring for Culture.”](#)
- [35] Roy Mauer, [“Ditch the ‘Beer Test’ and Start Hiring for Culture Add,”](#) Society for Human Resources Management, last modified April 17, 2018.
- [36] [“The Talent Challenge: Harnessing the Power of Human Skills in the Machine Age,”](#) PWC, accessed December 30, 2020.
- [37] Jeff Schwartz, Bill Pelsler, Josh Bersin, [“Human Capital Trends 2014 Survey,”](#) Deloitte Insights, last modified March 7, 2014.
- [38] [“Beyond Hiring: How Companies Are Reskilling to Address Talent Gaps,”](#) McKinsey & Company, last modified February 12, 2020.
- [39] [“Closing the Skills Gap Accelerators,”](#) World Economic Forum, accessed December 30, 2020.
- [40] Annelies Goger, Luther Jackson, [“The Labor Market Doesn’t Have a ‘Skills Gap’—It Has an Opportunity Gap,”](#) Brookings, last modified September 9, 2020.
- [41] [“Creating Shared Workforce Resilience: Navigating the Human and Business Impact of COVID-19,”](#) Accenture, 2020.
- [42] Sapana Agrawal, Aaron De Smet, Sebastien Lacroix, Angelika Reich, [“To Emerge Stronger From the COVID-19 Crisis, Companies Should Start Reskilling Their Workforces Now,”](#) McKinsey & Company, last modified May 2020.
- [43] Erica Volini, Brad Denny, Jeff Schwartz, [“Beyond Reskilling: Investing in Resilience for Uncertain Futures,”](#) Deloitte Insights, last modified May 15, 2020.

07

**EXAMPLE INSIGHTS FROM
OUR VENDOR RESEARCH
PORTAL/CONCLUSION**



IN THIS CHAPTER

The data coded in the creation of our vendor profiles provides the foundation underlying much of the information presented in this report.

The Vendor Research Portal that accompanies this report provides a more direct window to our data via detailed profiles for 245 vendors (with over 50 more to be added soon).

When looked at in aggregate, the data from these profiles cover six research topics, the findings of which are available through our Portal.

This chapter provides example findings from each of our research topics as well as concluding remarks.



PREVIEW OF OUR RESEARCH RESULTS

This chapter provides a preview of key findings from the analyses we conducted for each of the six *research topics* coded in our data set, beginning with a sample of the vendor profiles available in our online Vendor Research Portal, and concluding with final words on the most important trends driving the talent assessment industry in 2020/2021.

The full set of vendor profiles and trend insights — available in our Vendor Research Portal — are an essential resource for anyone interested in understanding the talent assessment industry and have tremendous value for several audiences.

Note: We will continue to run new queries into the data and post the results to our Vendor Research Portal on a regular basis. If you can't find the specific information you are looking for in the Vendor Research Portal, Rocket-Hire can run customized queries using our database, as part of a consulting engagement. [Contact us](#) to discuss your needs.

SAMPLE VENDOR PROFILE

The online Vendor Research Portal that accompanies this report provides in-depth vendor profile pages for 245 vendors (as of January 2021), with more vendors added regularly. These vendor profiles are the heart of our database, providing detailed information on each vendor while also serving as the building blocks for macro-level analyses.

Each vendor profile page contains 29 different ratings across six different categories, including:

CLASSIFICATION	DEMOGRAPHICS
FINANCIALS	PRODUCTS & METHODS
ANALYST RATINGS Includes written summary information for each vendor, science quality rating, risk rating, 5 year outlook	USE OF AI

Note: A full review of our rating criteria can be found in Appendix A.

The following page provides a fictitious example of the vendor profiles available in the Vendor Research Portal.

(844) 426-2246

Rocket-Hire
MARKET ANALYSIS / VENDOR RESEARCH PORTAL

FAQ PORTAL REGISTRATION LOGIN



Shamrock Industries

Differentiator

Platform that is marketed using all the common hype terms, including coining a new term - "micro assessments". A large number of assessment types are offered, but the company does not provide any substance to demonstrate expertise.

<https://www.shamrockindustries.com/>

CLASSIFICATION

Primary Classification Hiring Platform	Secondary Classification Blended (AI and Traditional Assessment)
--	--

DEMOGRAPHICS

Year Founded 2000	HQ Country Ireland	Number of Employees 12	I/O Psychologist On Staff Yes	Primary Market SMB, Large
-----------------------------	------------------------------	----------------------------------	---	-------------------------------------

Description

Provide a variety of tools that are configured and calibrated to provide hiring managers with holistic, easy to access information about potential for job success. Methods used to create and validate tests are unclear, as are the specific ways that AI is used within the assessments offered. Vendor seems to make unrealistic claims and do not provide essential information about the construction, validation, and configuration of their solution set.

FINANCIALS

Revenue in Millions (est) 1	Investment Source VC	Investment Amount 1.3
---------------------------------------	--------------------------------	---------------------------------

PRODUCTS & METHODS

Vendor Offers None	Assessment Type(s) Digital Interview- Traditional Game Based Assessment - Cognitive Job Matching - Traditional Knowledge/Skills Personality	Other Services No Data	AI Level Low
------------------------------	---	----------------------------------	------------------------

ANALYST RATINGS

Science Quality Low	Risk Rating High	Candidate Experience Rating High	5 Year Outlook Losing Ground
-------------------------------	----------------------------	--	--

Analyst's Take

Shamrock is differentiated by the lack of information about how their products were created and what they actually do. Shamrock does offer a full range of assessments that cover the bases of contemporary assessments (gamified assessment, video interviews, personality). However, Shamrock's methodologies are unclear and their marketing is heavy on buzzwords. Shamrock does not have a visible market presence, and this combined with their lack of substance - does not position them for significant growth.

Rocket-Hire 📧 🐦 in

©2021 Rocket-Hire Market Analysis/Vendor Research Portal • Privacy Policy

The remainder of this chapter provides a sample insight from our analysis in each of the six research topics as well as a brief description of some of the additional analyses available within the Vendor Research Portal.

RESEARCH TOPIC #1: VENDOR CLASSIFICATION SCHEME

In the past five years, the number of talent assessment providers and methodologies has increased significantly, making it more difficult than ever to make sense of this highly fragmented market and highlighting the need for a classification scheme that provides an organizing structure for evaluating and differentiating vendors.

Our first step in creating the database behind this report was to develop a vendor classification scheme to serve as the foundation of our vendor profiling process. Our classification scheme uses primary and secondary classifications to organize

vendors based on their assessment content, business models, and technology. While the extreme fragmentation in the market means that the lines between our assigned classifications are often blurred, we put a great deal of effort into ensuring that we identified each vendor's best fit within our scheme and feel our system provides a highly effective model for organizing and differentiating vendors.

The four primary vendor classification categories are shown below. Please see Appendix C for more information on the secondary categories used in our classification system.

PRIMARY VENDOR CLASSIFICATION CATEGORIES

SOLUTION PROVIDERS

These vendors offer many assessment products that can be integrated modularly to create solutions for jobs/roles and can create custom solutions using tech and psychometrics. Tests are supported with professional services (strategy, job analysis, validation, custom development). Commonly offer a variety of other tools for post-hire, talent management, and talent development.

SPECIALTY PROVIDERS

These vendors offer several different types of tools. Vendors in this classification focus specifically on one of the 52 types of assessments tracked in our database.

TEST PUBLISHERS

These vendors make and sell pre-made tests which are often built into a tech solution relying on pre-made profiles to select appropriate tests or evaluate generic job qualifications. Most vendors in this classification offer tests via a self-serve, transactional model.

HIRING PLATFORMS

These vendors provide a software system that supports the configuration, deployment, scoring, and reporting of assessment tools often support other hiring and HR functions besides assessment and automate some or all of the hiring and assessment workflow.

CREATING OUR MARKET MAP

We used each vendor's primary and secondary classification to organize them within a market map that is built around two axes: science and innovation.

Science. Refers to the general extent to which the science and methodologies typically used within each classification follows best practices, and the extent to which expert professional services are used to support the implementation of the vendor's assessments. For example, those classifications seen as having strong science typically rely on the support of expert professional services to ensure proper alignment with key criteria for job performance (i.e., Solution Providers), while those low on the science side either use no psychometric science at all, or typically offer weaker methodologies (i.e., Hiring Platforms using pure AI).

