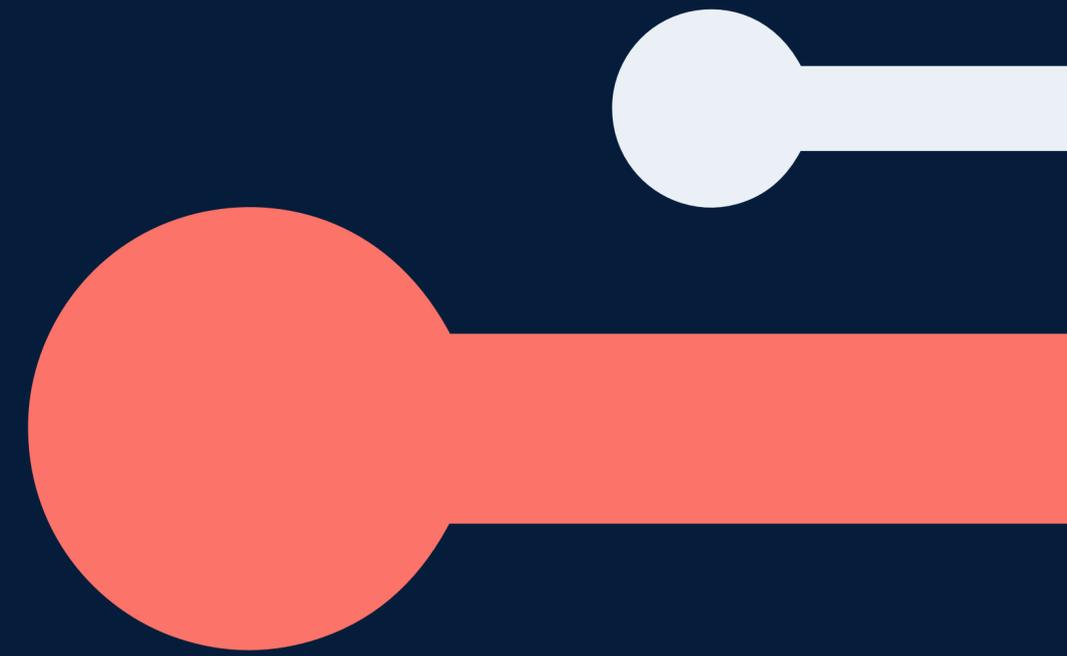




**AiNOVA**

# **Data Job Trends & Opportunities** **2021/2022**



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# Tech trends 2021



by

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Chief Executive Officer at AiNOVA

## **Accelerated AI and Data Science Adoption**

The unprecedented level of investment in tech start-ups, the pressing need to digitalise legacy businesses and the willingness of EU states to invest in AI have boosted the adoption of data science across Europe. France and Germany are leading the way in creating an urgent demand for highly qualified data talents.

## **Data Engineering: a Bottleneck for Growth in Europe**

The increasingly mature perception of companies towards data science is pushing demand for new infrastructure (mainly cloud), prediction models to better understand large data volumes, and visualisation tools to drive business decisions. Companies are already realising the pressing need for more robust data infrastructure led by engineering talent to drive data projects to scale.

## **Data Talent Wanted**

The challenge is enormous with more than 30,000 open data science jobs in France and Germany. The development, attraction and retention of data talent is becoming a strategic question for companies, academia and states.

