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2022

THE BURTCH WORKS

SALARY REPORT

DATA ENGINEERING PROFESSIONALS

Burtch Works
Executive Recruiting

TABLE OF CONTENTS

ABOUT BURTCH WORKS

Burtch Works is the national leader in Talent Solutions, specializing in Data Engineering, Business Intelligence, Data Science, AI/ML, and Technology. We provide omni-channel talent solutions consisting of contract staffing, contract-to-hire, full-time placement, retained search and deliverable based (SOW) services tailored for the Data and Analytics industry with offices in Chicago, Cincinnati, and Philadelphia. We have established the worlds largest Data & Analytics talent community resulting from engaging with thousands of Data & Analytics professionals over the last thirteen years as trusted advisors and career advocates. We provide our talent community of professionals with leading industry insights and research which helps them navigate the ever-changing marketplace.

As trusted advisors and career advocates to the industry, we have been interviewed for our insights on the data science, data engineering and analytics talent market by The New York Times, The Wall Street Journal, CNBC, Mashable, Forbes, The Chicago Tribune, The Economist, Bloomberg, Analytics Magazine, InformationWeek, Hunt Scanlon, Women in Data Science and many more. This year, Burtch Works is proud to once again have been recognized by Forbes as one of America's Best Recruiting Firms for the fifth year running. We've conducted joint surveys in partnership with the International Institute for Analytics (IIA), Forrester Research, and others to provide invaluable data and insights for analytics and technology teams across all industries, and have also published numerous other studies and research on current hiring trends, the job market, and how teams are preparing for success in the new digital revolution.

Our leadership team shares a collective 100+ years of recruiting and consulting experience in Data Analytics and Technology disciplines, allowing us to develop an especially comprehensive understanding of the transformation taking place across industries in these growing fields. Our specialties include a number of analytical and technology-driven fields such as: data science, predictive analytics, data engineering, business intelligence, artificial intelligence, machine learning, MLOps, product development, quantitative business analytics, operations research, web analytics, credit/risk analytics, marketing research, and many more.

ABOUT BURTCH WORKS

Because our recruiters are so well-versed in the subtle nuances of their area of expertise, they are able to effectively navigate the talent movement and hiring trends unique to each area, and find individuals perfectly suited to each role. Our team often writes on topics of interest to the communities we serve and has maintained a blog on hiring trends for over 10 years, keeping a finger on the pulse of current market trends.

As data-first practices have become a necessary strategy to remain competitive in the age of digital transformation, the Data Analytics and Technology fields continue to experience incredible growth. Burtch Works has built a diverse network of tens of thousands of professionals to address the rapidly growing number of data-driven positions, which is the foundation of a business built on long-standing relationships with both candidates and clients. The Burtch Works team emphasizes a shared vision and commitment to helping our talent community navigate an evolving industry as well as a commitment to helping our clients solve their complex business challenges.

In maintaining such strong relationships with candidates and clients, Burtch Works has an especially unique ability to examine hiring and compensation trends over time. Using our extensive proprietary data, we publish several highly anticipated studies each year that investigate demographic and compensation data for data science & analytics, data engineering, and marketing research & insights professionals. The Burtch Works Studies provide an exceptional vantage point on compensation for these professionals across the country and contain critical information both for individuals mapping their career strategy and for leaders who are hiring and planning to recruit and retain outstanding talent for their teams.

This year, we have altered our job level categories to better reflect the industry trends in the engineering hiring market. Similar to our Data Science & AI Professionals salary report, we have implemented three job levels for both individual contributors and managers.

See page 30 to learn more about this report's methodology.

Section 1
Introduction

The Rise of the DATA ENGINEER

Data Engineering has never been more important or relevant than it is today. Many might say that data engineering as a profession has been around for well over a decade, or even several, since relational databases came to market led by major Original Equipment Manufacturers (OEM'S) in the 1970s. This included Microsoft SQL Server, IBM DB2, and Oracle. However, the reality is that data engineering has evolved immensely since the early years with the onset of Big Data, cloud advancements, digital transformation, and more sophisticated data science practices like machine learning and artificial intelligence.

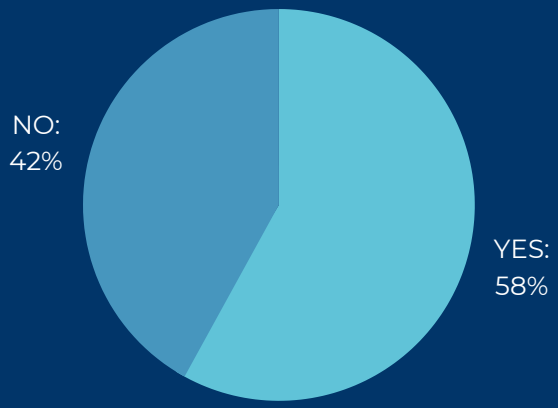
Now data volumes, variety, and velocity are much greater than they used to be. This has led data engineering professionals away from using traditional ETL tools to developing and adopting new tools and processes to handle the data revolution such as Databricks and Snowflake. These modern tools and responsibilities now support cloud computing, data infrastructure, data lake, data warehousing, data mining, data modeling, data crunching, metadata management, data testing, machine learning, and governance, among others.

We have experienced firsthand the increase in demand for data engineering driven by the data revolution. Since our inaugural report last year, many of the insights we predicted have come to fruition including high demand for data engineers, growing investment in data engineering teams, and an influx of early career engineers.

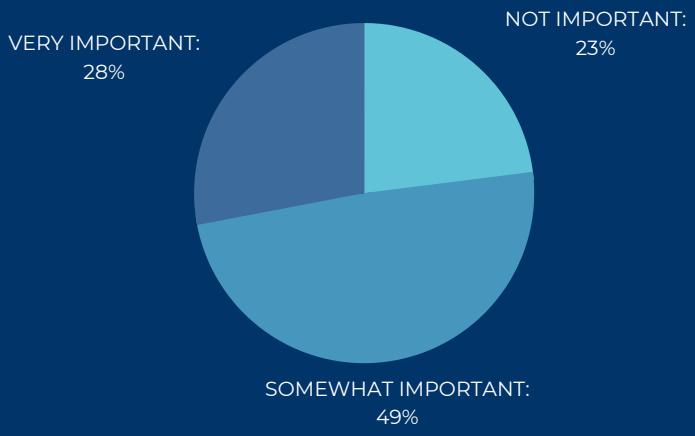
MARKET OVERVIEW

HIRING TRENDS & CANDIDATE SENTIMENT

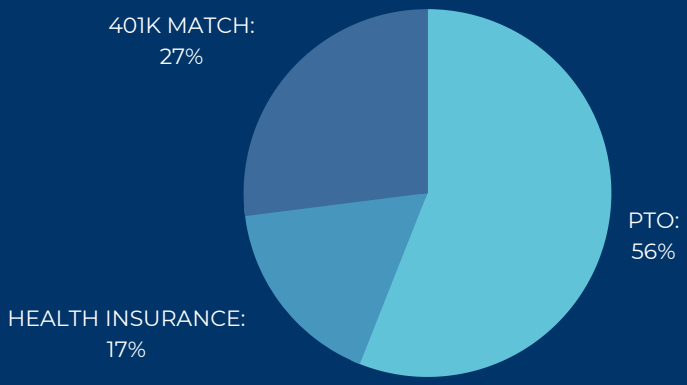
ARE YOU CURRENTLY LOOKING FOR A NEW OPPORTUNITY?



WHEN CONSIDERING A NEW JOB, HOW IMPORTANT IS THE **INDUSTRY**?



WHEN CONSIDERING **BENEFITS** AT A NEW ROLE, WHAT IS MOST DESIRABLE?



Given the immense volume of professionals changing jobs along with the buzz surrounding the Great Resignation, we sent out surveys earlier this year to ask data professionals about their sentiments when considering new opportunities.

DATA ENGINEERING PROFESSIONALS SALARY AND HIRING TRENDS

Yearly Overview... Where are we now?

We approached this year's salary data (gathered from August 2021 through July 2022) with great interest, since the timing lines up well with the economic recovery that began in Q2 of 2021. Our data shows that 2022 salaries significantly increased at all job levels. These salary increases are unlike anything we have seen in the past, and these unprecedented times in the job market are continuing to make a strong impact on candidate compensation.

Given the immense volume of professionals changing jobs along with the buzz surrounding the Great Resignation, we have compiled a list of trends we have noticed over the past year:

2022: What's to come?

