Caden Goodwin

AI's Impact on the job market

Central Business Problem: How is artificial intelligence (AI) impacting various job roles across different domains, and what does this imply for the future of these professions? What can professions do to adapt?

Some Central Hypothesis:

- **What industries are most affected by AI?**
- **How much are jobs being impacted right now?**
- **Are AI Impacted jobs what we expect, or are human centric jobs getting replaced too?**

Variables:

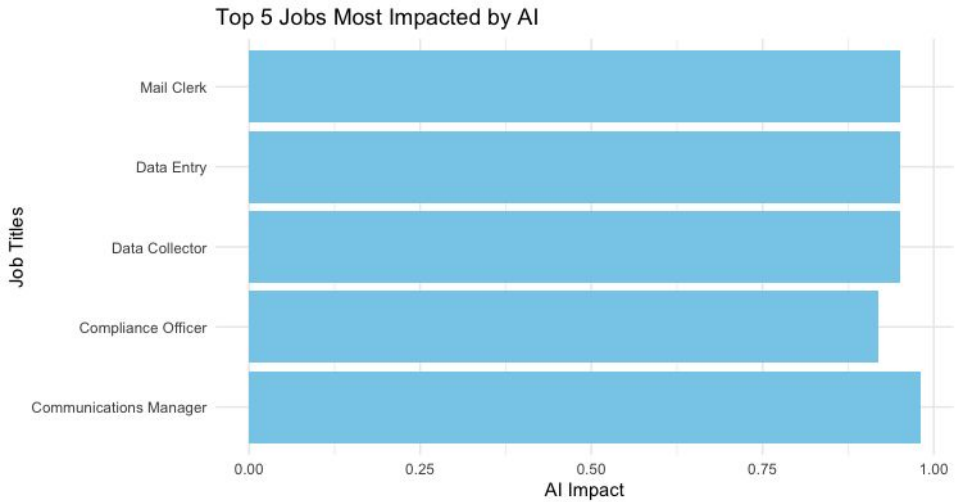
- Job titles
- AI Impact
- Tasks
- AI models
- AI_Workload_Ratio
- Domain

- 4,706 rows
- 6 columns.

Data From Kaggle:
https://www.kaggle.com/datasets/manavgupta92/from-data-entry-to-ceo-the-ai-job-threat-index

#1 Top 5 AI Impacted Specific Jobs

- The job of a "Communications Manager" is observed to have the highest AI impact among the dataset which is surprising given you wouldn't think something like communication is being replaced.
- Jobs like "Data Collector", "Data Entry", and "Mail Clerk" also show significant impact from AI, which is intuitive given the nature of these roles being repetitive and data-oriented.
- The majority of the top impacted jobs fall within data management, communication, and clerical domains.

