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# LinkedIn Job Offer Market Research

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# Introduction

In an era where digital transformation and efficient product management are critical to gaining a competitive edge, understanding where to focus business efforts is essential. This report provides a comprehensive analysis of the job market landscape on LinkedIn, aiming to identify regions and industry sectors with the highest demand for professionals in Product Lifecycle Management (PLM) and digital transformation across Spain and the European Union (EU).

The analysis was conducted in two phases: first, a broad analysis of the EU (excluding Spain) was performed to identify trends across key European markets. Then, Spain was analyzed in detail to provide a country-specific perspective, highlighting regional variations within global trends.

To bridge the gap between market demand and strategic business opportunities, I employed a sophisticated methodology that combines expert manual input with advanced semi-automated techniques. Specifically, I utilized ChatGPT for precise keyword identification related to PLM, Business Process Management (BPM), Process Optimization, Change Management, and Enterprise System Integration. These keywords were strategically used to filter and classify job listings, enabling me to capture a relevant and sizable dataset.

Python scripts executed in Google Colab facilitated efficient data processing, category classification, and visualization. This approach allowed me to analyze nearly 3,300 job listings, complete with direct links, categorized sectors, and geospatial information. The methodology applied in this study is not only effective but also highly adaptable. By adjusting keywords, data sources, and classification parameters, this approach can be customized for various industries and strategic objectives.

This flexibility makes it a powerful tool for consulting firms seeking to conduct targeted market analyses and develop informed business strategies. By providing a strategic overview of job market trends, this report equips consulting companies specializing in PLM and digital transformation with actionable insights. Aligning business strategies with these insights can lead to more effective market penetration, optimized resource allocation, and ultimately, a stronger competitive position in the industry.

## INSIGHTS:

- **Top Markets:** The analysis reveals that **Germany, France, and the Netherlands** are leading the demand for PLM and digital transformation professionals in the EU. In Spain, **Madrid and Barcelona** emerge as the most competitive job markets. Targeting these regions can significantly strengthen a consulting firm's leadership position across Europe.
- **Targeted Expansion:** Focusing on underrepresented but high-potential regions within Spain, such as **Comunidad Valenciana and Andalucía**, will diversify influence beyond traditional hubs.
- **Sector Growth:** The "Technology & Telecommunications" sector shows substantial growth potential, especially in regions with emerging healthcare needs. Emphasizing services in this sector can enhance market relevance and offer a competitive edge.



# Methodology

## DATA COLLECTION: Manual Analysis

Keywords relevant to PLM, Business Process Management (BPM), Process Optimization, Change Management, and Enterprise System Integration were manually identified using ChatGPT. These keywords were then used iteratively to filter job offers in Spain and the EU from LinkedIn database. Data was scraped from LinkedIn using Octoparse on August 29, 2024, generating 16 CSV files (one for each keyword-region pair).

### ACCESS DATA FILE



3,300 Job Offers  
10 Categories  
27 European Countries

## DATA ANALYSIS: Semi-Automated Analysis with Python & OpenAI API

A semi-automated approach was employed to clean, classify, and visualize the data using Python scripts. Data files were loaded into Google Colab, where duplicates were removed, and data was cleaned for further analysis.

The job offers were classified into 10 categories such as "Finance & Consulting" using the OpenAI API.

Pandas library was used to analyze the frequency of job listings by category and region, and Seaborn library was utilized to create visualizations of these distributions. Geopandas library was used to map the geographic distribution of job offers across Spain and the EU, with special focus on regions with the highest concentration of listings.

The process is documented in the BPMN diagram generated with ProcessMaker, illustrating the entire workflow (see Figure 1).