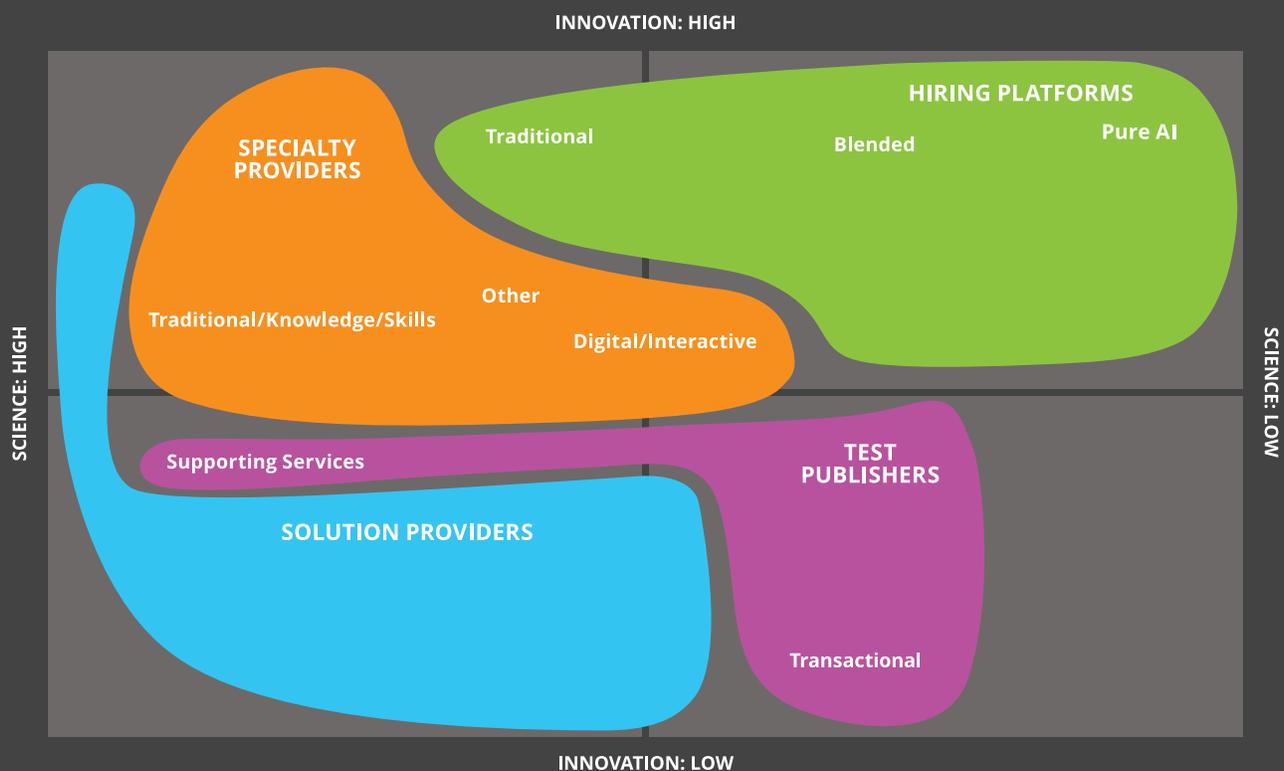
Innovation. Refers to the level of advanced technologies typically associated with each classification. For instance, Platform Providers are more likely to make use of AI and/or offer advanced or innovative methodologies. Within their primary classification, Platform Providers take a variety of different approaches, some more innovative than others. Pure AI hiring platforms, for example, have high levels of innovation while traditional hiring platforms are less innovative.

It is important to note that, in order to organize the market map it was necessary to place vendors in groups based on their primary and secondary classifications. Therefore, placement on the market map provides a general positioning and may not account for highly specific qualities of each vendor.

Figure 7.1 provides an overview of our market map, and shows how each primary and secondary classification fits within the organizing structure we created.

Note: A version of this map that includes vendor names is available in the Vendor Research Portal that accompanies this report.

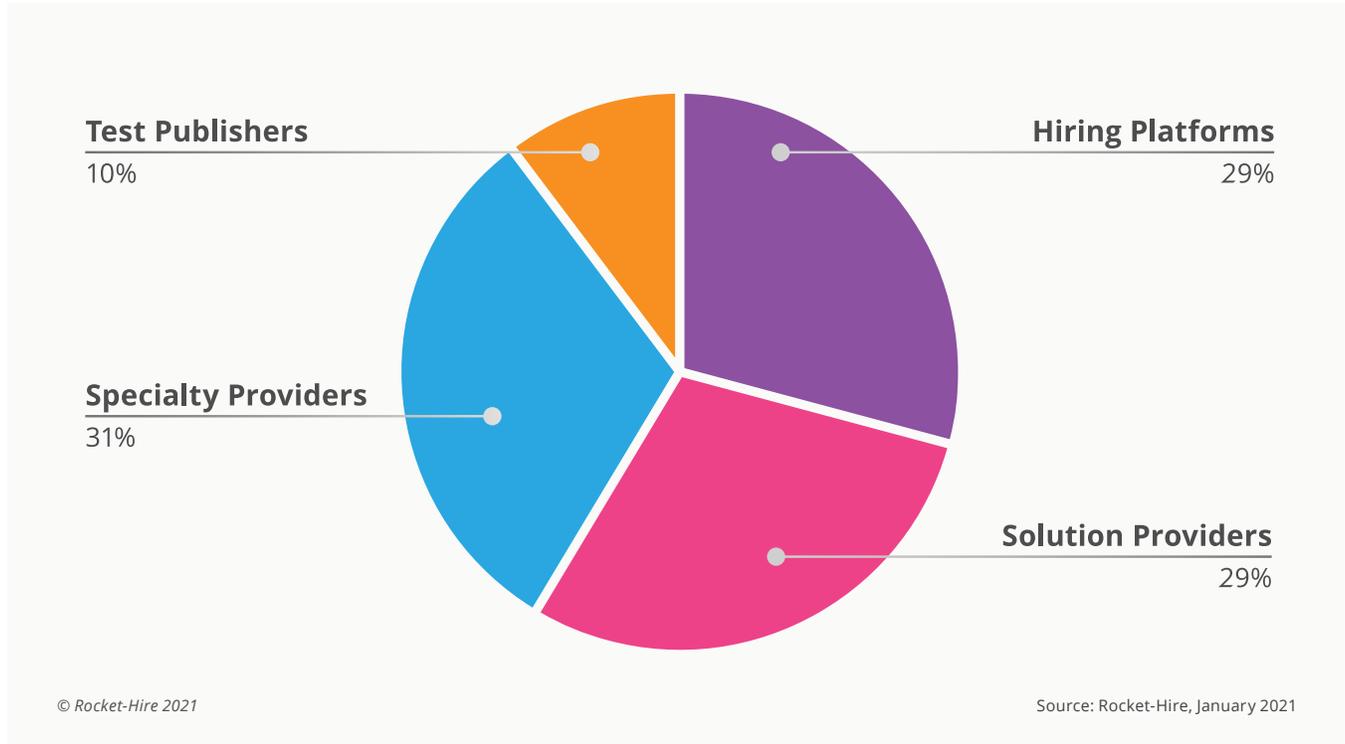
Figure 7.1: Talent Assessment Market Map with Primary and Secondary Vendor Classifications



VENDOR CLASSIFICATION SCHEME: EXAMPLE INSIGHT

As shown in *Figure 7.2*, the percentage of vendors in each of our primary categories is relatively even across three of the four primary classification categories, with Test Publishers representing a much smaller segment of the market than the other three. This is not surprising given that the Test Publisher model is an older approach that is fading in prominence as existing test publishers and newer entrants to the market are shifting to a Platform Provider model.

Figure 7.2: Percentage of Vendors in Each Primary Classification



Our Vendor Research Portal provides more information and analyses related to our classification scheme, including a version of the market map that includes the names of the vendors in each primary and secondary classification.