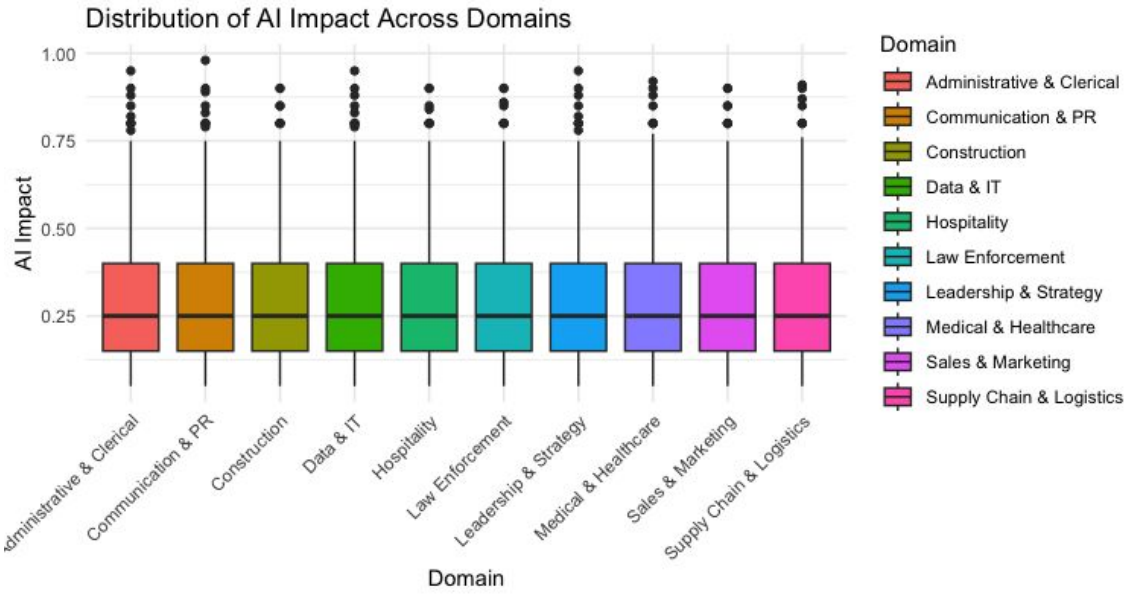


The roles that are most impacted by AI, according to the data, tend to be ones that involve repetitive tasks or data handling. This suggests that businesses in domains like Data & IT or Communication & PR should consider adapting their hiring strategies to those who know how to incorporate AI, since these roles might see substantial changes due to AI advancement.

#2 AI Impact Across Domains

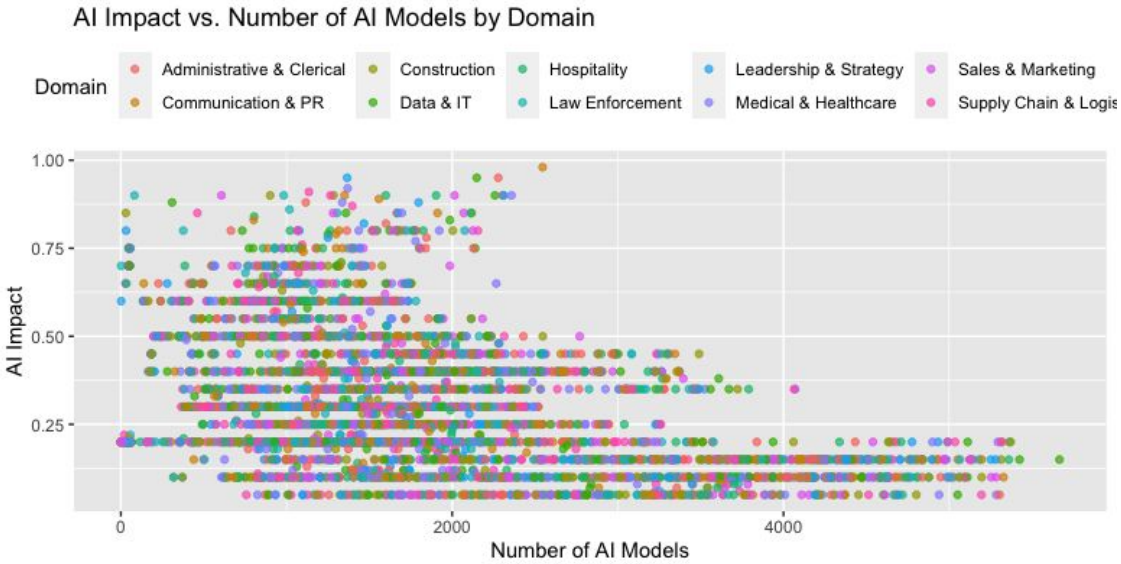
Different domains experience varying degrees of AI impact. While domains like "Data & IT" seem to be universally affected, others like "Communication & PR" have some points that indicate a much higher than average AI impact. That could mean that some roles in the communication & PR field are very replaceable (such as something like sending out mass emails) while others are not as impacted by AI such as public speaking.

Jobs can use this information to understand that some roles in their field are significantly impacted by AI, and try to find people who can utilize the technology to minimize time for employees in those highly impacted fields.