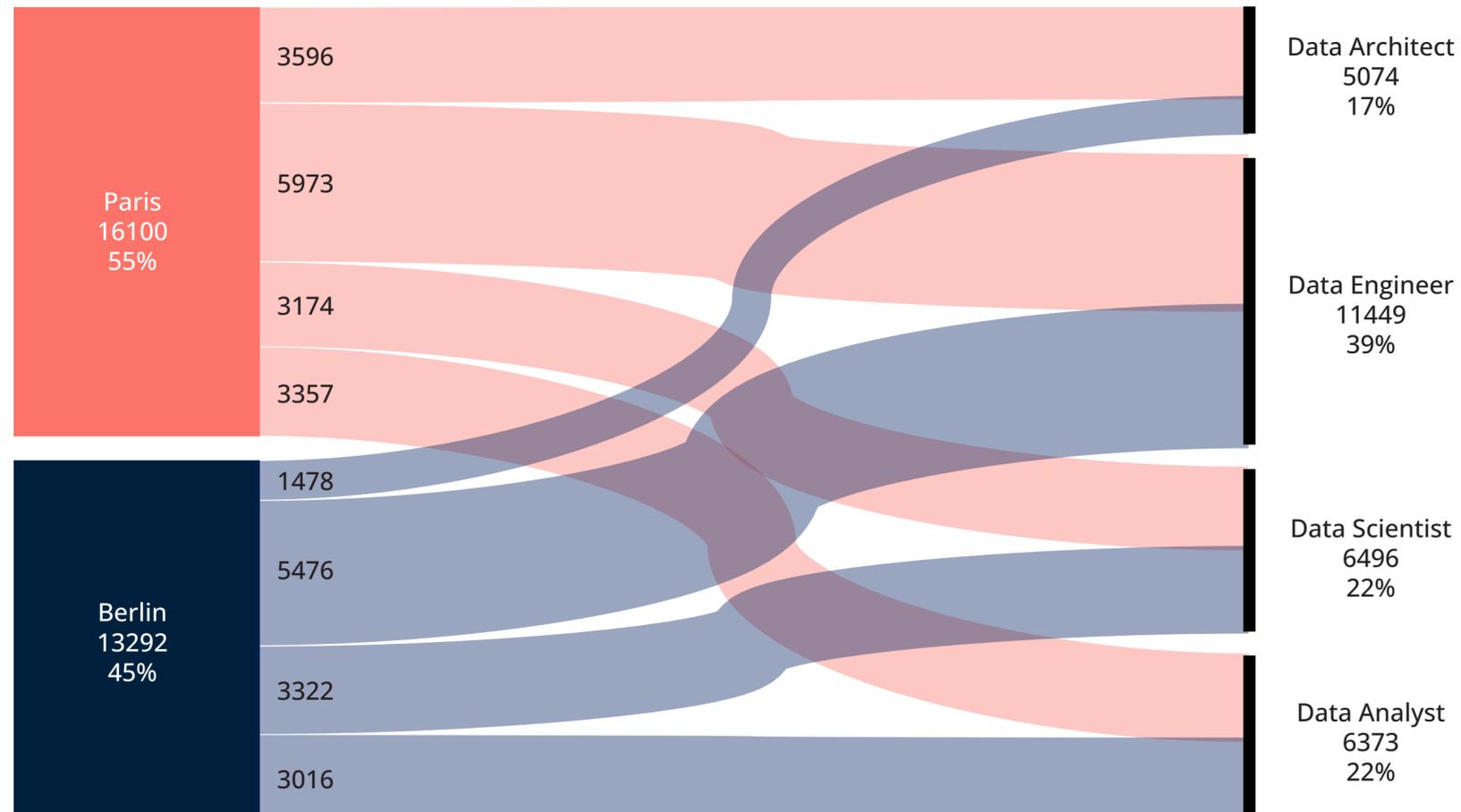
## **Our Method**

AiNOVA is a C19 born company, meaning that digital and remote ways of working and a constant use of data for decision-making is part of our DNA. Our purpose is to empower data science adoption by building impactful data teams across Europe. Since our creation in April 2021, we have analysed the data job market on a weekly basis through the lens of data talents by observing key trends on job boards across Europe. This report includes meaningful information for Data Talents, decision makers, HR recruiters, and Heads of Data with significant job market trends (job demand, salary trends) as well as insight into the evolution of data roles (key competencies required, tech stacks). We analysed a sample of 300 job descriptions and 300 data talents' CVs to illustrate the talent challenge we navigate on a daily basis.

# Market Data

## Demand

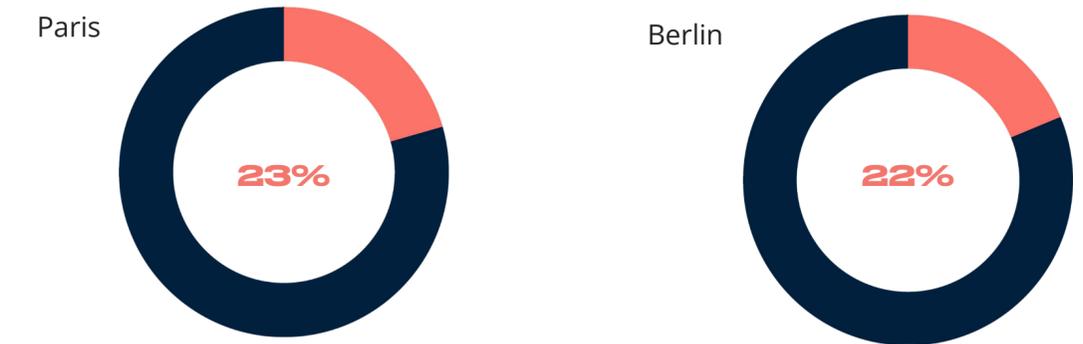
Average weekly demand reached new records in Q4 2021