RESEARCH TOPIC #2: VENDOR DEMOGRAPHICS

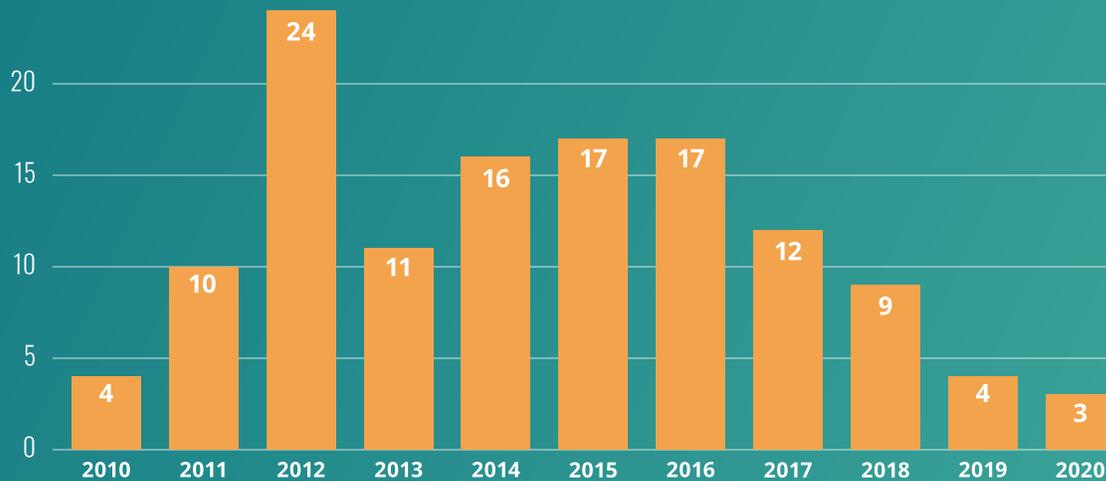
This topic provides basic information about each firm in the database, including:

- ✔ Company age
- ✔ Company size (headcount)
- ✔ Geographic location of company HQ
- ✔ I/O psychologist on staff?
- ✔ Markets served (i.e., SMB, Enterprise)

VENDOR DEMOGRAPHICS: EXAMPLE INSIGHTS

Figure 7.3 shows the number of new vendors entering the market in each of the past 10 years. It is interesting to note that over half the vendors in our sample are 10 years old or less, indicating that the number of vendors in the market has doubled in the past decade! It is also important to note that there were likely to have been more than seven new vendors entering the market in the past two years as it often takes time for new vendors to show up on our radar.

Figure 7.3: Number of New Vendors 2010–2020



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

ADDITIONAL INSIGHTS FOUND IN THIS SECTION OF THE VENDOR RESEARCH PORTAL

The Vendor Research Portal includes the following in-depth information related to demographic data:

- ✔ Market growth over time: overall and by primary classification
- ✔ Average headcount and revenues: by primary classifications, age, nationality, etc.
- ✔ Use of I/O psychologists: by primary classifications, age, nationality, etc.

RESEARCH TOPIC #3: FINANCIALS

This topic tracks three types of financial information:

- ☑ Estimated yearly revenue for the year 2019
- ☑ Tracking of mergers and acquisitions, including a list of all firms acquired since 2014 with the estimated deal size for each acquisition
- ☑ Tracking of investment in talent acquisition providers

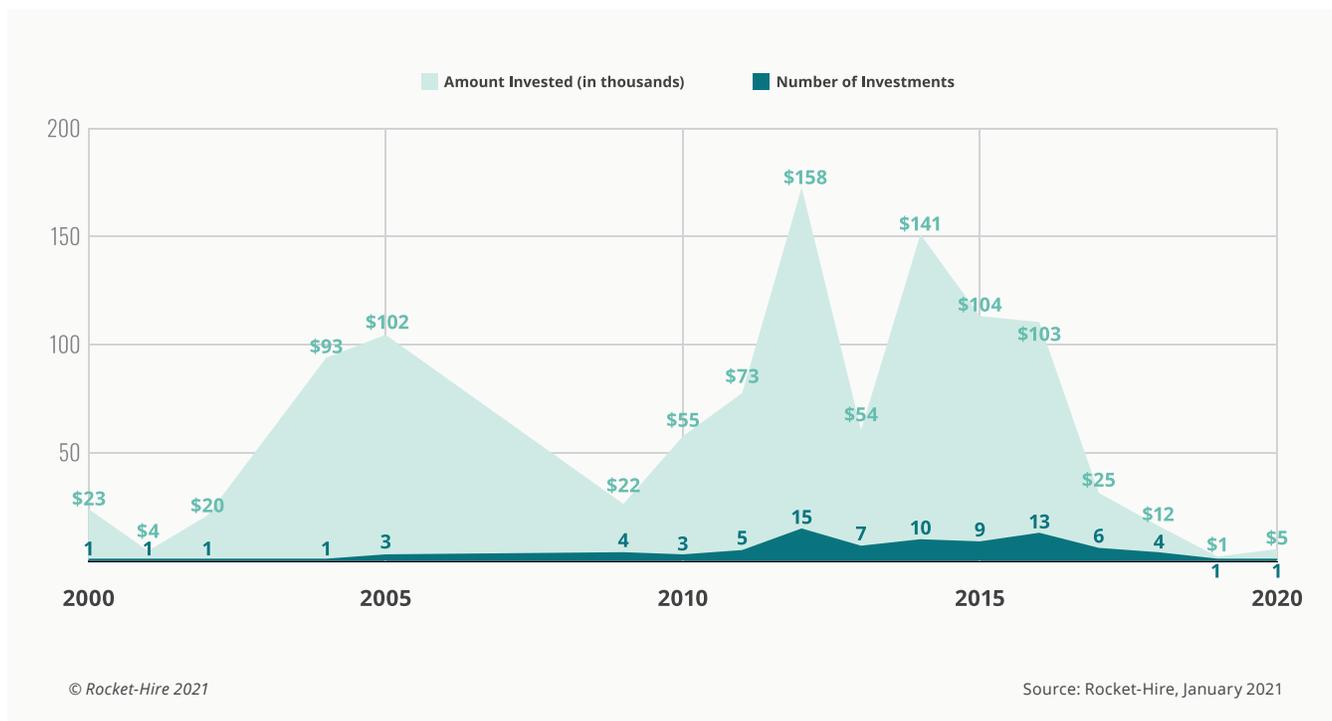
FINANCIALS: EXAMPLE INSIGHTS

Investment

Figure 7.4 shows investment into the market by year based on the date each company was founded. While it would be more ideal to track total investments made year over year, this was extremely difficult since many firms receive multiple rounds of investment over time. Therefore, for our analyses, we report the total amount invested in a firm over time in aggregate by the year the vendor was founded.

It is also important to note that investment from friends/family and angels often do not show up on the radar, creating a situation where the investment amounts tracked in our database are likely lower than the actual figures. This is especially true for recent years (specifically 2018-2020) because initial investment rounds taken by many newer companies are likely to be from friends and family or angels and, as such, are not tracked in any of the databases we used for research. While our research likely underestimates investment numbers, we still feel Figure 7.4 provides a relatively accurate picture of investments made in the talent assessment space in the past decade.

Figure 7.4: Amount Invested and Number of Investments, 2000–2020



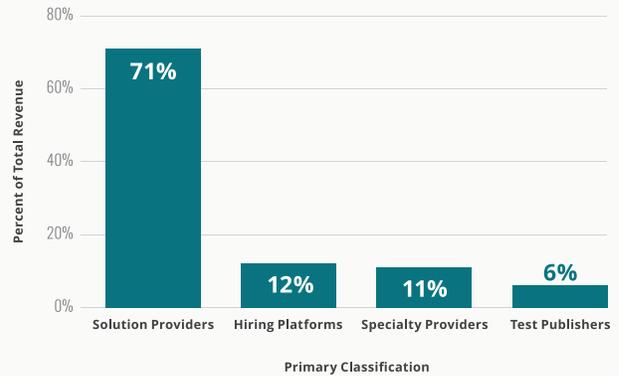
Revenues

We tracked revenues for each of the vendors in the database using a variety of publically available and proprietary research sources. The figure below provides an example of the information on vendor revenues found in our Vendor Research Portal.