Many data teams had already resumed hiring last year (escalating in Q2), and so far in 2022, hiring has been incredibly competitive. In Q2 2022, our research found that **81% of data teams are planning to hire during Q3 or Q4 of 2022.**

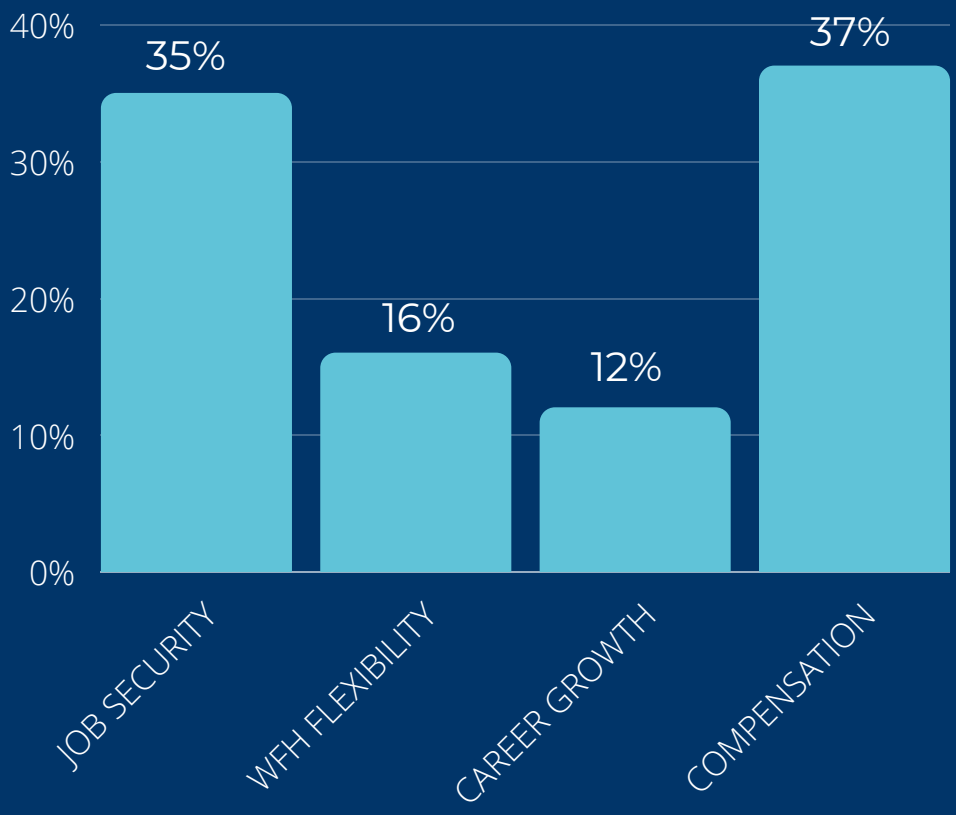
The respondents of the survey spanned over 120 companies across the U.S. **Of the total remaining respondents, 14% of data teams indicated plans to hold steady, 3% of teams revealed they are on a hiring freeze, while 2% of teams reported they are either cutting back on hiring or planning to do so.** This is notable when compared to the first half of 2022, because the percentage of companies reporting a hiring freeze or planning to cut back rose slightly from the second half of the year. This is driven from increased concerns surrounding economic uncertainty but overall we are finding companies are prioritizing other areas of hiring to cut back on before impairing hiring plans for data jobs. Several clients have shared their desire to fill all their open roles before the end of the fiscal year so they don't jeopardize losing their budgets should the economy continue to slow down in 2023. Ultimately, permanent hiring seems to be the favored method of adding data engineering headcount but as economic conditions shift we are seeing an early increase in contract and contract-to-hire demand.

THE GREAT RESIGNATION & IT'S LASTING IMPACT

The effects of the COVID-19 pandemic on the hiring market have shifted significantly over the past few years. During the immense disruption of 2020, many professionals chose to put planned job searches on hold, while some data teams were more impacted than others in terms of their hiring plans and response to the initial crisis.

As the economic recovery picked up in 2021, we saw more data teams planning to hire. There was also massive turnover in the labor market, dubbed the Great Resignation, as many professionals resumed their job searches or sought to change their working situation due to other pandemic-related factors. **Unfortunately for those looking to hire, this has led to fewer professionals on the market in 2022, and a lower inventory of available candidates with increased work-life balance expectations.** Many candidates that are still on the market are coming to the table with numerous offers and are seeking job security, a meaningful increase in salary, along with other benefits like remote work or work from anywhere scenarios.

WHAT IS THE MOST IMPORTANT FACTOR TO CANDIDATES WHEN CONSIDERING A NEW CAREER OPPORTUNITY?



Changes in Hiring:

Streamlined Interview Process

- Tight Candidate Pool
- Speed Up Process
- Sell Your Opportunity

Given the competitive nature of today's hiring market, it is crucial for organizations to curate a streamlined and transparent interview process. Utmost clarity as far as the role and responsibilities, tool usage, and day-to-day work will allow the candidate to get the deepest understanding of what the role entails. From our recent conversations with clients and candidates, it is evident that the interview process has seen some immense shifts over the past few years and companies have realized the importance of improving their interviewing strategies to allow for a streamlined and effective process when vetting candidates for their open roles.

It is also notable that long-form technical assessments and coding exams are used less frequently in the interview process and companies are beginning to assess a gap in skill as something that could be closed through training and mentorship when a candidate is onboarded. To remain competitive, it is vital to keep your interview process efficient and to effectively sell your opportunity.

From conversations with clients, it has become apparent that interviews with no more than two rounds and implementing more of a panel-style where the candidate has the ability to meet with multiple team members at once is increasing in commonality.

Growth And Diversity of University Programs

In the early 2000s, there was only a handful of data and analytics programs at universities across the country. In 2022, there are 1000+ data-related degree programs in the U.S. and the number is growing every day. So, what does this mean for a student looking to enter the space or further their education? And on the flip side, is this variety of programs a gain or loss for employers looking to hire data engineering professionals?

Is Variety Always a Good Thing?

Similar to data teams belonging to various business functions across organizations, academic programs are also not one size fits all. Data-related programs can belong across various disciplines within the school of business, engineering, computing, math, and science, or even as their own stand-alone academic unit. Due to these programs landing across the map, the specializations that they provide are also vast.

For example, business school analytics programs usually involve a less technical curriculum focused on business intelligence (BI), data visualization, and using analytics to make business decisions. It goes without saying that some programs are more technical than others – and what program is the right one for an individual to pursue or a company to hire from entirely depends on what the student or company is looking to gain from the program.

In our sample, Bachelor's degrees increased by 4% in 2022 and that number continues to increase. The influx of graduates entering the industry coupled with students pursuing higher education has resulted in a vast variety of programs across the country.

Changes in Hiring:

Retention & Recruiting Strategies are Brought to the Forefront

- Examine Compensation
- Internal Relationships
- Alumni Opportunities

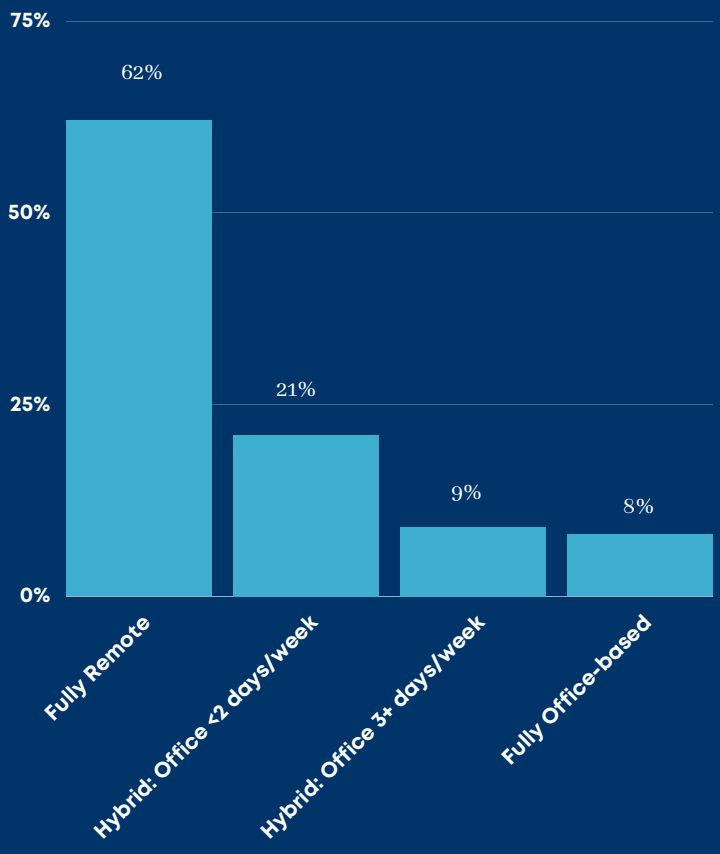
Our research has repeatedly found that data engineering professionals who changed jobs were receiving significant salary increases, so be sure that you're aware of current market rates if you wish to retain key staff. **We've also seen some data teams employing the use of preemptive retention bonuses or spot bonuses to recognize work on key projects, and even salary increases outside of the normal annual schedule.**

The use of **Long Term Incentive Plans (LTIP)** are increasing in popularity to align employee and company interest while maintaining institutional knowledge through reduced attrition. LTIPs are often offered to those at managerial levels and can explain why professionals with extensive experience choose not to leave their jobs as often when compared to early-career professionals.