Data Engineer represents the highest demanded data job across geographies at 39%

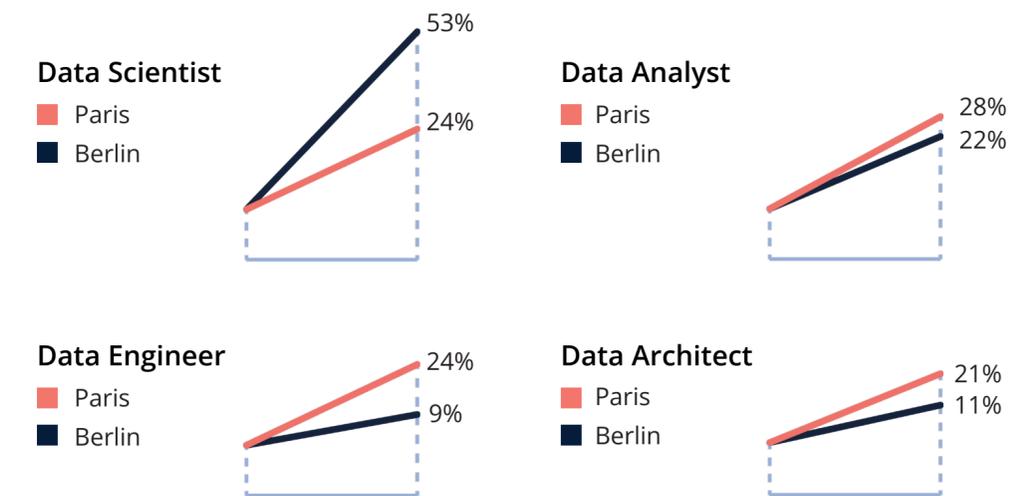
## Acceleration

Since September the demand has accelerated by more than 20% vs the beginning of the year, mainly driven by unprecedented startup investments