Figure 7.5:

PERCENTAGE OF TOTAL REVENUE ACCOUNTED FOR BY EACH PRIMARY CLASSIFICATION

As shown in this figure, Solution Providers account for by far the largest share of revenue generated from talent assessment. This makes sense given the fact that Solution Providers represent the oldest and most mature category in the industry. **Of significant interest is the fact that, while only 29% of the vendors in the industry are Solution Providers, they account for 71% of the overall revenue generated by the market.**



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

ADDITIONAL INSIGHTS FOUND IN THIS SECTION OF THE VENDOR RESEARCH PORTAL

The Vendor Research Portal includes the following in-depth information related to financials:

- ✔ Market size estimates
- ✔ Tracking of all acquisitions since 2015
- ✔ Tracking of investment made in talent assessment providers
- ✔ Tracking of revenue, investments, and acquisitions by classification, age, nationality, and other rating parameters

RESEARCH TOPIC #4: PRODUCTS AND METHODS

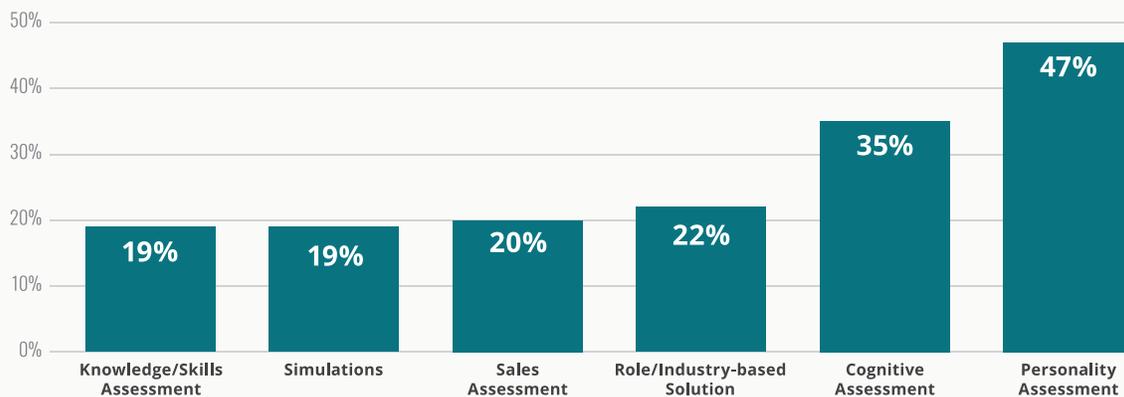
This area includes a breakdown of the following product-related information:

- ☑ The product categories offered by each vendor (a detailed list of the exact products offered by product name is beyond the scope of this research effort)
- ☑ The methodology used to deploy product offerings (profiling, transactional sales, etc.)
- ☑ The other products and services (besides assessments) offered by each vendor (e.g., litigation support, 360, leadership development)

PRODUCTS AND METHODS: EXAMPLE INSIGHTS

Not surprisingly, as shown in *Figure 7.6*, personality and cognitive measures are by far the most common types of assessments offered. This makes sense given the fact that these are among the earliest types of assessments used, and the fact that this combination has been proven time and time again to provide relatively high levels of accuracy and ROI while limiting adverse impact and the potential for bias.

Figure 7.6: Six Most Common Assessment Types Offered (by percentage of vendors offering)



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

ADDITIONAL INSIGHTS FOUND IN THIS SECTION OF THE VENDOR RESEARCH PORTAL

The Vendor Research Portal includes the following in-depth information related to products and methods:

- ☑ Review of trends in the evolution of each assessment type
- ☑ Complete list of percentage of vendors offering each of 52 product types
- ☑ Most common product types by vendor classification
- ☑ Most common product types offered by specialty vendors
- ☑ Percent of vendors using each of two profiling methodologies (pre-made profiles and benchmarking)
- ☑ Breakdown of firms offering post-hire assessments by vendor classification
- ☑ Breakdown of most common "other" products and services offered
- ☑ Percentage of vendors offering transactional sales (by primary classification)

RESEARCH TOPIC #5: ANALYST RATINGS

This section, more than any other, leverages our expertise and experience in the industry to unlock a number of interesting trends because, while other topic areas are based on objective information about each vendor, this research topic area is based on our expert opinions about vendors across the following:

- ✔ **Science quality rating.** The extent to which the vendor uses sound science and best practices for test development and validation.
- ✔ **Candidate experience rating.** The extent to which the vendor's assessments are easy and enjoyable for candidates.
- ✔ **Risk rating.** The extent to which the vendor's methods create a compliance risk.
- ✔ **Five-year outlook.** Expected growth of the company between 2020 and 2025.
- ✔ **Analysts' take.** Summary of our overall opinion of each vendor.

ANALYST RATINGS: EXAMPLE INSIGHTS

Science Quality

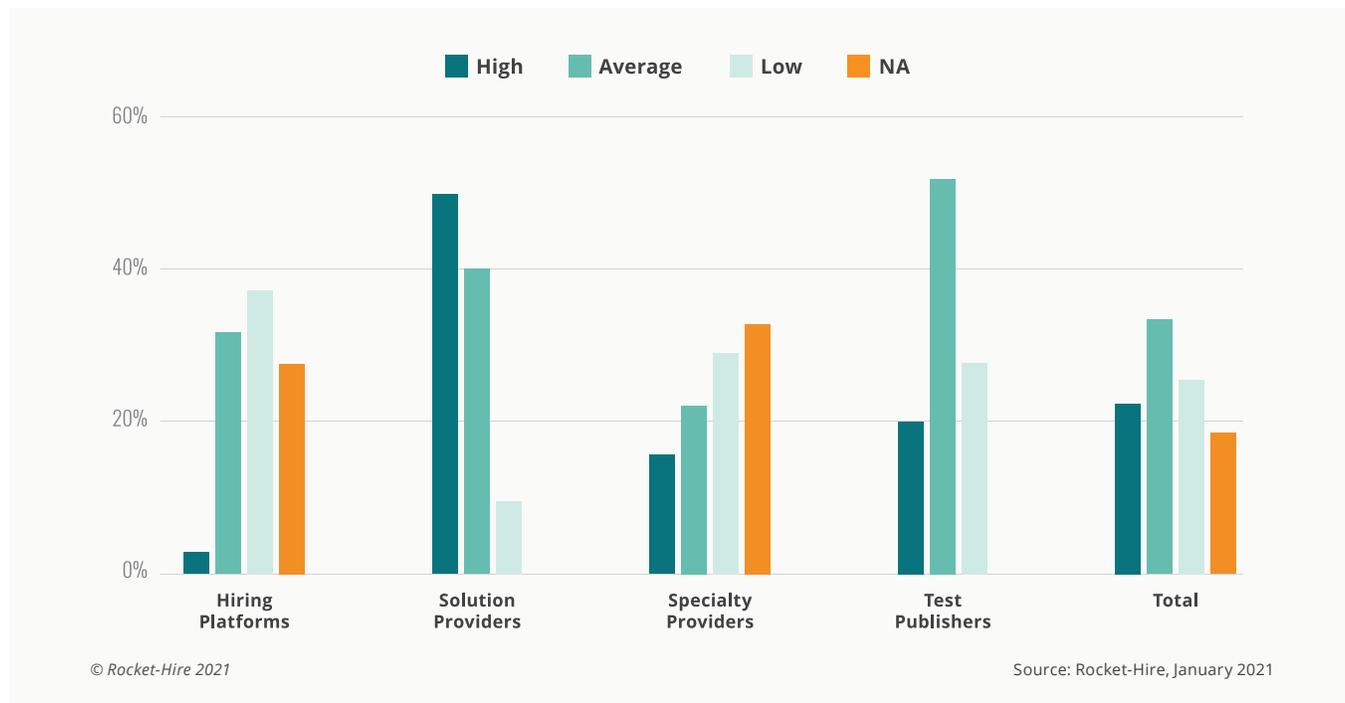
While talent assessment has a foundation in psychometrics, statistics, and psychological science, there is a great deal of variation in the scientific methodologies used by vendors, including a variety of new approaches such as those offered by vendors of AI-based tools. Understanding the scientific methods used by a vendor is critical for investigating their ability to deliver effective and legally-compliant solutions, and as such represent perhaps the largest point of differentiation between vendors. Unfortunately, it is often quite difficult for the untrained eye to identify and understand these methods at the level required to effectively differentiate vendors.

Our analysts are technically-trained experts who have a great deal of experience in applying scientific and psychometric methods to the development and validation of assessments, and have been evaluating vendor methodologies for over two decades. Our analysts used the following scale to rate the science quality of each provider:

HIGH	Meets or exceeds all standards for best practices in psychometrics and ties assessments to underlying theories and research. Uses no jargon to describe their science or process. Produces quality research-supporting tools and methodologies. Uses AI responsibly and ties it back to established psychological theories and best practices.
MEDIUM	Meets market standards for science and methods. Uses proper psychometrics to construct tests. Makes documentation available to support insights and understanding of products, their construction, and validation. Offers standard test products and methodologies, but are not highly innovative. Automates the configuration process for aligning tests with jobs or uses a simple profiling methodology (versus expert professional services).
LOW	Fails to establish a connection between assessments and any established psychological theory. Offers unique methodologies that do not appear to fit with established best practices. Provides no access to trained experts; struggles to align assessment with job requirements.
NA	Uses no selection science-based practices to evaluate applicants. (Applies to all use of AI tools that interpret data without the use of a formal assessment tool.)