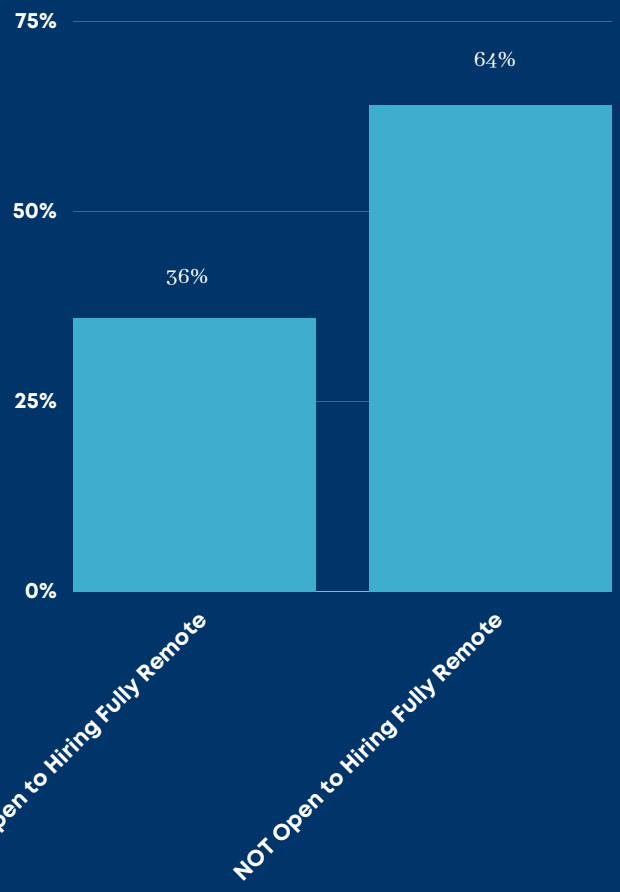
Positive relationships can go a long way towards retaining employees, including managing relationships between you and your data team, as well as fostering camaraderie within the team. **Strong communication, transparency, and offering mentorship can all build stronger relationships between leadership and the team.** For early career employees especially, focusing on team-building or fun activities can build stronger cohesion within the team, which can help make employees less likely to be tempted by other job offers. **It is also important to maintain relationships with company alumni as we have seen several candidates return to their previous companies for a variety of reasons.**

Working with students can also provide ample opportunities to see how they work, introduce them to practical tools, and even serve as a sort of extended interview process for students that you may want to hire upon graduation or for internships. This could include institutes or programs as well as partnering with student-run organizations.

Changes in Hiring:
Evolution of WFH Policies



CANDIDATES



CLIENTS

With many companies evaluating their WFH and remote work policies going forward, we sent out a survey earlier this year to gauge candidate and client WFH preferences.

The idea that remote work has opened doors for individuals to work in cities across the country is shifting quickly towards more and more requests to relocate. **This evolution in policies is generally translating to a hybrid model where individuals are expected to come into the office on a partial or as-needed basis.** With that said, there are countless roles and opportunities open to those that are seeking a fully remote position, but they are not the majority of roles available as often assumed or reported by the media.

From most conversations we have had with clients, it is evident that they are looking for candidates that are open to going into the office at least twice a week, and there has been a greater push across industries to return to office in some capacity. We will continue to monitor these trends and report back in the future.

Changes in Hiring:
Increased Advocacy for Women

While many working parents likely felt the acute crunch between their home and work lives over the past few years (especially those with younger or school-age children), this disruption continues to impact the women in our sample slightly more than their male counterparts. In our sample, the percentage of women remained steady at 13%, which is notable and continues to point to disparities in industry representation as women are still heavily underrepresented in the space.

With that said, there are several organizations curated to support women in the data and analytics space:

Women in Data Science (WiDS) -
The Women in Data Science (WiDS) initiative aims to inspire and educate data scientists worldwide, regardless of gender, and to support women in the field. WiDS started as a one-day technical conference at Stanford in November 2015. Five years later, WiDS is a global movement that includes several worldwide initiatives and continues to grow.

WOMEN IN DATA SCIENCE
STANFORD UNIVERSITY

Women in Analytics (WIA) -
WIA's mission is to increase the visibility of the women making an impact in the analytics space and provide a platform for women to lead the conversations around the advancements in analytical research, development, and applications

Women in Analytics

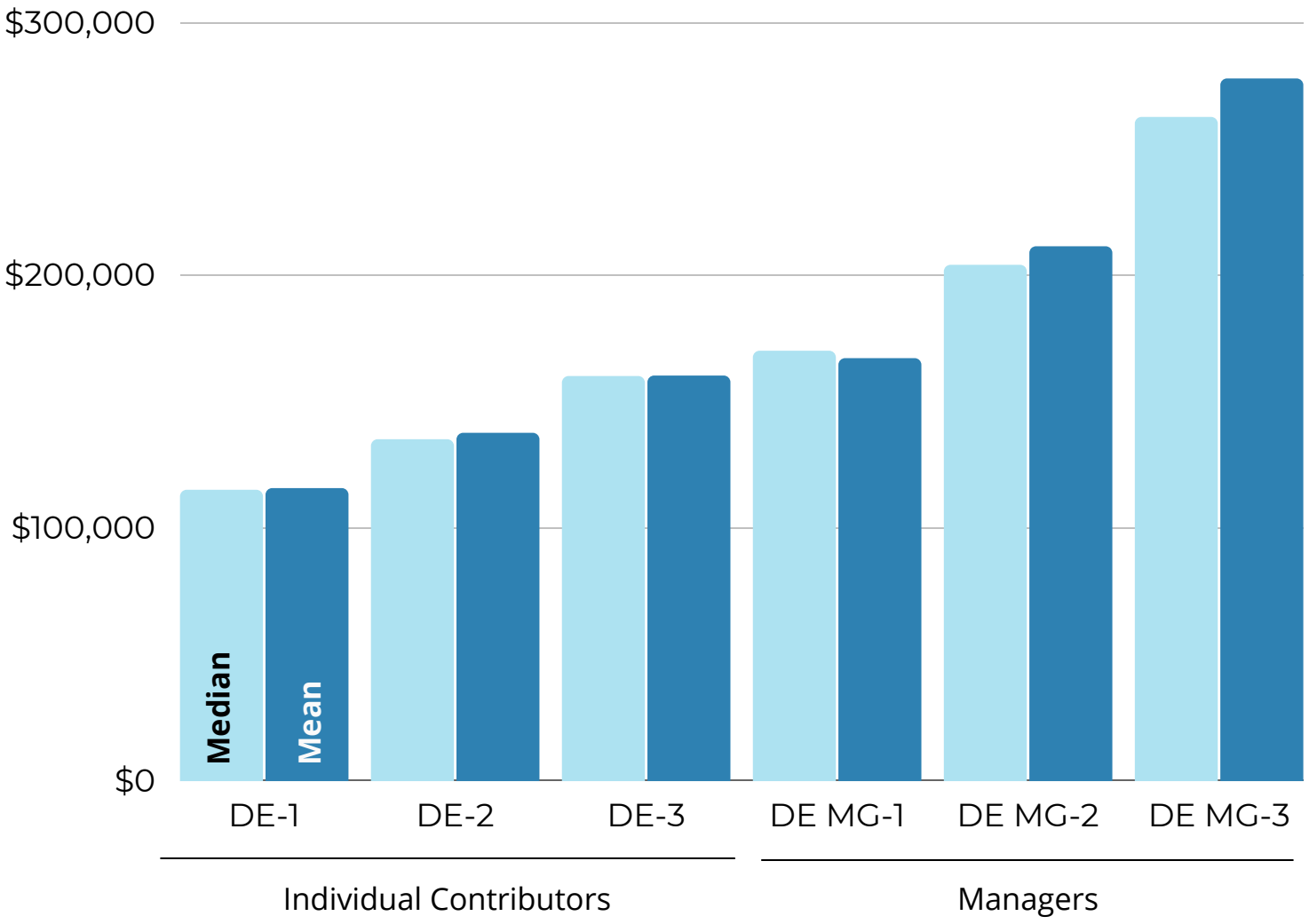
Women in Data -
Women in Data's mission is to provide a platform for female and gender-diverse data professionals to share their technical knowledge and experiences, and to encourage more diverse representation in the industry.

women in data

Section 2
Compensation Changes

Compensation Changes Over Time

Salary Median and Means for Data Engineers - 2022



Burtch Works separated Data Engineers into six job levels based on their function.