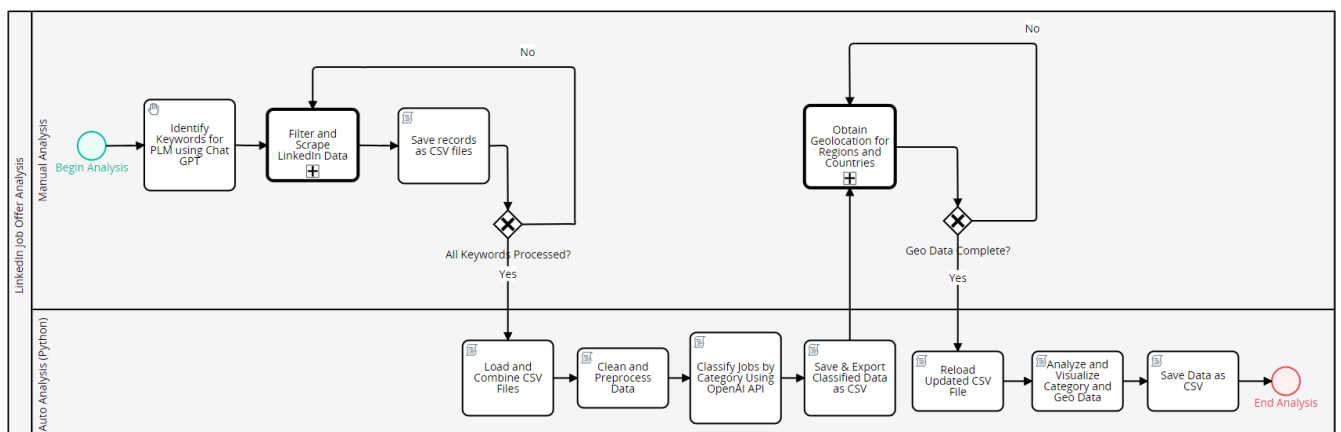


Figure 1: BPMN Diagram of LinkedIn Job Offer Analysis Process.



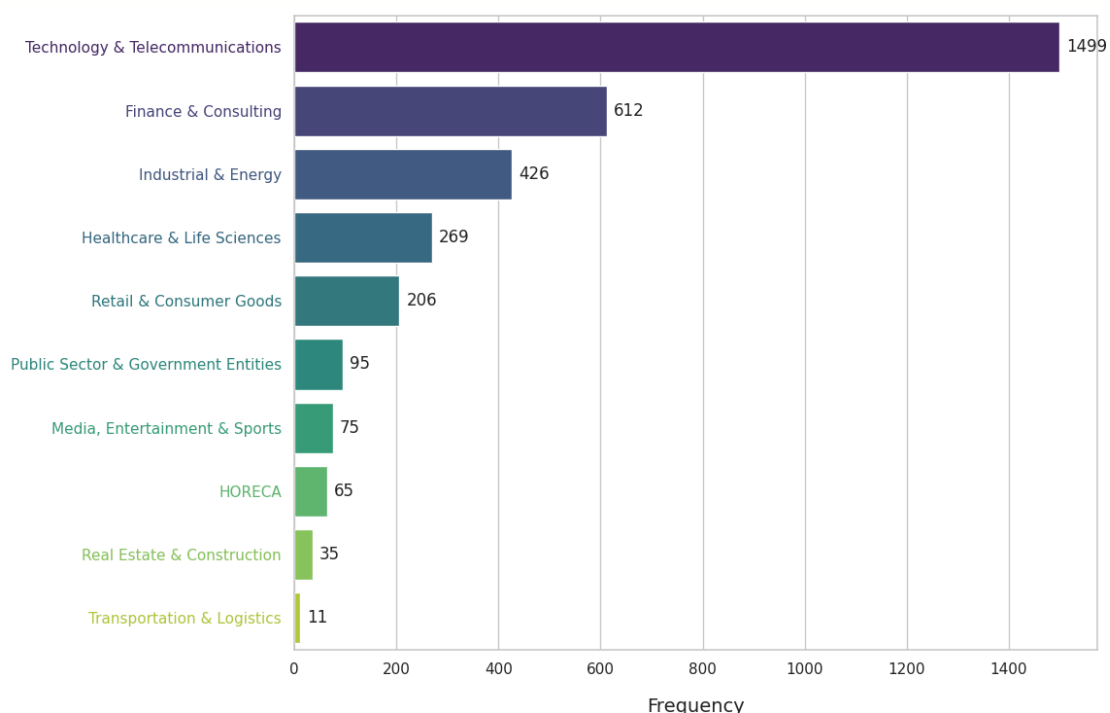
# Results

## European Union

The analysis revealed key insights into the job market relevant to Product Lifecycle Management (PLM) and digital transformation in the European Union. The findings show that the majority of job offers fall under the "Technology & Telecommunications" category, with a total of 1,499 listings, making it the dominant sector across all regions analyzed. This is followed by "Finance & Consulting" with 612 listings and "Industrial & Energy" with 426 listings, highlighting these as the top sectors in demand (see Figure 2).