As shown in *Figure 7.7*, there is a good deal of variation in science quality across primary classifications. Given the fact that Solution Providers represent classical and conservative methodologies that are typically services-based, it is not surprising that these vendors received the highest science quality ratings of any classification. Conversely, given the fact that hiring platforms are typically automated and make use of less proven methodologies, it is not surprising that these vendors received the lowest science quality ratings of any classification. Finally, given the fact that they do not use any psychometric science, we were not able to assign science quality ratings to vendors of pure AI-based solutions (shown as “NA” in *Figure 7.7*) offered within hiring platforms and certain specialties (i.e., AI-based digital interviews).

Figure 7.7: Science Quality Ratings by Primary Vendor Classification



Candidate Experience

Candidate experience has become a critical differentiating factor in talent acquisition strategies, and is increasingly responsible for driving significant change in the industry.

The importance of treating candidates as customers cannot be overstated — perceptions of fairness and good communication during the hiring process have shown direct linkages to important hiring process outcomes such as brand perceptions and intention to accept employment offers.

Positive candidate experience during the hiring process is also related to valued long-term outcomes such as increased tenure, job satisfaction, and organizational commitment.

Assessments have been unfairly villainized as having a significant, negative impact on candidate experience. For example, in the past few years employers have become fixated on the perceived need for ultra-short assessments that will keep candidates’ attention and hedge against perceptions of poor employment brands.

While no one likes taking tests, we believe that assessments, by default, create a poor candidate experience is a myth. There is a great deal of research supporting the fact that candidates actually value the opportunity to demonstrate their job-relevant skills more than they do the length of an assessment or its use of a novel or highly engaging format.

For instance, recent studies by the Talent Board found that the extent to which employers enable candidates to show their job-relevant skills, knowledge, and experience during the application process is directly related to important emotional outcomes. Specifically:

- ☑ Those candidates who had the opportunity to complete simulated job tasks were 60% more likely to increase their relationship with the employer than those who didn't.^[1]
- ☑ Candidates who experience a job-related simulation have a 25% higher satisfaction rate than those who do not.^[2]

When it comes to the length of assessments, the idea that candidates will immediately devalue any employer who asks them to dedicate more than 10 minutes to completing an assessment is a falsehood.

Figure 7.8:
PERCEIVED ASSESSMENT VALUE BY LENGTH OF ASSESSMENT

According to a recent research report by Gartner describing how candidates interpret the value of assessments (available to Gartner members in a proprietary report), candidates almost universally trust the value of assessments that are generally between 10 and 30 minutes in length. Furthermore, candidates feel negatively about the value of assessments that are too long (over 30 minutes) or too short (5 minutes or less).

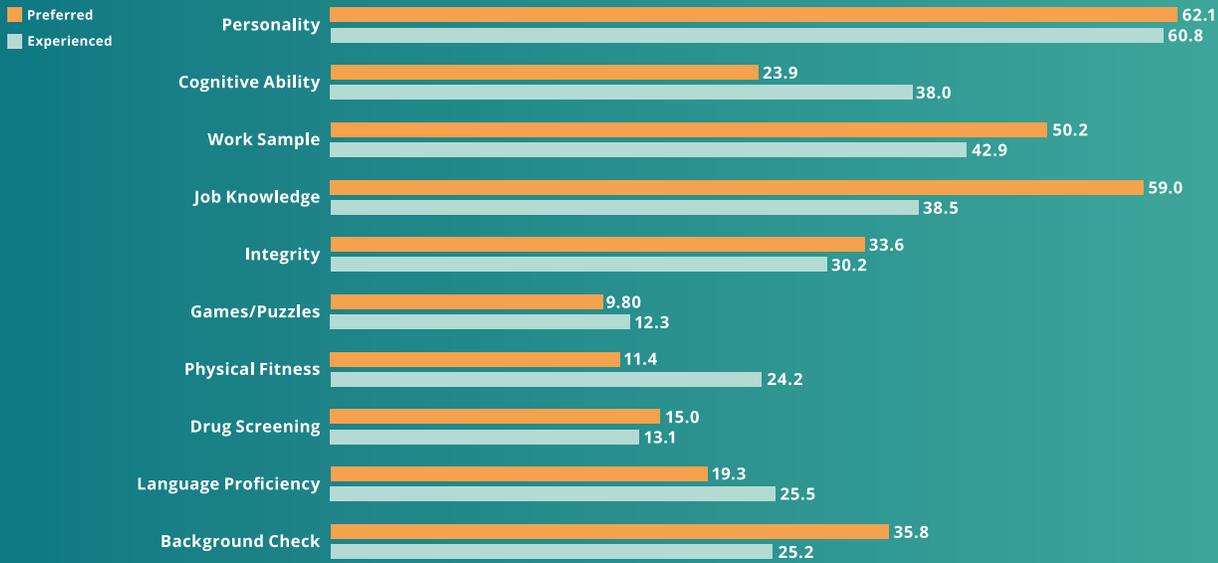


© Rocket-Hire 2021

Source: CEB/Gartner, proprietary report, January 2021

When it comes to debunking myths about negative perceptions of assessments among candidates, there are many additional factors that must be considered such as relevance of the assessment to the job. For instance, while there is a general belief that the fun factor of game-based assessments make them attractive to candidates, according to Gartner's research (as shown in *Figure 7.9*), this is clearly not the case. Games and puzzles are the least preferred type of assessment, beating out drug-testing for this top honor.

Figure 7.9: Preferred Versus Experienced Assessment Type (percentage of participants)



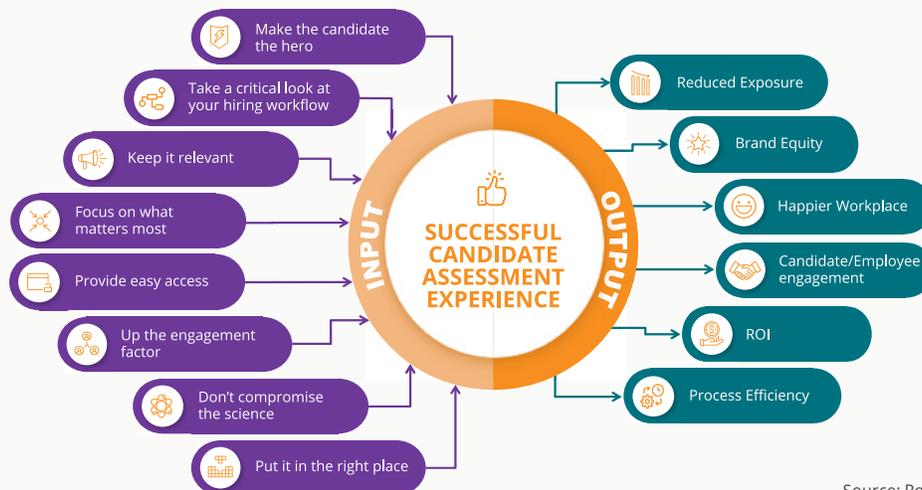
Source: CEB/Gartner, proprietary report

Gartner offers the following explanation for these findings:

“Candidates may not like these types of assessment because they often seem unrelated to the job and diminish the seriousness of the life decision a candidate faces in a hiring process. Given those datasets, assessments should be highly job relevant.”

There are many other factors besides assessment length and perceived fun factor that significantly impact candidate experience. As shown in Figure 7.10, a recent report by Rocket-Hire^[3] provides a model that identifies eight key areas that influence candidates' positive experience with assessments. These factors have less to do with the assessments themselves and more to do with contextual factors of the employer's assessment program — such as how the assessment's value and job relevance are communicated to the applicant and where the assessment is placed in the hiring process. When addressed as a foundational part of assessment program strategy development, each of these factors can have a strong influence in providing a positive candidate experience.