DE IC 1: Early Career Professionals, generally under 3 years of professional experience

DE IC 2: Data Engineers with 4 to 8 years of experience, typically titles include Sr. Data Engineer or Lead Data Engineer

DE IC 3: Experienced Data Engineer, typically above 9+ years of experience, titles include Principal Data Engineer

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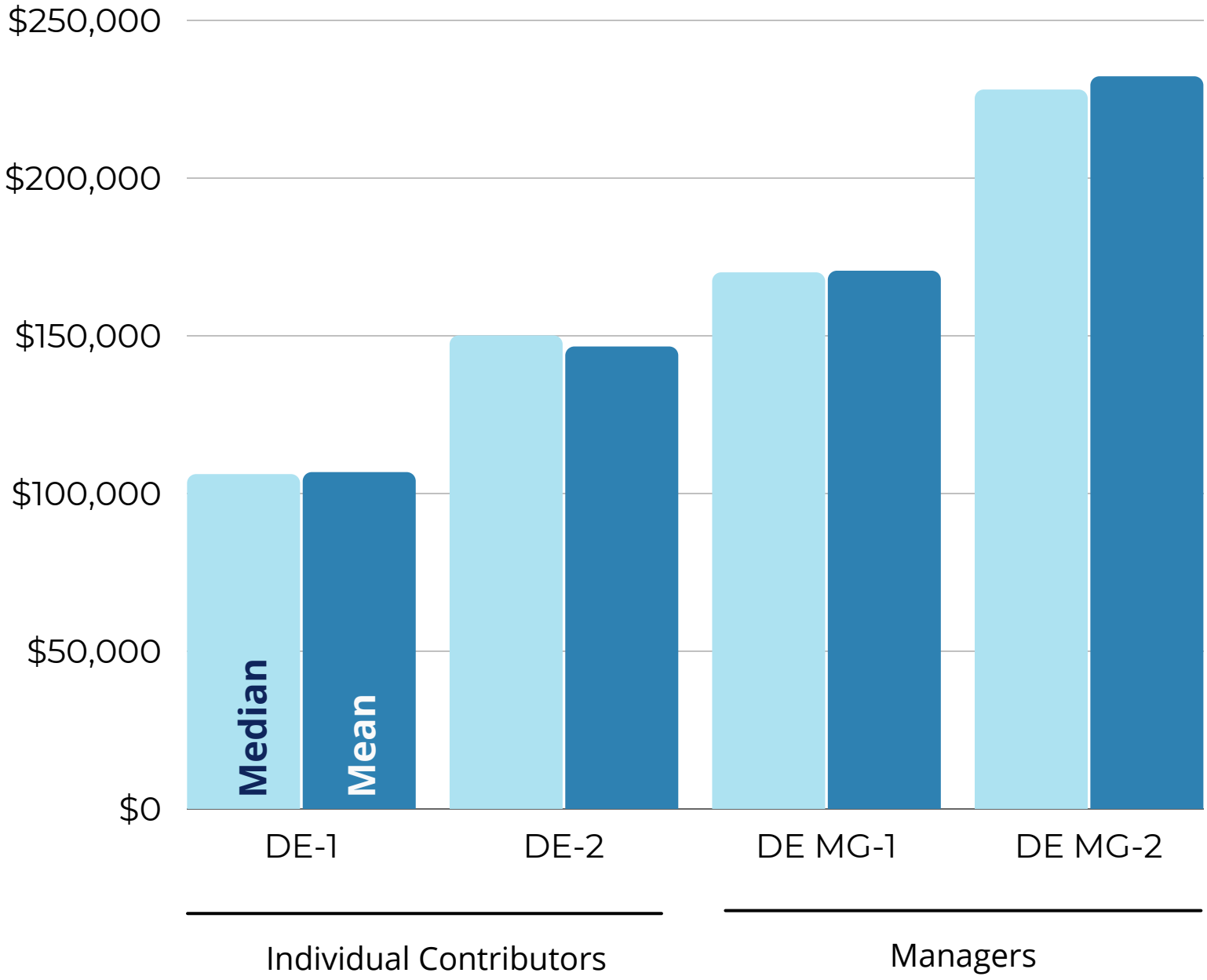
DE MG 1: Typically 0- 10 years of management experience, supervises a functional team under 3 direct reports, titles include Manager or Sr. Manager

DE MG 2: Leads function and executes on strategy, titles include Associate Director, Director, Sr. Director

DE MG 3: Strategic leaders that are responsible for determining data strategy, titles include Vice Presidents, Heads of Data Engineering/Architecture

Compensation Changes Over Time

Salary Median and Means for Data Engineers - 2021



Salaries on the Rise?

Data Engineers are in high demand as many companies continue to invest in digital transformation efforts to not only thrive, but survive in today's data-driven economy. Many professionals are taking advantage of the active market and are able to obtain multiple offers. Companies that wish to hire and retain top talent need to make sure their offer is competitive.

Compensation Changes Over Time

Base Salary Quartiles, Medians, and Means for Data Engineers at Each Job Level - 2021

Job Level	25%	Median	Mean	75%	N
DE-1	$85,000	$106,000	$106,638	$126,000	73
DE-2	$125,000	$150,000	$146,492	$160,000	132
DE MG-1	$150,000	$170,000	$170,523	$186,250	44
DE MG-2	$193,500	$228,000	$232,197	$260,000	71

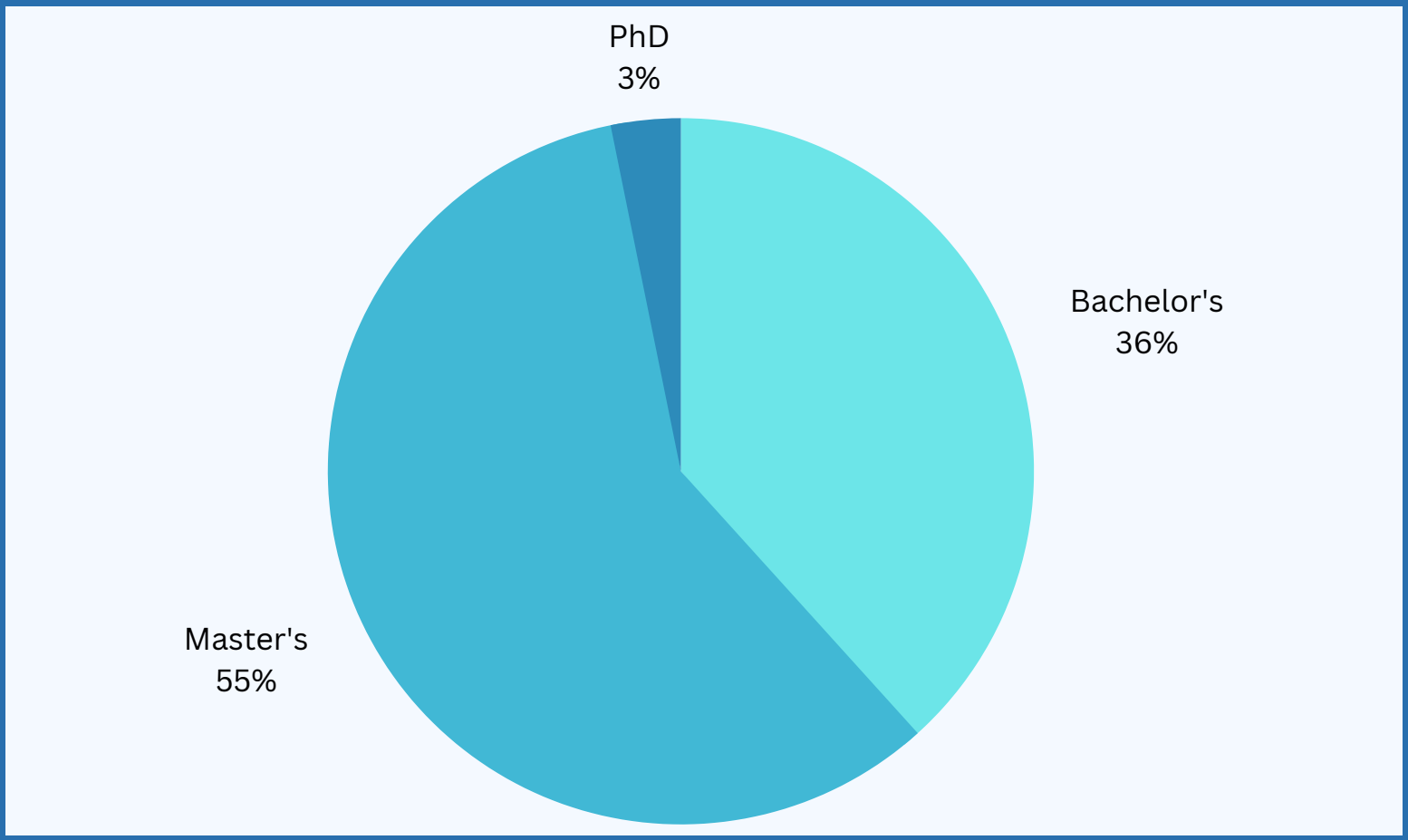
Base Salary Quartiles, Medians, and Means for Data Engineers at Each Job Level - 2022

Job Level	25%	Median	Mean	75%	N
DE IC-1	$100,000	$115,000	$115,663	$130,000	82
DE IC-2	$120,000	$135,000	$137,536	$150,000	197
DE IC-3	$140,100	$160,000	$160,187	$180,000	155
DE MG-1	$140,000	$170,000	$167,076	$176,500	70
DE MG-2	$190,000	$204,000	$211,329	$221,475	56
DE MG-3	$250,000	$262,500	$277,716	$296,000	38