Across the five countries with the highest number of job listings (excluding Spain)—Germany, France, the Netherlands, Portugal, and Italy—"Technology & Telecommunications" consistently ranks as the leading sector. "Finance & Consulting" follows as the second most in-demand category in most countries, except in the Netherlands, where "Industrial & Energy" slightly surpasses it. This pattern emphasizes the widespread focus on technology and finance sectors across the European Union. However, the third most prominent sector varies by country (see Figure 3).

In Germany and Italy, "Industrial & Energy" ranks third. The prominence of this sector in Germany, the Netherlands, and Italy reflects the strong industrial foundations and manufacturing-driven economies of these countries, where energy innovation and industrial development are key economic drivers. In France, "Retail & Consumer Goods" emerges as the third most significant category, reflecting the country's robust consumer-driven market. Meanwhile, in Portugal, "Healthcare & Life Sciences" ranks third, with 13 listings, indicating a growing demand for healthcare professionals in the region.



**Figure 2:** Distribution of the most in-demand job categories across the European Union, highlighting the dominance of Technology & Telecommunications.



In summary, while technology and finance dominate across all countries, the third sector varies, reflecting regional economic priorities. France stands out with a focus on retail, while Portugal highlights healthcare, and industrial roles maintain strong demand in Germany, the Netherlands, and Italy, albeit with different levels of intensity.