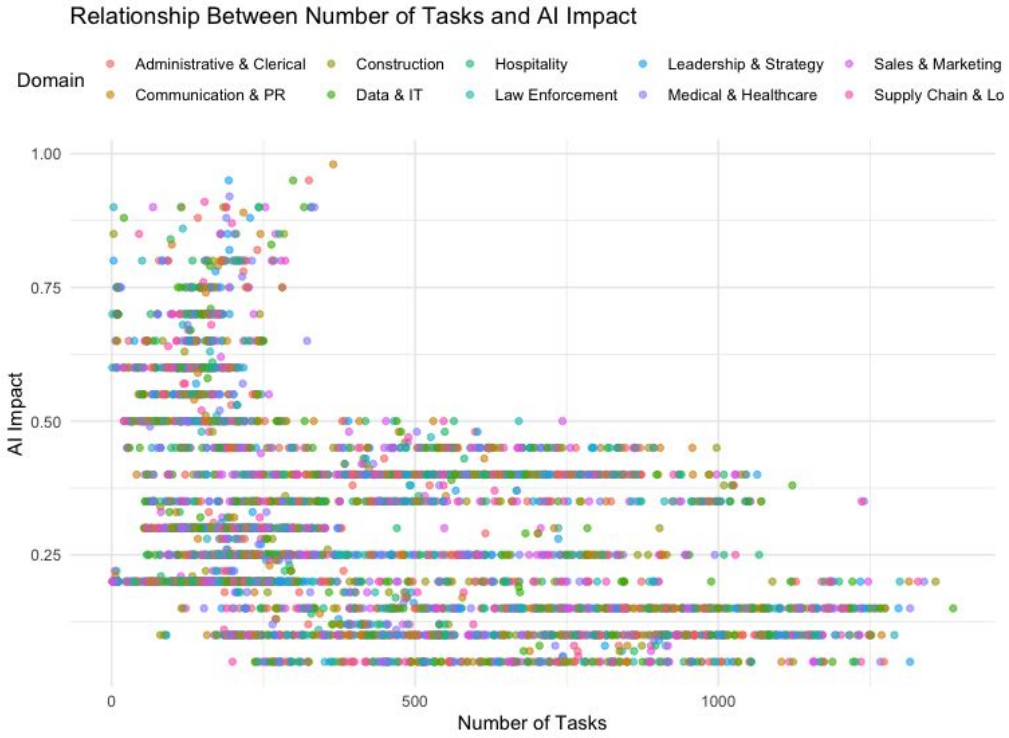
#3 AI Impact vs Models by Domain

- A general trend emerges where jobs associated with more AI models tend to have a higher AI impact. Although after around 2000 AI models, there starts to be less of a significant impact and less ai models to work with so there is a plateau.
- The Data & IT domain has roles associated with a larger number of AI models and also sees a high AI impact.
- Some jobs, especially in domains like Leadership & Strategy, are associated with fewer AI models but still have a considerable AI impact (As you can see in the top left of the graph), suggesting that even a single AI model might significantly influence certain roles.



Roles impacted by a large number of AI models might require a broader range of skills or adaptability in employees co-work with these technologies.

#4: Relationship Between ***Number of Tasks*** and AI Impact



- There doesn't seem to be a strong linear relationship between the number of tasks a job has and its AI impact. Some jobs definitely drop in AI impact when more tasks get involved (such as around 400 tasks the AI impact drops for some jobs), but the majority of the jobs (dots) stay around the 0.50 and are consistent even when there are more tasks.
- Jobs with both few and many tasks can have high AI impacts, suggesting that the complexity of the tasks, rather than their quantity, might play a more significant role in AI susceptibility.
- Because some jobs with a high number of tasks still have a high AI impact, that means that AI can potentially replace even the advanced, task heavy jobs.

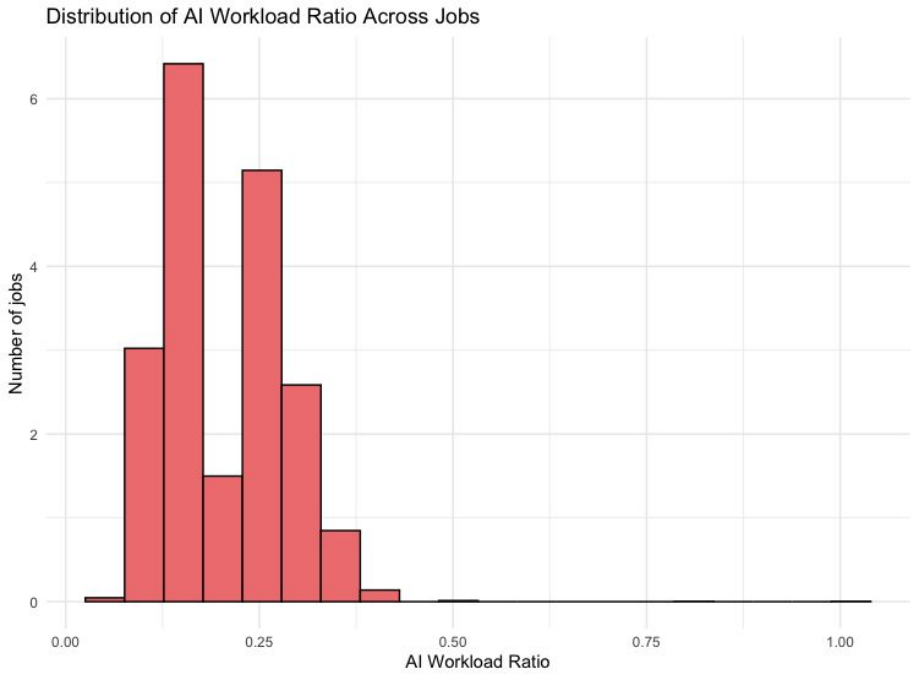
The number of tasks a job entails doesn't necessarily dictate its vulnerability to AI. This means businesses shouldn't solely rely on task quantity as a metric to determine the potential impact of AI on a role. Instead, the nature and complexity of these tasks should be considered.