Section 3
Demographic Profile

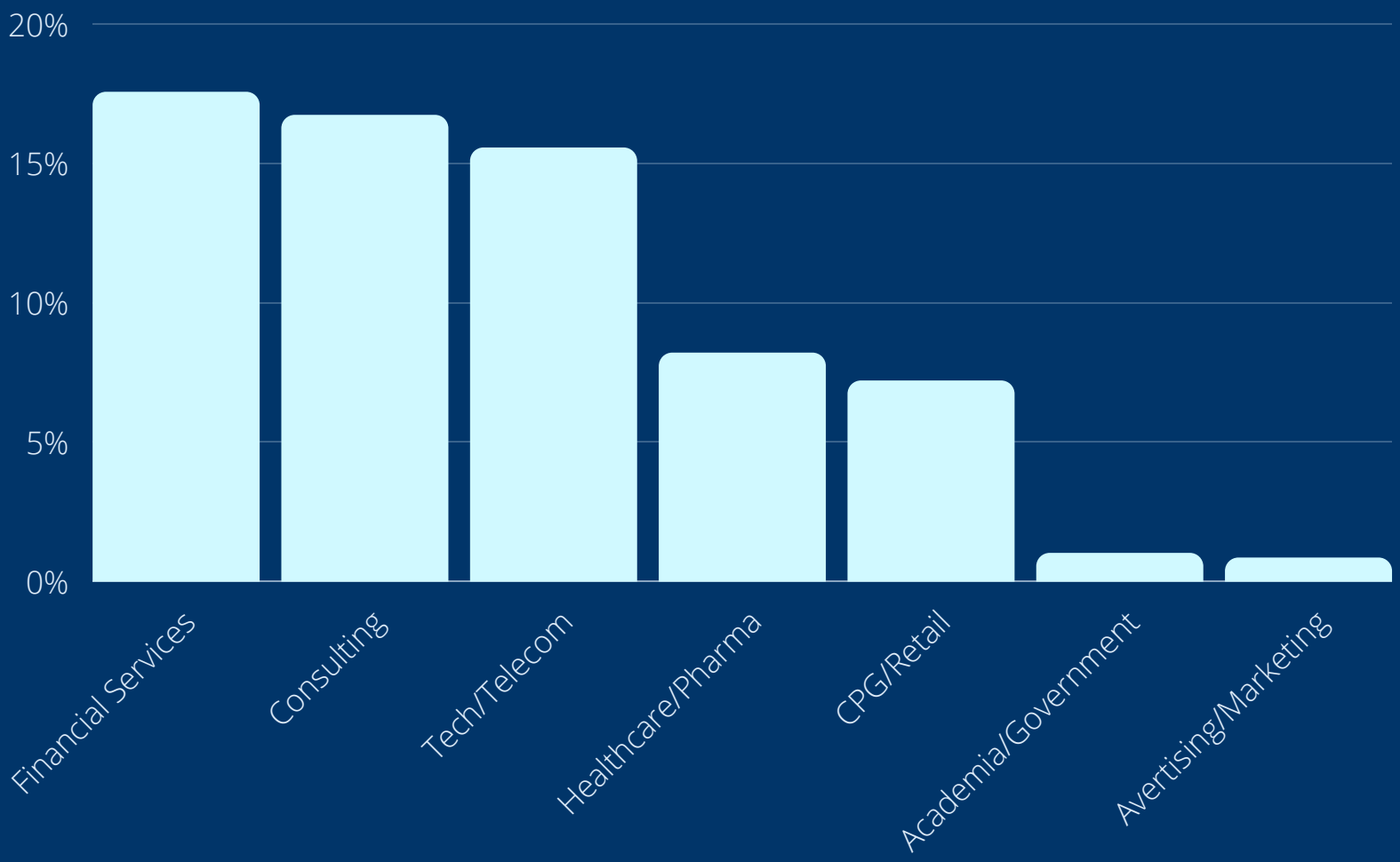
Demographics: Education

Highest Degree Earned for Data Engineers



- 61% of all professionals in the sample held an **advanced degree**.
- Data Engineers are more likely to hold a Master's degree compared to Data Scientists and less likely to hold a PhD as their highest degree earned.
- Professionals with a Bachelor's degree as their highest education are still common in Data Engineering as there is a huge influx of students entering the data and analytics space. This has resulted in some students taking a job after graduation and then pursuing a master's.

Demographics: Industry



Data Engineers in our sample were most commonly found in the Financial Services, Consulting, and Technology sectors.

From conversations with candidates, we have noticed that there is increased interest in healthcare/pharma due to increased stability.

Advertising and Marketing Services remain as our smallest industry segment.

Demographics:

Industry

Base Salaries by Job Level and **Industry for Data Engineering Individual Contributors**

Job Level	Industry	Base Salary			
		25%	Median	Mean	75%
DE-1	Consulting	$102,000	$112,500	$116,300	$127,500
	Financial Services	$100,000	$120,000	$115,100	$129,250
	Technology/Telecom	$110,100	$122,500	$120,014	$130,000
	Other Corporate	$100,000	$115,000	$117,875	$130,000
DE-2	Consulting	$120,000	$138,000	$142,171	$164,000
	Financial Services	$120,000	$130,000	$133,122	$150,000
	Technology/Telecom	$126,250	$140,000	$142,792	$153,825
	Other Corporate	$120,000	$140,000	$140,743	$160,000
DE-3	Consulting	$142,500	$156,000	$158,886	$175,000
	Financial Services	$142,500	$160,000	$160,140	$180,200
	Technology/Telecom	$156,250	$170,000	$169,413	$186,500
	Other Corporate	$140,000	$154,000	$151,690	$170,000

Demographics:

Industry

Base Salaries by Job Level and **Industry for Data Engineering Managers**

Job Level	Industry	Base Salary			
		25%	Median	Mean	75%
DE MG-1	Consulting	$165,050	$165,000	$166,700	$167,550
	Financial Services	$162,000	$170,050	$169,910	$175,000
	Technology/Telecom	$155,000	$172,500	$167,500	$178,750
	Other Corporate	$150,000	$167,500	$165,475	$176,250
DE MG-2	Consulting	$200,000	$200,000	$205,000	$202,500
	Financial Services	$200,000	$205,000	$207,500	$210,000
	Technology/Telecom	$200,000	$220,200	$215,440	$228,750
	Other Corporate	$200,000	$210,000	$212,758	$220,000
DE MG-3	Consulting	$270,200	$270,200	$270,200	$270,200
	Financial Services	$250,000	$250,100	$254,800	$254,900
	Technology/Telecom	$250,000	$250,000	$266,000	$274,000
	Other Corporate	$250,000	$270,000	$282,200	$300,000

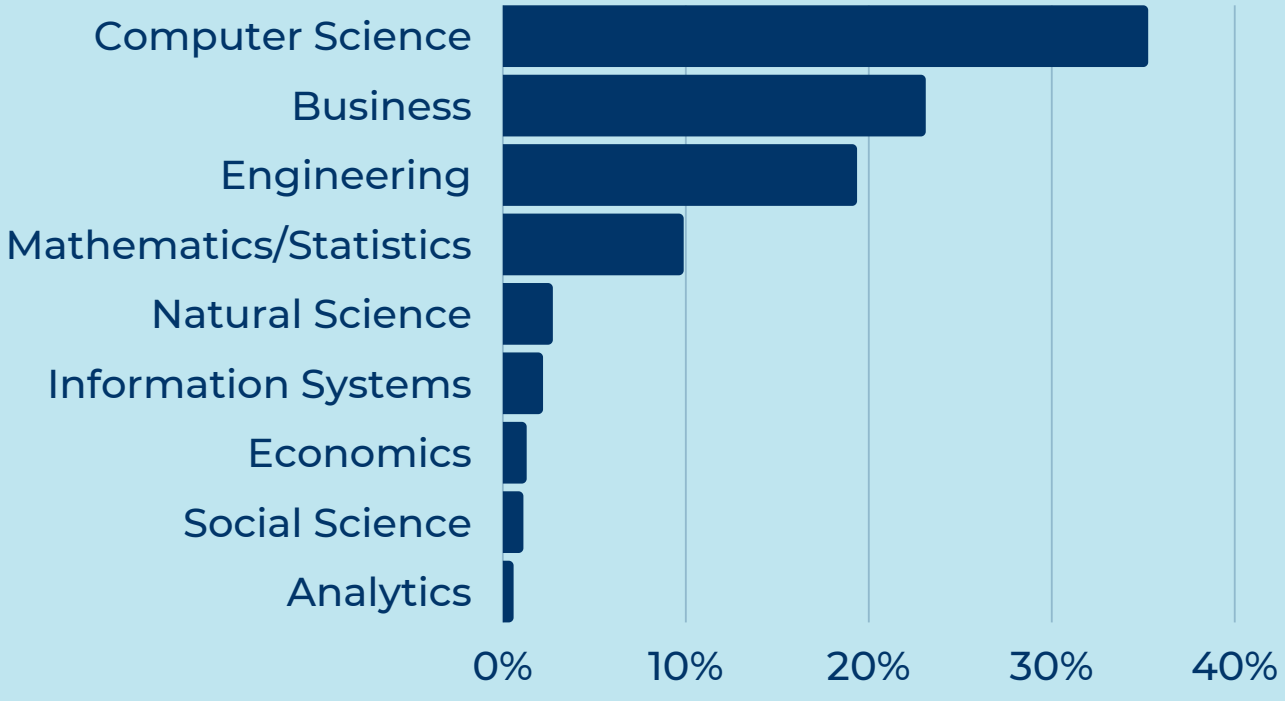
Education: Area of Study

Most Data Engineers come from degree backgrounds with a technology focus such as Computer Science and Business (over 50% of our sample).