A



312 OFFERS

Germany

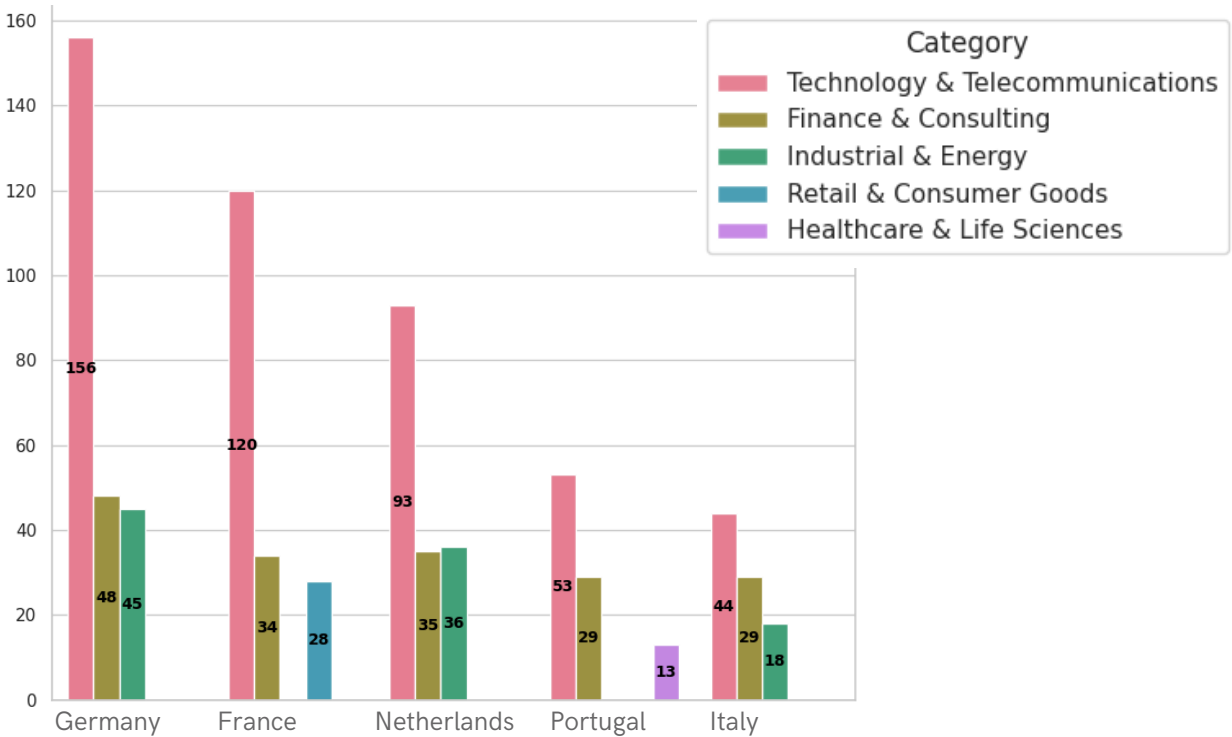
264 OFFERS

France

206 OFFERS

Netherlands

B



**Figure 3:** A) Geospatial distribution of job listings across the European Union (excluding Spain). B) Breakdown of job categories by top countries, showing regional differences in demand.