#5 Distribution of AI Workload Ratio Across Jobs

- The majority of jobs have a low AI Workload Ratio, suggesting that for most roles as of now, only a small fraction of tasks are currently being handled by AI models.
- Few jobs have a higher AI Workload Ratio, indicating that AI is currently handling a significant portion of their tasks.

While AI has started to get into various job roles, its dominance in task handling is still limited for the majority. This presents an opportunity for businesses to explore AI adoption for automation in areas where AI's current role is minimal.

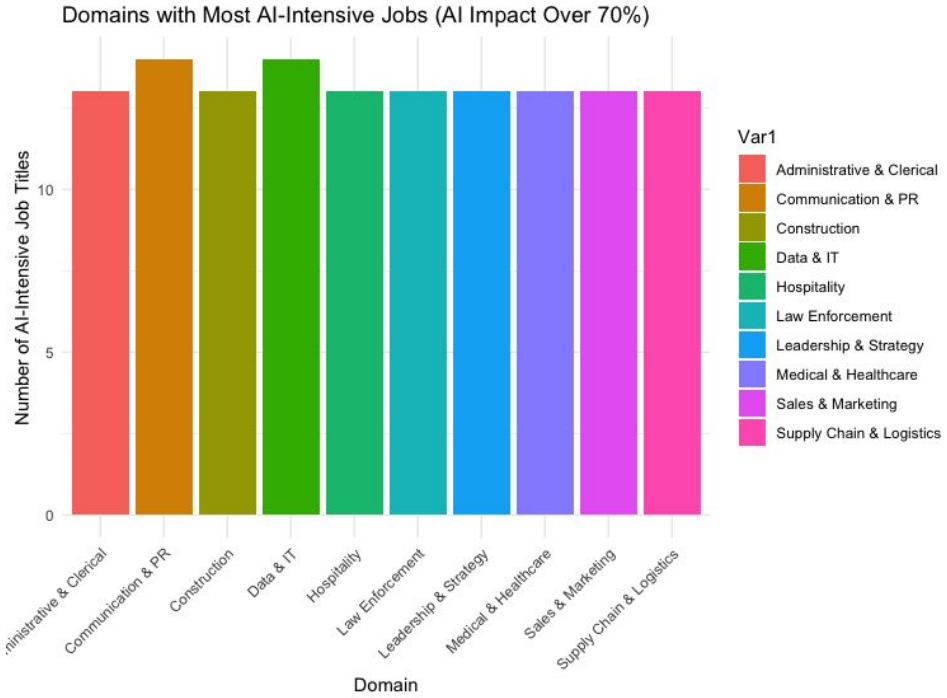
Jobs simply have not significantly implemented AI to drastic measures just yet. Most jobs have a ***AI workload ratio around ~20% from this graph***. Meaning ~20% of the average job is AI aided. But that is on average across all jobs



#6: Domains with Most AI-Intensive Jobs

- The "Data & IT" domain clearly stands out with the highest number of AI-intensive jobs. This is consistent with the notion that many data-related tasks can be automated or enhanced using AI.
- "Communication & PR" also has a notable number of AI-intensive roles, suggesting significant AI influence in these domains.
- On the other end, domains like "Medical & Healthcare" and "Law Enforcement" have fewer AI-intensive roles, indicating that many jobs in these sectors might still be predominantly human-driven.