Compared to Data Science professionals, Data Engineers are more likely to have a Computer Science degree, but Engineering degrees are also becoming increasingly common.

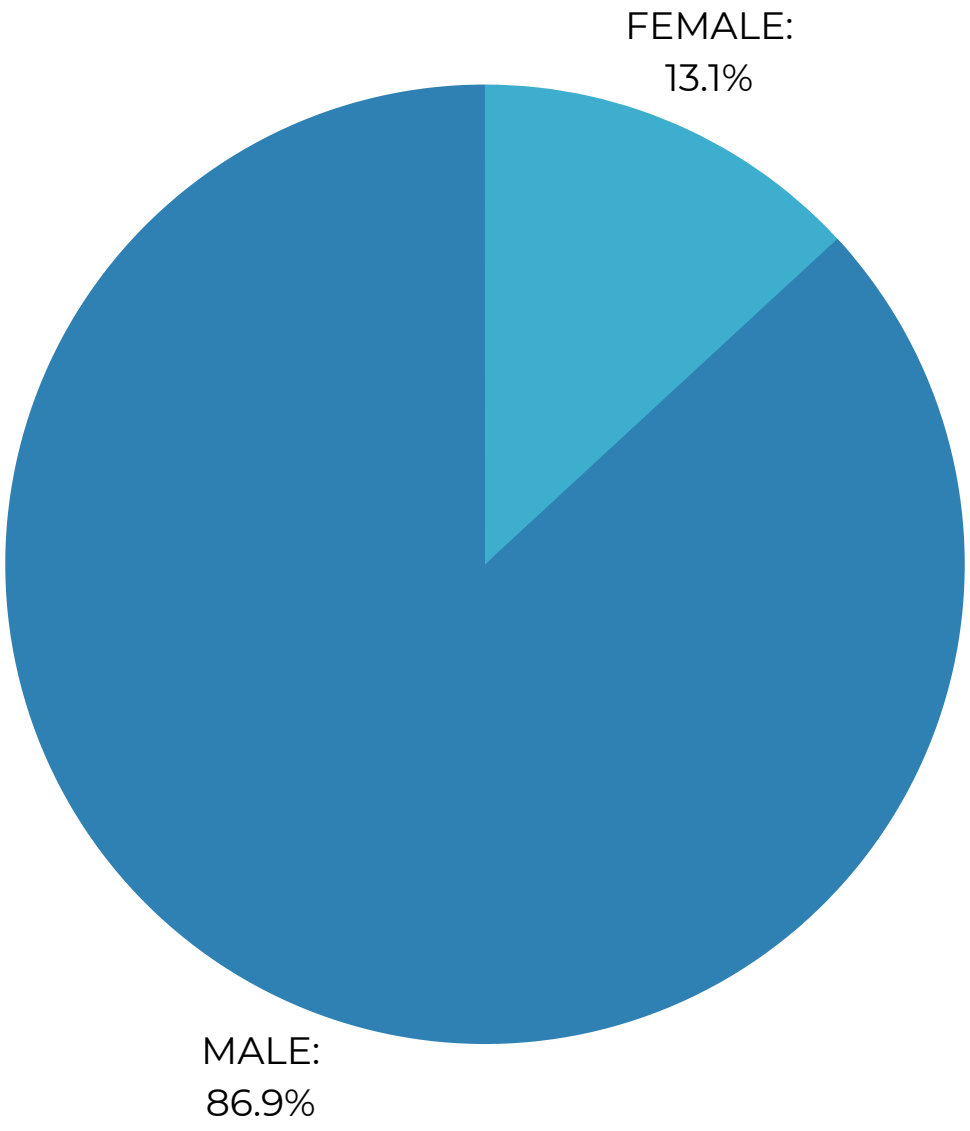
Analytics, Natural Sciences, and Social Sciences degrees comprised less than 5% of our sample. Those degree tracks are more common for Data Science

AREA OF STUDY FOR THE HIGHEST DEGREE EARNED BY DATA ENGINEERS



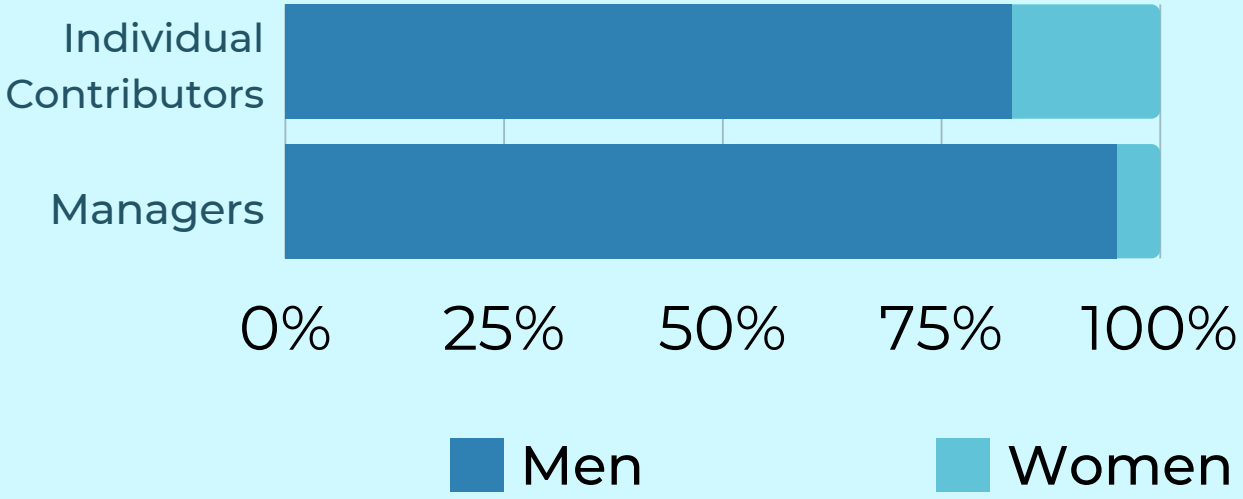
Demographics:

Gender



Compared to our Data Science and AI Professionals, Data Engineers have the highest proportion of men with 87% (Data Science: 76%, AI Professionals: 80%).

Gender Distribution of Data Engineers by Job Level



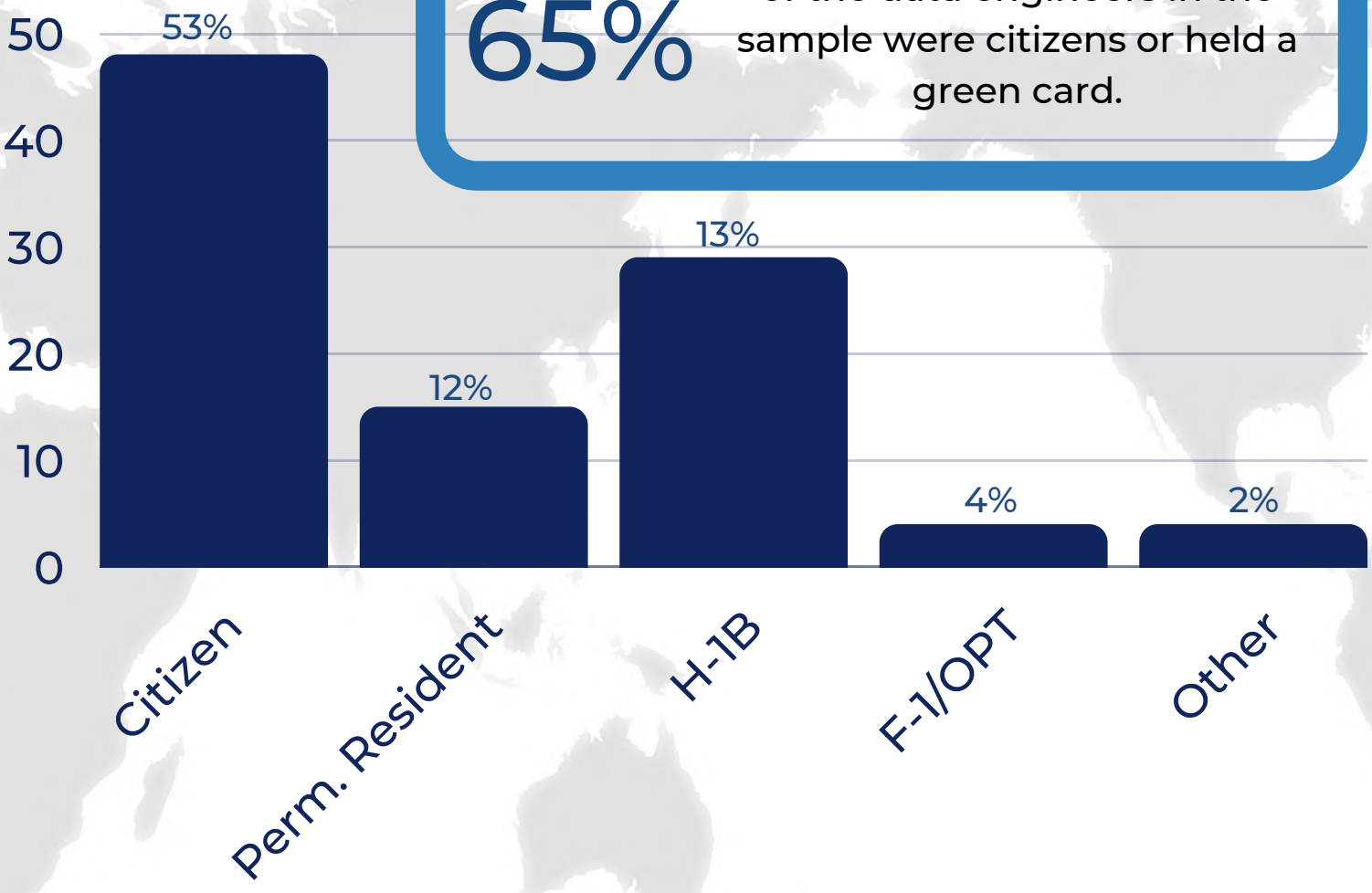
Similar to Data Science and Analytics, women are more common among individual contributors.