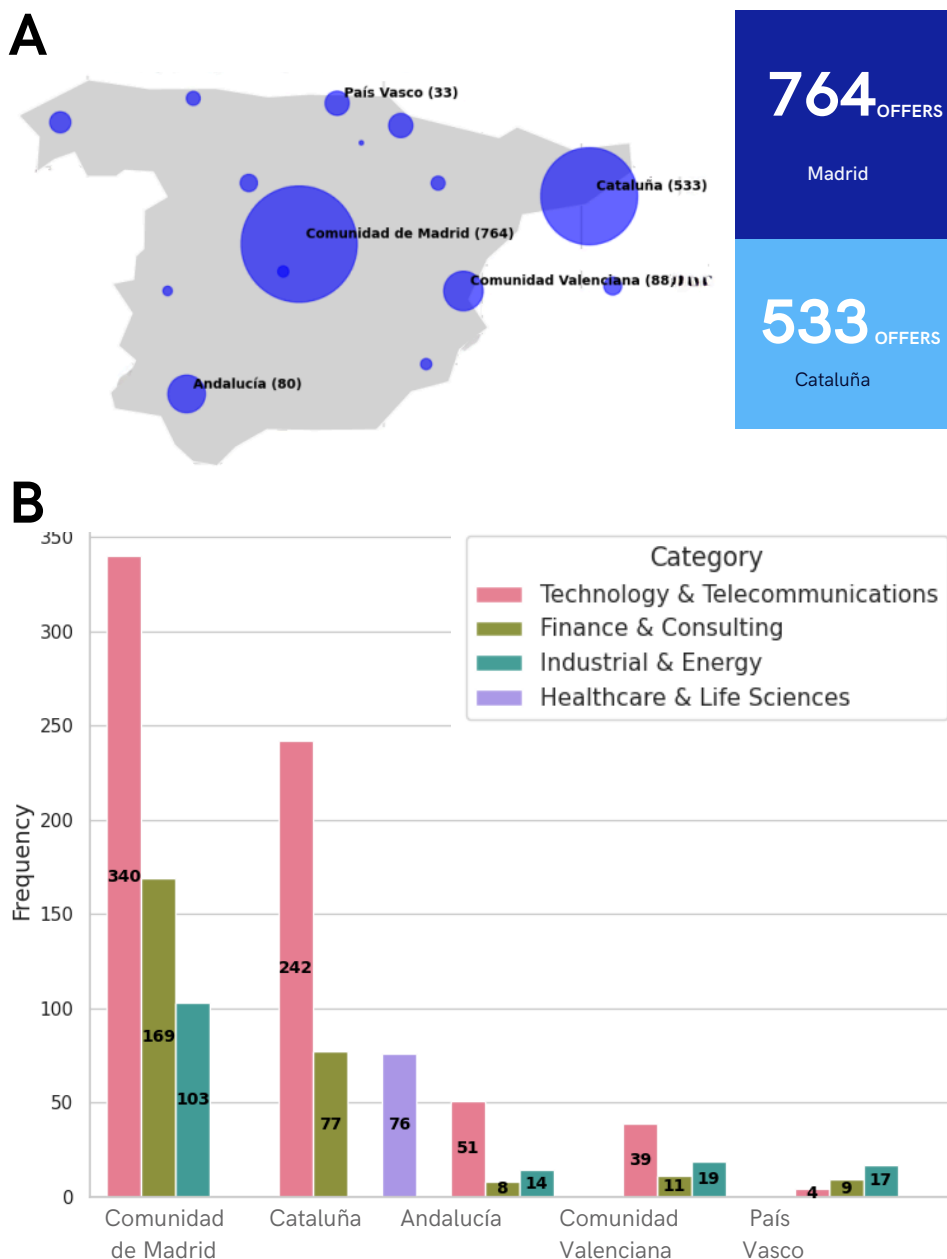
# Spain



Specific regions within Spain, such as Comunidad de Madrid and Cataluña, dominate the job market, with "Technology & Telecommunications" and "Finance & Consulting" emerging as the two primary sectors across both regions (see Figure 4). In Madrid, "Technology & Telecommunications" leads with 340 listings, followed by 169 listings in "Finance & Consulting" and 103 in "Industrial & Energy." This reinforces Madrid's status as the nation's leading hub for technological innovation and financial services.

In Cataluña, while "Technology & Telecommunications" also ranks first with 242 listings and "Finance & Consulting" follows with 77 listings, the third most significant sector shifts to "Healthcare & Life Sciences" (76 listings). This is likely due to Cataluña's role as a key player in Spain's pharmaceutical industry and its concentration of healthcare-related companies, making it a hub for life sciences.

Unlike Madrid and Cataluña, Andalucía follows a different pattern, where "Industrial & Energy" plays a more prominent role. In Andalucía, "Technology & Telecommunications" leads with 51 listings, but "Industrial & Energy" comes second with 14 listings, surpassing "Finance & Consulting" with 8 listings.



Comunidad Valenciana shows a similar trend, where "Industrial & Energy" surpasses "Finance & Consulting" as the second-largest sector, with 19 listings compared to 11.

In contrast, País Vasco presents a different economic focus, where "Industrial & Energy" is the leading sector with 17 listings, ahead of "Technology & Telecommunications" and "Finance & Consulting." This highlights País Vasco's strong industrial base, with energy playing a crucial role in its regional economy.

In summary, while "Technology & Telecommunications" remains the dominant sector across Spain, the second and third most relevant categories vary significantly depending on the region's economic focus. Cataluña stands out with its healthcare-driven demand, while regions like Andalucía, Comunidad Valenciana, and País Vasco prioritize industrial and energy sectors, reflecting their respective regional strengths.

**Figure 4:** A) Geospatial distribution of job listings across Spain. B) Breakdown of job categories by region, highlighting variations in demand between Madrid, Cataluña, and other regions.





# Discussion

This analysis not only pinpoints high-demand regions and sectors for Product Lifecycle Management (PLM) and digital transformation professionals but also offers a roadmap for how consulting firms can optimize their market positioning. By utilizing a flexible combination of manual expertise and semi-automated techniques, the study provides actionable insights for targeted business strategies across Spain and the European Union.

However, the analysis could be taken a step further by diving deeper into high-demand categories like "Technology & Telecommunications." Within this sector, further segmentation could reveal niche opportunities. For instance, breaking down the listings by subcategories such as "Cloud Computing," "5G Development," or "Cybersecurity" would allow consulting firms to offer highly tailored solutions aligned with emerging technological trends. This granular approach can help firms specialize and target industries that are experiencing exponential growth, improving their competitive edge.

Additionally, by leveraging advanced data analytics, consulting firms can track not only where job offers are concentrated but also identify trends in required skills, certifications, and technological expertise. This information could help firms fine-tune their service offerings to meet the evolving needs of clients, particularly in regions like Germany and France, where technological innovation is accelerating. In Spain, focusing on underexplored regions like Comunidad Valenciana and Andalucía presents a chance to capture market share in less saturated environments while maintaining a foothold in major hubs like Madrid and Barcelona.

Ultimately, this flexible and data-driven methodology allows consulting firms to continually refine their market strategies, adapting to shifts in demand. By customizing the approach with additional layers of filtering—based on sectors, subcategories, or even skill sets—businesses can offer more precise and effective solutions. The robust dataset generated, combined with geospatial and sector-specific insights, equips firms with the strategic tools necessary to identify new opportunities and sustain long-term growth in the PLM and digital transformation markets.

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