Figure 7.10: Inputs and Outputs That Define a Successful Candidate Assessment Experience



© Rocket-Hire 2019

Source: Rocket-Hire, January 2021

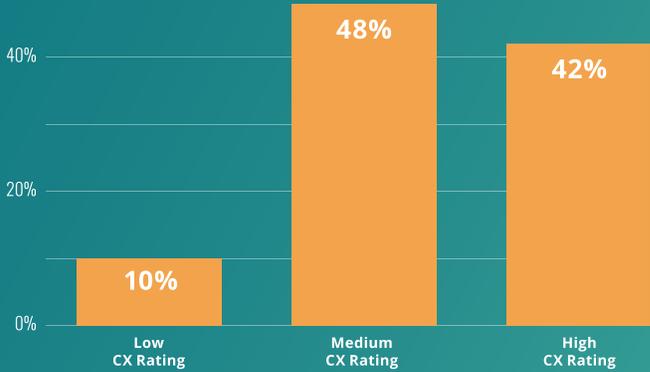
So where does our sample stand when it comes to ratings of candidate experience? Our analysts created the following rating scale which was used to rate each of the vendors in our sample on their general level of candidate experience:

HIGH	Provides an outstanding experience for candidates via assessments that are shorter than market standard (<20 min), have some form of interactive quality, are novel when compared to the market standard, and give something back to the candidate (i.e., assessment report, developmental feedback, RJP). Also includes AI-based tools that do not require candidates to provide any self-report data (or data entered as an assessment tool that requires direct input or digital video interview) as well as tools that use automation to engage candidates.
MEDIUM	Meets market standards for length of assessment (15-<30 min), represents typical item types that appear job relevant, and is easy for the candidate to access.
LOW	Presents unusually long assessments (>30 min) that may not appear job related, are taxing to complete, seem outdated, and have no face validity.

Figure 7.11:

CANDIDATE EXPERIENCE (CX) RATINGS FOR OUR SAMPLE

As indicated in this figure, the majority of the vendors in our database (90%) received a candidate experience rating of “high” or “average,” while relatively few vendors received a “low” rating. When it comes to assessments, there is nothing wrong with an average candidate experience rating, as it provides a perfectly adequate foundation for positive candidate experiences with assessments. Despite a reputation to the contrary, our results clearly show that the overall state of the testing industry, when it comes to candidate experience, is not problematic.



© Rocket-Hire 2019 Source: Rocket-Hire, January 2021

Taken together, these findings support our position that the link between assessments and poor candidate experience is a myth. Employers concerned about creating a good candidate experience with assessments should focus on ensuring the job relevance of assessments and in managing communications about the assessment process with applicants.

ADDITIONAL INSIGHTS FOUND IN THIS SECTION OF THE VENDOR RESEARCH PORTAL

Among other information, the Vendor Research Portal includes the following in-depth information related to our analyst ratings:

- ☑ Average ratings for science, risk, and candidate experience
- ☑ Full analysis of all analyst ratings across related areas
- ☑ Ratings for science, risk, and candidate experience by vendor classification
- ☑ Analyst ratings for science, risk, and candidate experience by revenue, company age, investment, etc.
- ☑ Five-year outlook by vendor classification, investment received, revenue, risk rating, etc.

RESEARCH TOPIC #6: AI

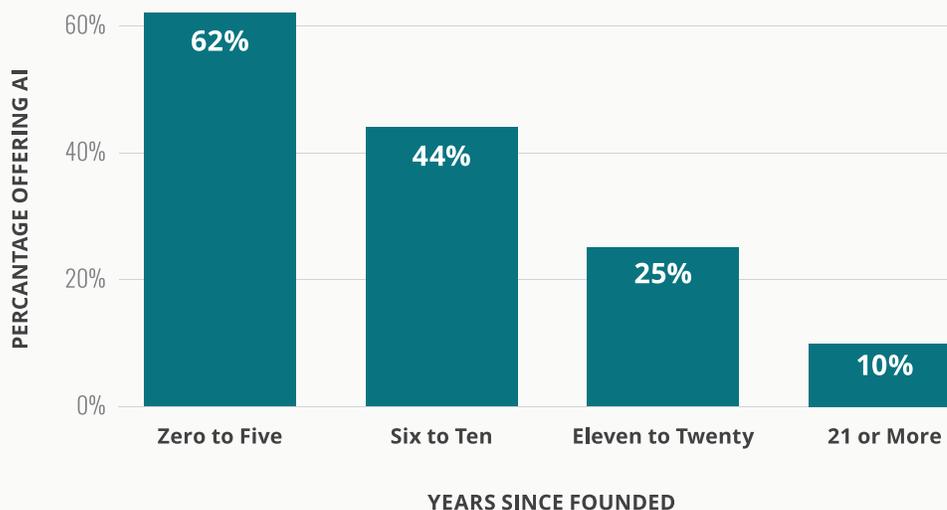
AI and automation are perhaps the most important and controversial trends to watch in talent assessment. This topic area of the Vendor Research Portal unlocks our data to provide a variety of insights around the use of AI in the talent assessment industry, including:

- ✔ Percent of firms in the market using AI tools
- ✔ Investment made in AI firms
- ✔ Use of AI across different vendor categories
- ✔ Relation of AI to compliance risk, science quality, candidate experience, etc.

AI: EXAMPLE INSIGHTS

As shown in *Figure 7.12*, our data indicates that over half of the vendors founded in the past five years make use of AI in some manner, suggesting that the older a company is, the less likely they are to use AI as part of their product offerings. This finding is a strong indicator that change in the industry is being driven by firms outside of the more established and traditional vendor classifications (i.e., Hiring Platforms and Specialty Providers versus Solution Providers and Test Publishers).

Figure 7.12: Percentage of Companies Offering AI by Year Founded



© Rocket-Hire 2021

Source: Rocket-Hire, January 2021

ADDITIONAL INSIGHTS FOUND IN THIS SECTION OF THE VENDOR RESEARCH PORTAL

Among other information, the Vendor Research Portal includes the following in-depth insights based on our data around the use of AI in the assessment marketplace. Especially of interest are factors that, when looked at in combination, provide insights such as:

- ✔ Relative use of AI across primary and secondary classifications
- ✔ Use of AI by presence of I/O psychologists
- ✔ Investment, revenue, and acquisitions for companies offering AI
- ✔ Relation of AI to analyst ratings for science, candidate experience, and risk
- ✔ Use of AI by market segments served

...IN CONCLUSION

Figure 7.13 provides a parting snapshot of the trends shaping the talent assessment industry, tracking its continued evolution across the past, present, and future.

Figure 7.13: Tracking the Evolution of the Talent Assessment Industry

PAST	PRESENT	FUTURE
Manual		Automated
Separate		Integrated
Boring		Engaging
Closely Guarded		Multidiscipline
Self-Funded		Invested
Expensive		Commoditized
Enterprise-Focused		Accessible to All Sizes
Regional		Global
Biased		Inclusive
Focus on Test		Focus on Predictive Data
Self-Report Questions		Stealth Technology
Cold		Humanistic

This report provides a unique window into the talent assessment industry, its providers, and the key trends shaping its future. Our report paints a picture of an industry that offers a tremendous amount of value to companies of all sizes, but whose rapid growth is marked by tension between old and established ways and new technology-first ideas. While change among the traditional vendors in the industry remains slow and carefully measured, newer companies are pushing the envelope with tools that are highly efficient, but scientifically unproven and fraught with the potential for systematic bias.

In 2020, the more traditional approaches offered by Solution Providers who support standard assessment content (i.e., personality, cognitive, assessment centers) with professional services remains the bedrock of the industry. But as the industry evolves, it is becoming less dependent on the concept of selling individual tests — which have become highly commoditized — or professional services which can add cost and complexity. Instead, the future is all about selling technology that captures and manages data used to support predictive decision-making. Through advances in technology and the benefit of decades of accrued data, platforms are democratizing this value proposition, making assessment more accessible, cheaper, and easier to use than it has ever been.

The extent to which old and new ways converge on a more integrated approach that values both science and technology equally and is truly effective at managing bias is yet to be determined. There is a significant chance that such a singularity will not happen as the evolution of the industry will no doubt follow the money at the expense of sound science and inclusivity (despite marketing claims to the contrary). With investment into new assessment companies and technologies at an all time high, and many end users of assessments largely choosing to focus on short-run efficiencies over a long-term strategy based on sound science, there is cause for concern.

We feel cautiously optimistic that the global movement toward a more humanistic approach to the employer/employee relationship will create a unifying force that, through a partnership between science and technology, will guide meaningful change in the talent acquisition and talent assessment industry.