For Data Engineers, 16% of DE-1 and 17% of DE-2 are women, but that drops to 5% and 6% respectively for DE MG-1 and DE MG-2s.

Demographics:

Residency Status

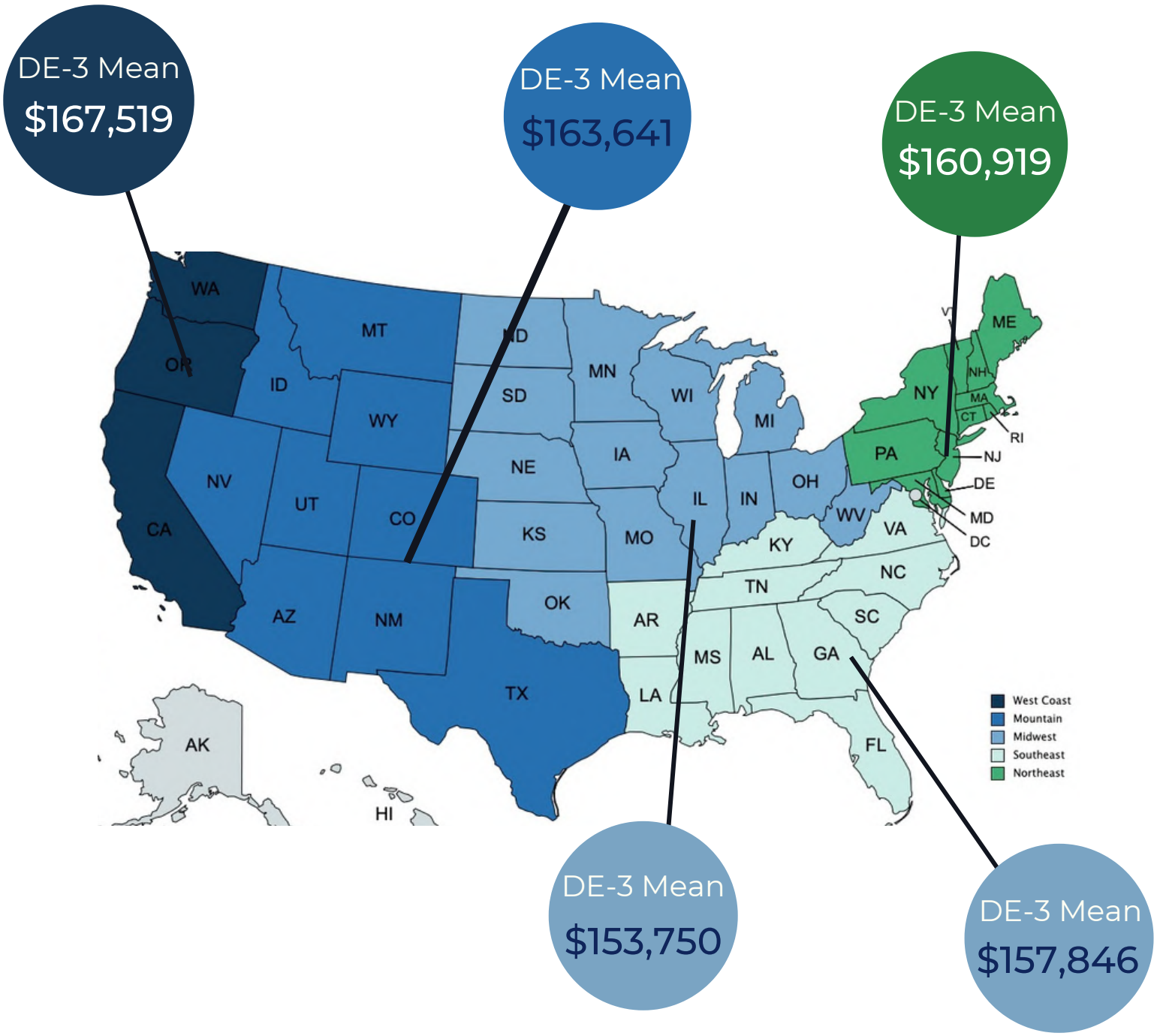
65% of the data engineers in the sample were citizens or held a green card.



Residency demographics for Data Engineering Professionals

*See page 45 for job category definitions.

Demographics: Region



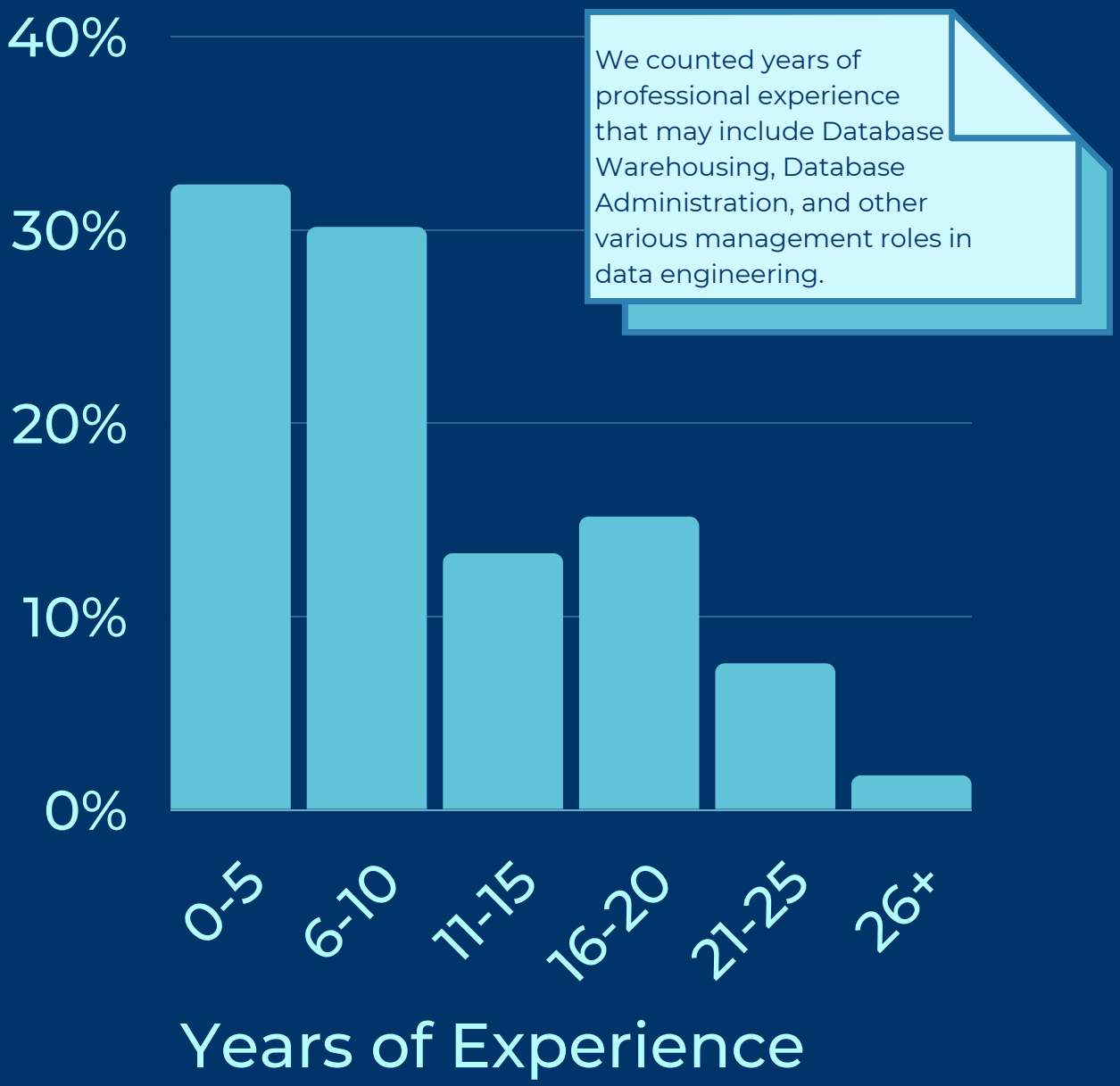
DATA ENGINEER SALARIES BY REGION

A NATIONAL REVIEW

For Data Engineering individual contributors, mean base salaries on the West Coast were highest, followed by the Mountain region.