Domains with a higher number of AI-intensive jobs may soon see shifts in their operations. Companies in these areas should be proactive in redefining roles, reskilling employees, and integrating AI solutions. On the other hand, domains with fewer AI-intensive roles might have longer to figure out how they will incorporate AI because they could be still very human oriented, such as law enforcement.

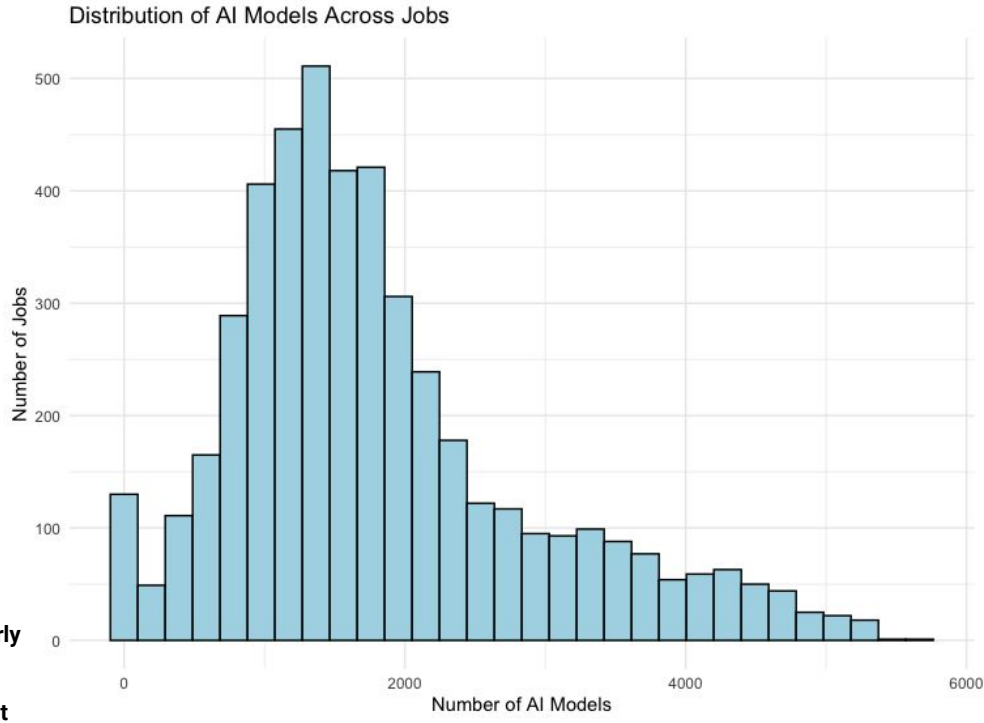


#7 Distribution of AI Models Across Jobs

- There's still a significant number of jobs still have between 0 to 100 AI models associated with them, as you can see in the first bar, indicating that some roles still currently utilize a very limited set of AI models.

- As the number of AI models increases, after about 1700 models, the number of jobs that utilize them decreases. This suggests that fewer jobs are heavily saturated with AI models (2000+ trained models for a job being a lot as of now).

- The majority of jobs have less than 2000 AI models trained but despite this AI has had a significant impact (shown in the other graphs). This is a testament to how powerful AI is even with a small amount of models. It makes you think how much it would impact it if more jobs had more models trained.



The majority of jobs utilize a small number of AI models, potentially highlighting the early stages of AI adoption in many roles. However, there are roles with a high number of associated AI models indicates that some jobs are already very integrated with AI. As businesses consider AI adoption, understanding this distribution can help find roles that have a potential for increased AI integration, as well as roles that might already be at the peak of AI saturation.

Answering the business problem

- **Central Business Problem: How is artificial intelligence (AI) impacting various job roles across different domains, and what does this imply for the future of these professions? What can professions do to adapt?**

AI is impacting different domains in many different ways. Some are not being impacted as others, while some industries are surprisingly being impacted by AI. However, AI is still early and it's been shown that even with the amount of models we have now it has significantly impacted the workforce. So it's safe to say that every industry will be impacted, just some will be impacted first and others will come later. Professions should see this trend, realize their industry can incorporate AI, and get people who know how to work with this technology to minimize workload and maximize efficiency. From this dataset I realized all jobs will be heavily impacted by AI and our future will be most likely working with AI so we should be learning the skills of utilizing AI.