*It is important to remember that the prime directive of those who founded the assessment industry is to **do good for both workers and their employers by helping people gain access to meaningful employment opportunities that promote happiness and productivity through a mutually beneficial psychological contract.***

Even as unprecedented global events such as the COVID-19 pandemic rewrite the rulebook, as long as hiring is happening, talent assessment will have an increasingly important role to play in the survival, success, and evolution of companies of all sizes across the globe.



ENDNOTES

- [1] [“The 2018 Talent Board North American Candidate Experience Benchmark Research Report Now Available,”](#) Talent Board, accessed December 30, 2020.
- [2] [“The 2019 Talent Board North American Candidate Experience Benchmark Research Report Now Available,”](#) Talent Board, accessed December 30, 2020.
- [3] Charles Handler, [“The 8-Step Path to Enlightening Candidate Assessment Experience,”](#) Rocket-Hire, last modified November 2019.

APPENDIX A: VENDOR RATING PARAMETERS

Market Segment	Segment of the market served by the firm's products and where services are aimed
SMB	Business size: 1–1,000 employees
Large	Business size: 1,001–5,000 employees
Enterprise	Business size: over 5,000 employees
Public sector	Any government or quasi-government agency on the county, state, or federal level
All	Offerings are aimed at all segments
AI Quotient (based on actual, not as advertised)	The extent to which the vendor's products make use of AI technologies (i.e., natural language processing, semantic analysis, deep learning, advanced machine learning). Note: For the purposes of this classification system, we did not consider simple machine learning as AI
High	Entire technology and product is based on AI
Medium	Offers some advanced techniques such as open web candidate search, facial recognition, complex NLP, and deep learning in addition to more traditional products
Low	Adds some AI functions (i.e., NLP-based) to augment a fairly traditional product
Zero	No use of AI techniques (Note: Just using ML to optimize scoring does not count as AI)
I/O Psychologists on Staff	Yes
	No
Revenue	Estimated yearly revenue
	NA — not enough information to provide confidence needed to make an estimate
Funding Source	Venture Capital (VC)
	Private Equity (PE)
	Self (no investment taken; used own revenues for growth)
Funding Amount	Amount of funding taken in the history of the company, based on publicly available information and proprietary research
	NA — not enough information to provide confidence needed to make an estimate
Risk/Exposure Factor	The extent to which the vendor's product and methods introduce the risk of bias and lack of compliance with EEOC and OFCCP regulations.
High	Methodology does not substantiate job-relatedness of assessments based on requirements stated in Uniform Guidelines. For instance, using AI to construct profiles and interpret trait-based measurement with no intermediary steps or input from I/O psychologists, and/or providing screening of applicants using AI-based tools. Methodologies are not clearly stated. Make heavy use of buzzwords with no substantiation.
Medium	Methodology provides adequate inputs to align assessment content to job requirements. Expert services/advice is available, but may not be required. Allows self-service of tests with no approval required from experts to ensure the test is used properly. Applies to most systems that use profile-based methodologies relying on top performer benchmarking and/or pre-made profiles.
Low	Methodology follows best practices for selection system design and validation. Meets all required protocols to comply with the Uniform Guidelines. Provides technical support in the form of expert-driven professional services. Also applies to all above-the-funnel technologies that are focused on sourcing and matching job seekers who are not yet job applicants.

Profiling?	The extent to which the vendor uses one of two profiling methodologies to align assessment content to the traits required for success at the job for which the assessment is being used.
Benchmarking	Assessments use a methodology in which high performers take the assessment and the resulting profile is used as a benchmark against which applicants are evaluated. Can also apply to technologies where AI is used to review other non test-related data from high performers (e.g., social profiles, non-performance-oriented employee data).
Pre-made	Assessments are configured and/or scored using pre-made profiles created from archival data.
Science Quality	The extent to which the vendor bases their products and services on established theories and methods of psychology and selection science. Note: This rating does not include data science.
High (<7-10)	Meets or exceeds all standards for best practices in psychometrics and ties assessments to underlying theories and research. Uses no jargon to describe their science or process. Produces quality research-supporting tools and methodologies. Uses AI responsibly and ties it back to established psychological theories and best practices.
Medium (<5-7)	Meets market standards for science and methods. Uses proper psychometrics to construct tests. Makes documentation available to support insights and understanding of products, their construction, and validation. Offers standard test products and methodologies, but are not highly innovative. Automates the configuration process for aligning tests with jobs or uses a simple profiling methodology (versus expert professional services).
Low (0-5)	Fails to establish a connection between assessments and any established psychological theory. Methodologies are unique and do not appear to fit with established best practices. Process used to align assessment with job requirements is minimal and access to trained experts is not provided.
NA	Uses no selection science-based practices to evaluate applicants. (Applies to all use of AI tools that interpret data without the use of a formal assessment tool.)
Candidate Experience (CX) Rating	The extent to which the vendor's products provide candidates with an enjoyable and job relevant experience.
High	Assessments provide an outstanding experience for candidates via assessments that are shorter than market standard (<20 min), have some form of interactive quality, are novel when compared to the market standard, and give something back to the candidate (i.e., assessment report, developmental feedback, RJP). Also includes AI-based tools that do not require candidates to provide any self-report data (or data entered as an assessment tool that requires direct input or a digital video interview, as well as tools that use automation to engage candidates).
Medium	Assessments meet market standard for length (20-30 min), represent typical item types that appear job relevant, and are easy for the candidate to access.
Low	Assessments are unusually long (>30 min), may not appear job related, are taxing to complete, may seem outdated, and lack face validity.
Five-Year Outlook	Our analysts' opinion on the vendor's potential growth over the coming five years.
Strong	Provider is differentiated in a positive way. Provider has great potential to scale with increased profitability and/or provides a truly novel approach that has intuitive appeal. Provider should see >20% growth in the next five years and has good potential for outside investment or an event.
Status quo	Provider has a good business model. The potential is there for increased growth, but likely not over 20% in the coming five years.
Potential	Provider has good potential, but significant growth is uncertain due to lack of investment/resources, difficult competition, or uncertain product quality or effectiveness.
Losing ground	Provider's business model and/or products are outdated and will become less competitive over time unless more is invested in product and go-to-market development.
Acquired	Provider's company has been acquired and its growth is now folded into that of the parent company.

APPENDIX B: ASSESSMENT TYPES TRACKED IN OUR DATABASE

TYPE OF ASSESSMENT	WORKING DEFINITION
Custom Assessments: Tools or platforms that allow for the creation of custom assessments and batteries of assessments from multiple providers.	
Assessment Authoring	A platform that allows third party users to build and deploy tests.
Custom Assessments	Bespoke assessment measures constructed for a specific job or use case.
Third Party Assessments	Assessments sourced from providers and sold directly to clients of another provider.
Third Party Assessments — integrated into platform	A platform that can integrate assessments from multiple vendors into its platform workflow and reporting functionality.

Digital Assessments: Assessments based on AI or other advanced technologies (such as Virtual Reality). Includes tools that perform various functions within Recruitment Process Automation (e.g., job matching, screening).	
AI-scored Essays/Writing	Measures that require free text responses scored using automation.
Chat/SMS-based Assessments	Assessment content delivered and/or scored via a simulated SMS conversation.
Cognitive Assessment — AI-based	Cognitive assessment that uses AI-based inputs instead of traditional cognitive items.
Digital Interviews — AI-based	Recorded interviews that are scored by AI.
Digital Interviews — non AI	Recorded interviews that are scored by human raters.
Job Matching — AI-based	A job matching system in which the data used to match applicants/candidates with specific job openings is collected and interpreted using AI.
Job Matching — blended (AI and traditional)	A job matching system in which the matching of applicants/candidates is supported by a combination of traditional assessment measures and AI.
Personality Assessments — AI-based	Personality assessment that uses only AI-based inputs; no self-report data is collected.
Screening — AI-based	Screening measures that use AI to interpret various sources of data in order to evaluate the fit between an individual and a given job.
Screening — AI/chatbot-based	Screening that uses a chatbot to deliver screening questions and score responses.
Screening — traditional	Self-report measures used at the top of the funnel to reduce applicant volume by screening out those who do not demonstrate a strong match with the most important traits needed for success.
Virtual Reality Assessments	The use of virtual reality to deliver assessments.