Demographics:

Years of Experience



Median:
11 years
Mean:
12.5 years

Over 60% of Data Engineers are within the first 10 years of their career.

Section 4

Appendix A: Report Design

The Sample

This report contains a total sample of 598 data engineering professionals of the nearly 10,000 with whom Burtch Works maintains contact. Burtch Works collected the data for this report during interviews conducted from August 1, 2021 through July 31, 2022. Professionals were included in the sample only if (1) they satisfied Burtch Works' criteria for data engineering professionals, and (2) Burtch Works obtained complete information about that individual's compensation, demographic, and job characteristics.

Report Objective

This report is Burtch Works' second annual salary research focused on data engineering professionals. It is a part of our series of salary research including *The Burtch Works Report: Salaries of Data Scientists and AI Professionals* and *The Burtch Works Report: Salaries of Marketing Research Professionals.* Its goals are to show the current compensation of Data Engineers as well as demographic characteristics for this group. Additionally, this report will further lay the foundation for future reports to show compensation and demographic trends over time.

Why The Burtch Works Reports Are Unique

The Burtch Works Report: Salaries of Data Engineering Professionals contains salary and demographic data for data engineers that are not seen in similar reports. Burtch Works' data are unique because:

- **Burtch Works' report area of focus** - The report sample includes professionals who are currently Data Engineers, as well as professionals within business intelligence, machine learning, data architecture, data governance, and analytics engineers.

- **Burtch Works obtains this data by interviewing Data Engineers** - Instead of relying on data provided by human resources departments or from a self-reported online survey, Burtch Works interviews each professional individually. An important advantage of the interview process is that Burtch Works recruiters are able to obtain information about these data professionals, such as education level and area of study, that can be utilized to provide deeper insights into the hiring landscape and an understanding of how these factors can contribute to an individual's compensation throughout their career.
- Additionally, because of their nuanced understanding of the profession, recruiters are able to obtain corrections or clarifications when the information provided does not seem credible.

- **Burtch Works' report shows how compensation varies by job level** - The sample is divided between individual contributors and managers and also into seniority levels within those categories. This shows compensation by the level of responsibility rather than relying on criteria such as job titles that vary substantially across companies.

Identifying Data Engineers

Data Engineering is a growing segment of the data and technology professional landscape. We define data engineers as professionals who design and build systems for collecting, storing, and analyzing data at scale. They are also typically responsible for building data pipelines to bring together information from different source systems.

Below are typical elements Burtch Works looks for as part of a Data Engineers profile. A Data Engineer will have some, but not all, of the following in their background.

Education:

- Typically hold a Bachelor's or Master's degree in Computer Science, Information Systems, or Computer Engineering.

Tools:

- **Programming:** Python, PySpark, Scala, Java, SQL, Shell Scripting, or occasionally C++.
- **Cloud Computing:** AWS (Redshift, EMR, EC2, Lambda, S3, etc.), Azure, or GCP (BigQuery).
- **Relational Databases:** SQL Server, Oracle, MySQL, Teradata
- **NoSQL Databases:** Cassandra, MongoDB, Neo4j
- CI/CD: Docker, Jenkins, Kubernetes
- **Big Data technologies:** Hadoop, HDFS, Hive, MapReduce, Spark, Hbase
- **Reporting:** Tableau, PowerBI, and Looker
- **Other:** Databricks, Airflow, Git, JavaScript, HTML, Linux

Identifying Data Engineers

Skills:

- Building data pipelines and ETL or ELT
- Experience with complex distributed computing
- Ability to work with structured and unstructured data
- Deployment of data science models
- Experience with data science applications
- Experience with continuous integration working with Docker and Kubernetes

Job responsibilities:

- Build and scale large batch data pipelines and real-time ETL pipelines
- Gather business requirements and implement data processes
- Design and support data lakes and data marts
- Work with data scientists to deploy machine learning models
- Troubleshoot models in a production environment to ensure accuracy

Typical job titles:

- Data Engineer
- Big Data Engineer
- Data Science Engineer
- Principal Data Engineer
- Manager, Data Engineering
- Head of Data Engineering/Architecture
- Data Architect
- Analytics Engineer
- Business Intelligence Engineer

Data Engineer Segmentation

To examine the compensation of data engineers, Burtch Works used characteristics of their jobs (management responsibility, team size, seniority, etc.) to segment the sample.

Burtch Works developed the following job categories:

Level	Responsibility	Typical Years of Experience
Individual Contributor: Level 1 DE IC-1	Earlier in their career. Very hands-on project work.	0-3 years
Individual Contributor: Level 2 DE IC-2	Experienced Data Engineer including Senior Data Engineer or Lead Data Engineer.	4-8 years
Individual Contributor: Level 3 DE IC-3	Experienced Data Engineer including Principal-level professionals. No management responsibilities.	9+ years

Level	Responsibility
Manager: Level 1 DE MG-1	Typically 0- 10 years of management experience. Supervises a functional team under 3 direct reports; titles include Manager, Sr. Manager
Manager: Level 2 DE MG-2	Leads function and executes on strategy; titles include Associate Director, Director, and Sr Director.
Manager: Level 3 DE MG-3	Strategic leaders that are responsible for determining data strategy; titles include Vice President, Heads of Data Engineering/Architecture.

Section 5

Appendix B: Glossary of Terms

Glossary of Terms

This section provides definitions of terms used in this report.

Base Salary: An individual's gross annual wages, excluding variable or one-time compensation such as relocation assistance, sign-on bonuses, bonuses, stock options, and long-term incentive plan compensation.

Data Engineer: A professional who designs and builds systems for collecting, storing, and analyzing data at scale. These engineers are also typically responsible for building data pipelines to bring together information from different source systems.

Data Scientist: A specialized data and analytics professional who has both the programming proficiency required to make enormous sets of unstructured data accessible and also analytical skills for deriving useful information from those data.

Individual Contributor: An employee who does not manage other employees. Individual contributors among Data Engineers in the Burtch Works sample have all been assigned to one of two levels:

Level 1: Typically very early in their career, generally 0-3 years of experience. Very hands-on data or project work.

Level 2: Experienced Data Engineer including Senior Data Engineer or Lead Data Engineer.

Level 3: Experienced Data Engineer including Principal-level professionals. No management responsibilities.

Industry: One of eight groups of firms employing most data professionals. These eight industry categories are Academia/Government, Advertising/Marketing Services, Consulting, Financial Services, Healthcare/Pharmaceuticals, Retail & Consumer Packaged Goods (CPG), Technology/Telecom, and Other (includes areas like logistics, heavy industry, transportation, restaurants, hospitality, etc.).

Manager: A professional who manages the work of other professionals. Managers among the Data Engineers in the Burtch Works sample have all been assigned to one of two levels:

> **Level 1:** Typically 0- 10 years of management experience. Supervises a functional team under 3 direct reports; titles include Manager or Sr Manager.
>
> **Level 2:** Leads function and executes on strategy; titles include Associate Director, Director, and Sr Director.
>
> **Level 3:** Strategic leaders that are responsible for determining data strategy; titles include Vice President, Heads of Data Engineering/Architecture.

Mean: Also known as the average, it is the sum of a set of values divided by the number of values. For example, the mean of N salaries is the sum of the salaries divided by N.

Median: The value obtained by ordering a set of numbers from smallest to largest and then taking the value in the middle, or, if there are an even number of values, by taking the mean of the two values in the middle. For example, the median of N salaries is the salary for which there are as many salaries that are smaller as there are salaries that are larger.

N: The number of observations in a sample, sub-sample, or table cell.

Programming: The process of developing and implementing various sets of instructions to enable a computer to do a certain task. For the purposes of this report, programming refers to the use of general-purpose programming/scripting languages such as Python, Java, C, C++, or others.

Salary Report: A study conducted to measure the salary distributions of those in specific occupations. Traditionally, these studies have been executed by obtaining salary data from the human resources departments of firms employing professionals in those occupations or through online surveys, rather than by interviewing those employees themselves as Burtch Works does.

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SALARY REPORT
DATA ENGINEERING PROFESSIONALS

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