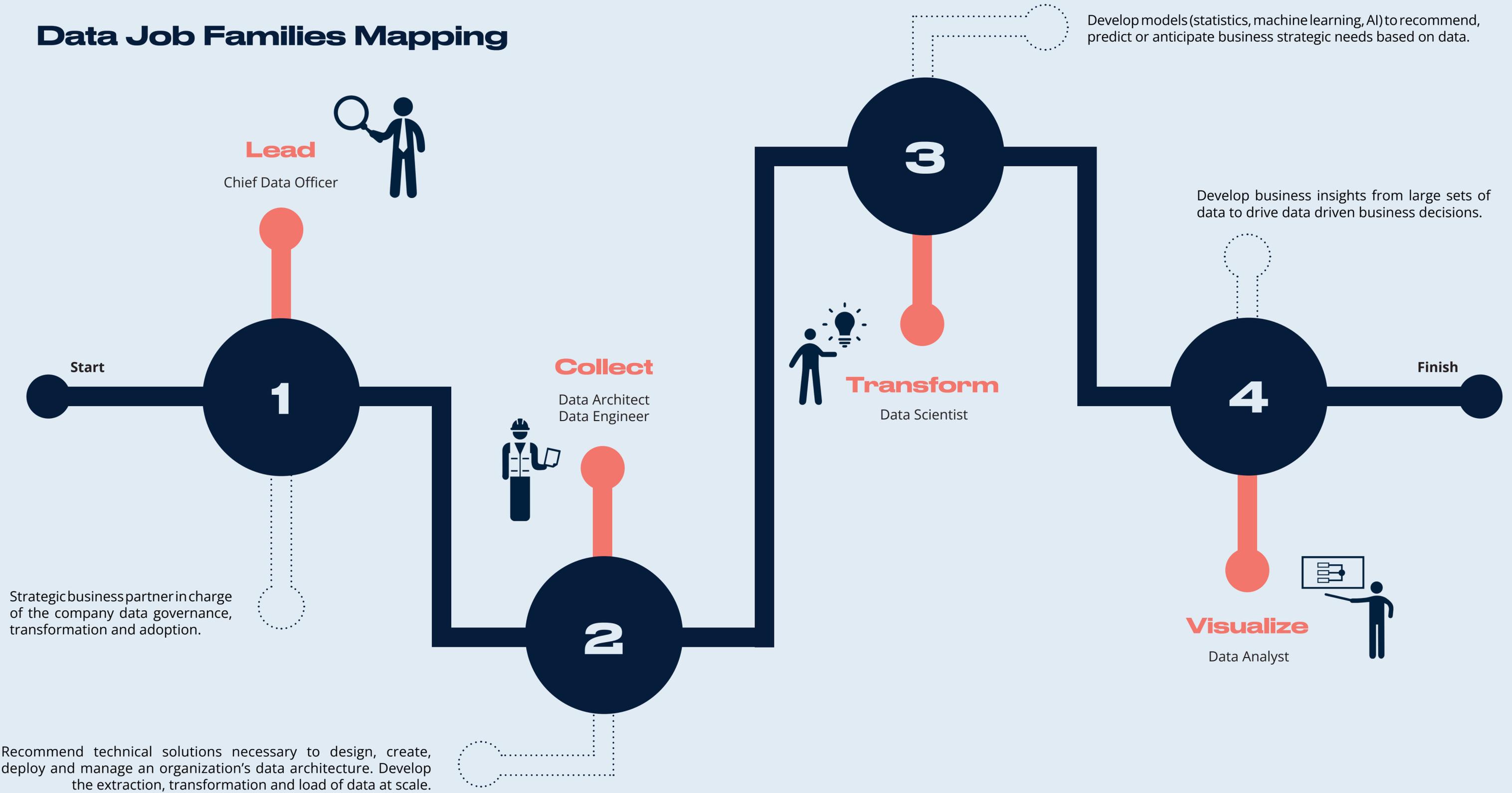


## Trending jobs

Data scientist is one of the hottest job in Paris and Berlin since September



# Data Job Families Mapping



# 1

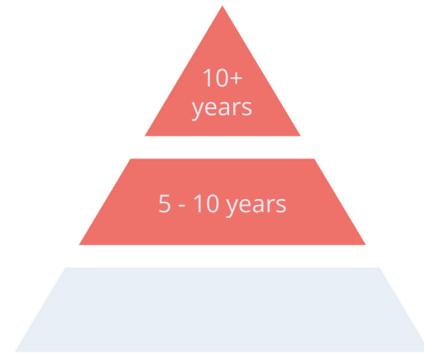
## Chief Data Officer

Data Manager, Data Governance Manager, Data Officer, Head of Data

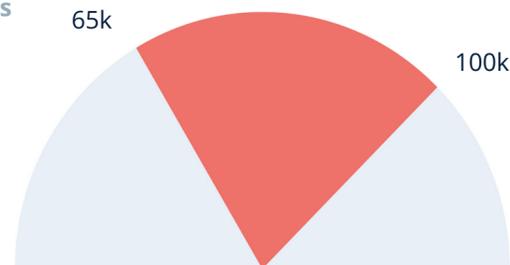
### Role in the data transformation

Strategic business partner in charge of the company data governance, transformation and adoption.

### Level of experience



### Salaries



### KEY RESPONSIBILITIES

#### 1. Drive data strategy and its adoption

- Recruit, develop and run company Data Team, a real talent magnet
- Lead strategic data collection (customer, supplier, industry related, external)
- Prioritise data projects' investments, use cases and delivery knowing the vast amount of data a company can access
- Develop and promote the company wide adoption of data initiatives

#### 2. Governance of the quality and efficiency of company data

- Can translate company strategic business choices into palatable data projects including infrastructure, modelling or visualisation
- Guardian of the quality and ethics of company data through regular control
- Safeguard company data security with proper infrastructure, process, people
- Anticipate future data trends (tools, technologies, skills) and potential opportunities

### KEY COMPETENCES

- Strategic vision
- Excellent communication
- Agile project management
- Standing alone
- Business acumen combined with data technology savviness from data architecture to business decisions

### AiNOVA takeaway

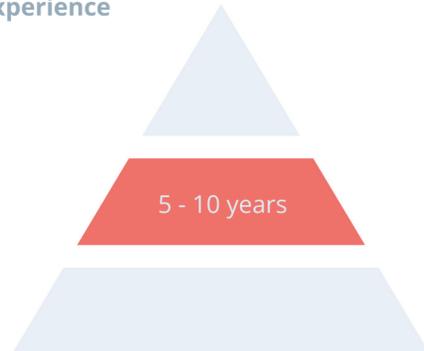
CDO is an increasingly important role as data science is applied to more and more departments in the company like marketing, sales or finance in big corporations. The role of CDO is moving from the IT division to the C-suite driving the digital transformation agenda of companies. In most of the start-ups we support, the CDO is part of the core first 15 employees before HR or finance demonstrating the strategic role of data at the core of most digital products or services.