TYPE OF ASSESSMENT	WORKING DEFINITION
Interactive Assessments: Assessments that provide a high level of engagement, requiring the test taker to do more than click on radio buttons.	
Game-based Assessments — blended	Games that include cognitive, personality, or other constructs such as situational judgment.
Game-based Assessments — cognitive	Games that measure facets of cognitive ability (logical reasoning, fluid intelligence, etc.).
Game-based Assessments — personality/EQ	Games that measure soft skills such as personality or EQ.
Simulations	Measures that recreate all or part of the work environment and measure an applicant's ability to successfully complete them.

Other Types of Assessments: Represents a mixed bag of assessment types that are less common than those in other groupings.	
Career Interest Assessments	Measures that help identify the vocations or careers for which an individual is best suited.
Creativity Assessments	Measures of one's ability to think creatively.
Entrepreneurialism Assessments	Measures of an individual's potential for success as an entrepreneur and/or their ability to think and act like an entrepreneur in work-related situations.
Job Matching — traditional	Any system or process that compares data about a job to data about an individual in order to compute an index designed to show the strength of match between a person and a job.
Physical Ability Testing	Measures that require the completion of physical tasks that are required to perform a job.
Reference Checking	Platform that sends references provided by the applicant a form to rate the applicant on job related competencies.

Packaged/Point Focused Assessments: Assessments that are designed for specific jobs, roles, or environments — often combining content from other categories such as traditional assessments — into a packaged format.	
Blended Assessments	A single solution that is comprised of more than one (often several) different types of assessments (e.g., personality, SJT, biodata, simulations, cognitive).
Graduate Assessments	Broad-based measures of the general traits or abilities that are given to students who will soon be entering the workforce in order to assess their potential for long-term success within an organization.
Role/Industry-based Solutions	Generic measures that are constructed specifically for roles commonly found in most companies across most industries (e.g., sales, customer service, technician, call center agent, retail associate).
Safety Assessments	Assessments that specifically focus on workplace safety behaviors and attitudes.
Sales Assessments	Assessments that are designed to measure sales-specific skills, often following a proprietary blend of assessment methods that typically can be calibrated or adjusted to match various types of sales roles (inside sales, outside sales, enterprise sales, etc.)

TYPE OF ASSESSMENT	WORKING DEFINITION
Skills/Knowledge-based Assessments: The most common assessment types that have traditionally made up the bulk of the offerings in the market.	
Basic Work Skills Assessments	Blended assessment that measures the basic skills required for professional work (basic math, basic reading, integrity, honesty, etc.).
Certification/Licensure Exams	High stakes tests required for the attainment of a professional/technical license or certification.
IT/Coding Assessments	Assessments that measure knowledge and skill with specific languages and techniques required for successful performance of IT jobs.
Knowledge/Skills Assessments	Assessments that measure a specific domain of technical knowledge and/or skills that are required to perform a job (e.g., Microsoft Office applications skills).
Language Assessments	Measure of written or spoken language skills, usually not the test taker's primary language.

Traditional Assessments: The most common assessment types that have traditionally made up the bulk of the offerings in the market.	
Assessment Centers	A set of realistic exercises used to measure work-related competencies. Typical exercises include business cases, role plays, and in-box exercises.
Behavioral Assessments	Assessments that gauge the ability to perform key behaviors required for job performance.
Biodata	Measures that ask about past work experiences in order to predict future performance.
Cognitive Assessments	Measures of cognitive/thinking aptitudes. Covers all types of cognitive measures, both general (i.e., IQ, general intelligence) and specific (i.e., inductive reasoning, deductive reasoning, critical thinking).
Culture Fit Assessments	Measures of how well an individual fits with the culture of an organization based on the extent to which they share one another's values.
EQ/Emotional Intelligence Assessments	Measures of an individual's capability to recognize their own emotions and those of others, discern between different feelings and label them appropriately, use emotional information to guide thinking and behavior, and adjust emotions to adapt to environments.
Individual/Executive Assessments	Integrated approach used by trained expert psychologists to support detailed evaluation of suitability for higher level roles. Typically includes a battery of psychological tests and interviews, the results of which are used to create detailed summary reports that support collaborative decision-making.
Integrity Assessments	Assessments designed to identify individuals who pose a potential risk due to counterproductive work behaviors such as theft, carelessness, drug usage, etc.
Manager/Leadership Assessments	Measures of one's potential to lead others.
Motivation Assessments	Assessments that measure the factors that motivate an individual in the workplace (may use one of many different assessment types such as personality, work values, career interests, etc.).

TYPE OF ASSESSMENT	WORKING DEFINITION
Personality Assessments	Measures of normal workplace-oriented personality dimensions/traits.
Realistic Job Preview (RJP)	Provides the applicant with a preview of the job and work environment with a focus on both the benefits and challenges that are experienced on the job. Most often delivered by video.
Screening — traditional	Self-report measures used at the top of the funnel to reduce applicant volume based on job related factors.
Situational Judgement Tests (SJT)	Measures that present realistic work scenarios in which test takers rate the effectiveness of a series of potential responses or actions.
Soft Skills	Includes a mixed bag of traits and abilities that cover grit, resilience, etc. Note: due to the variation in how vendors define this type of assessment, Soft Skills assessments are classified as Personality Assessments in our database.
Strengths	Measures of internal and external emotional and behavioral competencies that enhance one's ability to develop relationships, deal with stress, and promote optimal development. (These assessments often have their roots in personality, but rely on proprietary theories and methods.)
Structured Interviews	An employment interview that uses structured rating scales to evaluate and score responses to a standardized set of interview questions.
Work Preferences	Measures of the outcomes individuals desire from their engagement in paid work, and their preferences for a specific type of work or work environment.
Work Values	Assessments that measure the things an individual values most in their work environment as well as the extent to which the individual possesses important values such as integrity, conscientiousness, etc.

APPENDIX C: ELEMENTS OF OUR VENDOR CLASSIFICATION SCHEME

PRIMARY CLASSIFICATION	DEFINITION	SECONDARY CLASSIFICATION CATEGORY
<p>Solution Providers</p>	<p>These vendors offer many assessment products that can be integrated modularly to create solutions for jobs/ roles and can create custom solutions using tech and psychometrics. Often support tests with professional services (strategy, job analysis, validation, custom development). Commonly offer a variety of other tools for post-hire, talent management, and talent development.</p>	<p>Services focused: Professional services are used to configure and implement assessment products.</p>
		<p>Content focused: A range of content is deployed that can be used off the shelf or configured with minimal or no professional services.</p>
		<p>Blended (Service/Content focused): Easy-to-access content can be used with minimal professional services. Expert support is also offered if desired.</p>
<p>Specialty Providers</p>	<p>These vendors offer several different types of tools. Core focus is on one of the 52 types of assessments tracked in our database.</p>	<p>Corresponds to one of the 52 different assessment types tracked in our database.</p>
<p>Test Publishers</p>	<p>These vendors make and sell pre-made tests. Often built into a tech solution relying on pre-made profiles to select appropriate tests or evaluate generic job qualifications. Commonly offer tests via a self-serve, transactional model.</p>	<p>Supporting services: Professional services are offered to advise on, configure, implement, and evaluate assessments.</p>
		<p>Transactional: Access to tests is offered with no in-person support.</p>
<p>Hiring Platforms</p>	<p>These vendors provide a software system that supports the configuration, deployment, scoring, and reporting of assessment tools. Often support other hiring and HR functions besides assessment and automate some or all of the hiring and assessment workflow.</p>	<p>Traditional assessments: A variety of tools are combined into one platform to manage the hiring process. A system to configure assessments is provided — in many cases, this involves the profiling of high performers to set benchmarks or the use of pre-made job profiles that leverage data collected by the vendor or other pre-made job profile info such as O*NET. Typically provides a simple recruiter interface.</p>
		<p>Pure AI: A variety of tools combined into one platform are used to manage the hiring process and provide functionality to support Recruitment Process Automation. Often includes modules/functions for sourcing, engaging, screening, assessing, and interviewing, and engagement of applicants and current employees. The platform makes exclusive use of AI to facilitate all functions related to measuring, matching, screening, and predicting.</p>
		<p>Blended (AI and traditional): A variety of tools that are combined into one platform used to manage the hiring process. Often includes modules/functions for sourcing, engaging, screening, assessing, and interviewing, and engaging of applicants and current employees. The platform uses a blend of both AI and traditional assessments to facilitate functions related to measuring, matching, screening, and predicting.</p>