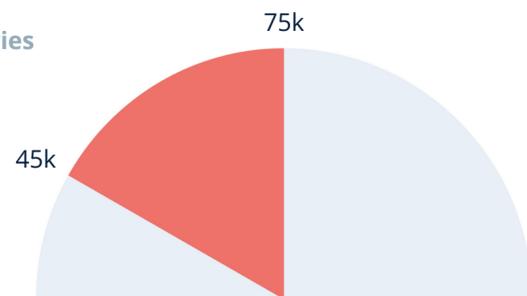
### Role in the data transformation

Recommend technical solutions necessary to design, create, deploy and manage an organization's data architecture.

#### Level of experience



#### Salaries



### KEY RESPONSIBILITIES

#### 1. Lead collection, storage and identification of data

- Map enterprise wide data in order to develop scalable access to data
- Develop key building blocks of data architecture in the company
- Recommend operational technical solutions specific to storage (cloud environment vs local server) and data treatment (real time injection, formatting, frequency of treatment)
- Define necessary service levels for data availability depending on the use case
- Develop and promote the company wide adoption of data initiatives

#### 2. Build standard solutions to facilitate data usage in the company

- Document data architecture mapping
- Build standard tools to facilitate data project development
- Coordinate data architecture development

#### 3. Compliance and big data governance

- Lead data compliance (example of GDPR)
- Be at the forefront of latest technology development to further develop big data
- Data culture advocacy

### KEY COMPETENCES

- Perspective
- Excellent communication
- Influencing without authority
- Business acumen

### TECHNICAL SKILLS REQUIRED

- Good understanding and knowledge of interfaces, networks and hardware infrastructure
- Knowledge of the regulations concerning personal data and cybersecurity principles
- Knowledge of solutions for handling ETL / ELT data



### AiNOVA takeaway

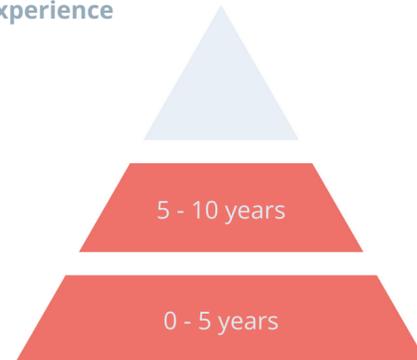
The data architect is not the most demanded role compared to data engineers. It tends to be necessary when organisations run large scale data programs requiring enterprise wide views on data architecture.



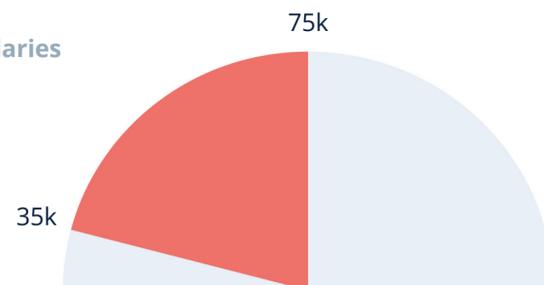
### Role in the data transformation

Develop the extraction, transformation and load of data at scale in the company for further analytical or operational use. For example, putting into production the models and dashboards designed by data scientists and analysts in the organisation.

#### Level of experience



#### Salaries



### KEY RESPONSIBILITIES

#### 1. Collect data from different sources

- Responsible for the automation of data collection from heterogenous sources
- Transform data flows into accessible data pipelines
- Develop different technical solutions to improve data quality standards

#### 2. Run and optimise data pipeline

- Document new data models and guaranty safe deployment into production environments
- Build standard tools to facilitate the production of data projects
- Constantly seek the improvement of code to optimise access to data

#### 3. Deploy new models or dashboard

- Be at the forefront of latest technology development to further develop big data
- Lead local server to cloud transition to bring data projects at scale

### KEY COMPETENCES

- Functional technical skills
- Innovation management
- Problem solving
- Results orientation

### TECHNICAL SKILLS REQUIRED

- Good understanding and knowledge of interfaces, networks and hardware infrastructure
- Knowledge of the regulations concerning personal data and cybersecurity principles
- Knowledge of solutions for handling ETL / ELT data
- Knowledge of machine learning, data science and data visualisation tools



### AiNOVA takeaway

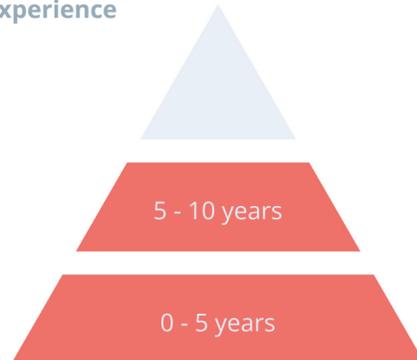
The data engineer became one of the most wanted data jobs on the planet last year. After several years of data discovery, most companies drive data projects at scale, driving a high demand for local server migration to cloud environment, for example. Attraction and retention of these key resources will become a strategic focus for companies.



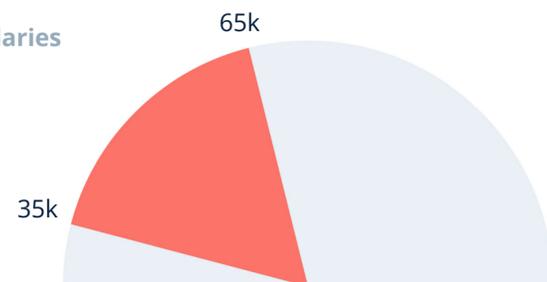
### Role in the data transformation

Develop models (statistics, machine learning, AI) to recommend, predict or anticipate business strategic needs based on data.

#### Level of experience



#### Salaries



### KEY RESPONSIBILITIES

#### 1. Extract, structure and improve data quality

- Define data extraction rules in order to improve the quality of the input for modelling
- Build and implement necessary variables for modelling improvement
- Drive data quality improvement in partnership with data engineers

#### 2. Build data science models

- Define use cases and appropriate data modeling response with business partners: prediction, language processing, customer segmentation, recommendation systems...
- Analyse input data using statistical methods to determine appropriate model to use
- Create and test different data science models according to use cases
- Train data science models to improve performance
- Document and lead continuous improvement of models

#### 3. Productionise data science models

- Move models from the build/test phase into production in partnership with data engineering team
- Define the monitoring criteria for maintenance and improvement
- Participate in business reviews after model implementation

#### 4. Monitor technology progress and potential opportunities

- Liaise with key solution providers for new data science applications
- Contribute to open source (pre-trained) model development or evolution

### KEY COMPETENCES

- Statistical/mathematical agility to deal with complex models depending on use cases
- Capacity to translate business needs into data modelling
- Project management
- Knowledge of data engineering

### TECHNICAL SKILLS REQUIRED

- Expertise in algorithmic, machine learning and deep learning models
- Coding skills and database management
- Good knowledge of cloud environments



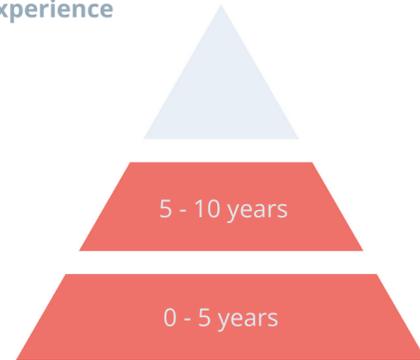
### AiNOVA takeaway

The role of data scientists vary a lot depending on the maturity stage of the company towards data science and AI, and the type of industry. Just to name a few, the financial sector is a good example of building segmentation analysis to predict marketing effort success. Ecommerce is also a well known area for building recommendation systems or natural language processing for customer sentiment analysis to improve customer support. While the number of use cases is constantly increasing, the data science approach and method can be easily transferred from one domain to another. With the proliferation of tools to make data science accessible to a larger number, the differentiating factor will remain in the ability to make pragmatic choices in modelling to deliver business benefit, and most of the time it is not the most complex model that gives the best output.

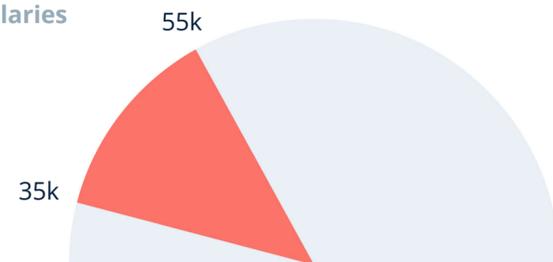
### Role in the data transformation

Develop business insights from large sets of data to drive data driven business decisions.

#### Level of experience



#### Salaries



### KEY RESPONSIBILITIES

#### 1. Data business partner with key functions like marketing, sales, finance

- Explore data-centric solutions to business partners' key questions and challenges
- Translate business related challenges into analytics problems
- Communicate analysis results in a comprehensive business presentation
- Master data storytelling and visualisation

#### 2. Extract relevant and qualitative data

- Extract necessary data to the analysis
- Analyse input data and data cleaning approach to guarantee a high level of quality
- Define and create automation routines to extract the data in a sustainable manner
- Liaise with data scientist (if necessary) to improve data modeling
- Document and lead continuous improvement of models

#### 3. Analyse and explore data

- Analyse relevant business data (customer, suppliers, sentimental analysis etc..) to identify patterns and/or outliers
- Define and develop dashboards and tools to distribute and report results to relevant business stakeholders
- Participate in business reviews after dashboard implementation
- Perform relevant statistical analysis to determine or construct important variables necessary for analysis

#### 4. Monitor technology progress and potential opportunities

- Liaise with key solution providers for new analytics applications
- Search for new methods/use cases to address specific business opportunities

### KEY COMPETENCES

- Communication skills with the capacity to translate business needs into data problems
- Project management
- Business savvy
- Visual storytelling

### TECHNICAL SKILLS REQUIRED

- Expertise in algorithmic, machine learning and deep learning models
- Coding skills and database management
- Good knowledge of cloud environments



### AiNOVA takeaway

The role of a data analyst is the closest to business needs. It is often the first role being implemented to start a data science strategy. Given the proximity to business decision makers, data analysts operate across multiple departments of an organisation: from customer segmentation analyses, to driving marketing campaign impact, to customer service support, to sales efficiency. The data analyst is also taking a stronger role in improving internal key processes with the finance department for cash flow improvement or with the procurement department to improve supplier performance.



### Continue to Drive Data Project Adoption

A weekly average demand of 30,000 data jobs between Paris and Berlin growing at +25% since September, means that **the acceleration of the data transformation is moving into another dimension**. Data expertise is becoming one of the biggest strategic priorities, forcing companies to adopt an omnichannel approach to attract, source and retain the right data talents.

### Unlock Growth Potential

To sustain such a high demand for data profiles, unprecedented measures are necessary involving not only industry leaders but also the academic ecosystem and recruitment experts. **The skill gap observed for data engineering is the tip of the iceberg**. It is already a limiting factor for growth in a number of businesses we partner with regardless of industry or company size. Exploring talent pools outside of Europe and developing innovative reskilling solutions appear to be the most urgent measures to take to fuel the growth in a sustainable manner.

### Big Data Projects at Scale Challenge HR Talent Teams and Data Leaders to Sharpen their Talent Strategy

As business leaders realise the full potential of big data projects, they also realise that current talent strategies have some limitations. Matching talent demand is not only a question of employer brand excellence, attractive job boards ads and internal referral programs. **Building alternative sources of connecting with data talents** through events, expert networks and reskilling academies will help companies in making courageous talent choices in the future.

Opportunities  
**2022**

### How We Want to Contribute

We started AiNOVA with the purpose to help both data talent and HR business leaders. Firstly, we supported data talents in their journey to find the best job (content, technology, level) and the right companies (sector, data maturity, size and type). The journey has been highly rewarding having helped 300+ professionals this year in their career arbitrage, company orientation, and broader life choices.

Secondly, we helped business leaders, including a number of HR leaders, across France and Germany. We had the privilege to meet and support start-up growth with Datahawk and Upflow.io, data consultancy experts of different sizes like Saegus and Business & Decisions, and large corporations like Flixbus or International Flavors & Fragrance (IFF).

Finally it is important to recognise the AiNOVA team who contributed to the successful start of the adventure. Our key contributors: Patrick & Alban (Co-founders, passionate about Talent and business development), Werner, Rubie, Clément and Marta - you are rock stars!



## We build data teams

Find out more



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